The Intersection of Quantum and Biopharmaceuticals Jobs Report 2025:

A look into the industrial niche cross-section and the labor pool availability in the Sacramento Valley

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Header images provided by Kirk McGregor under license by Iff Technologies
Photographic locations (*in order of appearance*):
UC Davis Arboretum Putah Creek Lodge and Bridge, Davis, CA
UC Davis western campus development area, Davis, CA
Black Butte, Siskiyou County, CA
The UC Davis Dairy Teaching and Research Facility, Davis, CA
Bridge #3, UC Davis Arboretum, Davis, CA
Great Blue Heron, UC Davis, Arboretum, Davis, CA
Putah Creek, UC Davis, Arboretum, Davis, CA

Disclaimer: No Large Language Model (LLMs) tools, such as chatGPT, Anthropic, Claude, Gemini, *etc*. or knowably any other machine learning software were used in the writing of this report.

Executive Summary

In 2025, If and Only If (Iff) Technologies conducted an industrial and academic survey to develop an internal report detailing the industrial niches that exist in the biopharma sector around hiring and talent development in the field - specifically around the number of existing jobs in the biopharma sector that could require the modeling of quantum chemistry methodologies, the application of quantum information science, and the usage of quantum devices (both in sensing and in compute), as well as in the quantum information science and quantum device manufacturing niches of the information technology industry sector that require biopharma expertise.

Iff specifically investigated the following geographical restrictions to answer the following:

1. How many jobs exist at the intersection of quantum and biopharma worldwide?
2. How many people exclusively in the Sacramento Valley region - the capital region of California and of Iff's first clients and founding - are aptly suited to work in jobs related to the intersection of quantum and biopharma?

To conduct this report, we completed a search of numerous job posting sites, including the career pages of QED-C/Pistoia Alliance/QuPharm Community of Interest members, across a set of keywords that included overlaps between quantum and biopharma to find relevant jobs at this intersection, reviewed course catalogs at Sacramento Valley universities and colleges with the same keywords to identify quantum- and biopharma-relevant courses and majors, and reviewed LinkedIn profiles of companies with offices in the region with the same keywords or identify local talent.

Key Findings

In doing this exhaustive search during the Q1-Q3 2025 investigation time period, we found that there were *122 jobs*, *62 courses*, and *1,460 current employees* in the Sacramento Valley region that fit the quantum and biopharma overlap. Some interesting examples include:

★ An AI Research Scientist role at 1910 Genetics that specifically listed Azure Quantum as a skill requirement;

★ The Special topics in Bioinformatics & Computational Biology course at UC Davis;

★ A Field Service Engineer III, Chromatography at Thermo Fisher based in Rancho Cordova, CA.

Therefore, it would appear that there is an ample labor supply in the region, but that globally there are still far too few roles to hire these potential candidates. These add significant context to Sacramento Valley's integration with the Northern California Megaregion's competitively-intensive biotechnology and quantum manufacturing ecosystems.

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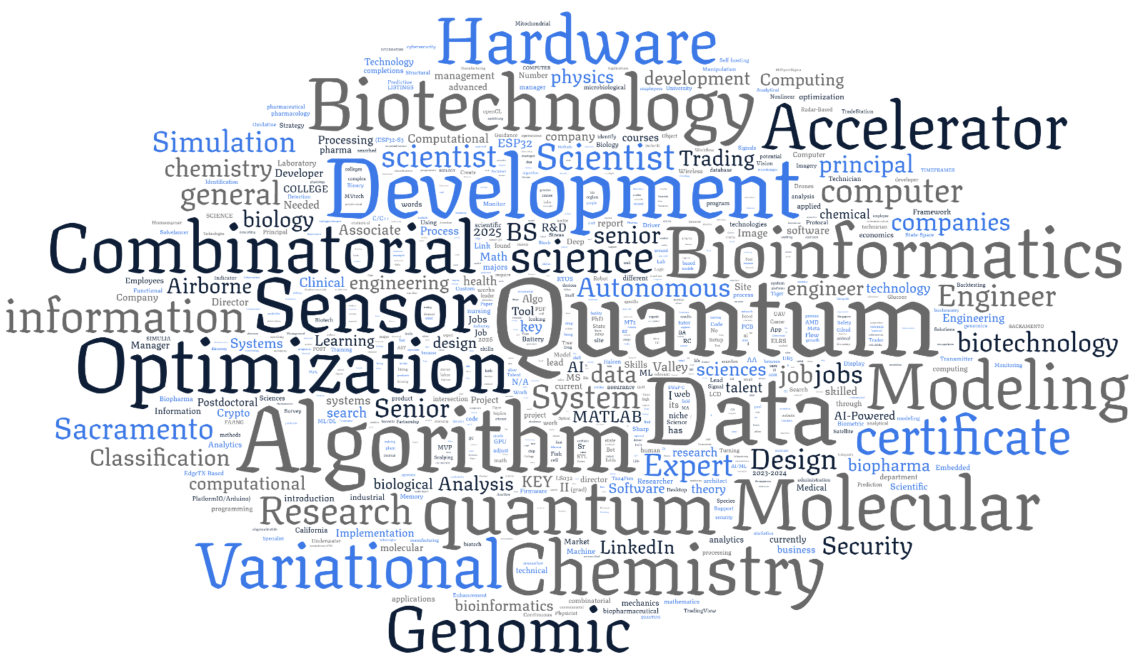


Figure 1: *Word Cloud generated of top 951 words in this report*
(Top 10: Quantum 305; Data 161; Algorithm 155; Development 142; Optimization 130; Sensor 129; Biotechnology 125; Bioinformatics 122; Chemistry 122; Molecular 121)

Background

The use of quantum chemistry, quantum information science, and quantum devices in both research and development ecosystems across various industries is growing and improving rapidly. Their applications within the biopharmaceutical field are currently being discovered and developed, with a long history of research. Quantum technologies have the potential to be more efficient than classical methods and save companies time and resources in their drug discovery and development tasks. Many technologies are still in developmental phases, some of which are starting to be used more practically. For example, in a report written by the Quantum Economic Development Consortium (QED-C) titled “Quantum Sensing for Biomedical Applications”, one technology that has been developed is “quantum imaging using entangled photons and squeezed light,” which essentially reduces the uncertainty of measurement in a certain phase of light; this enhances image precision and can be applied to cell imaging without the use of dyes to label cells. This method also utilizes fewer photons to create images than classical methods [1]. Other quantum information science approaches, such as quantum algorithms like Grover’s Search algorithm applied programmatically on a quantum processing unit (QPU), are being developed by researchers to predict optimal outcomes in various biological applications. For example, Grover’s Search algorithm utilizes amplitude amplification and is used to model things such as protein interactions and metabolic networks [2]. This would theoretically allow for more fine-tuned determinations at a faster speed due to the improved computational complexity of Grover’s Search algorithm, which could have far-reaching efforts in initial drug discovery experiment design and clinical endpoint determination. Current developmental efforts surrounding Grover’s Search algorithm include building software around the QPU-interfacing platforms that can run the algorithm. There is currently no Grover's Search-based software that one can immediately use in biopharma off-the-shelf; this lack of quantum algorithm integration development is recapitulated in other formats as well.

Even though direct applications of quantum information science and quantum devices are only beginning to be marketed and sold, there have been efforts towards developing a quantum workforce separate of any specific industrial use case. For example, a recent report by Goorney *et al*ia [3] used a set of LLM-based tools to compile and analyze a set of 3,461 jobs in the quantum industrial niche, focusing on

jobs in the following areas: compilation and simulation, hardware and materials, communications, and sensing and metrology. The report also concluded that, due to a small number of startups and mid-size companies hiring in these areas and a high demand for PhD student talent, quantum technologies are still hamstrung against broader integration. Additionally, there was also a recent McKinsey report from on the Quantum in Life Sciences market focus [4] that highlighted a number of potential use case areas for quantum technologies in the life sciences sector broadly, and identified current examples of investment into the field by large scale biopharma companies, such as between AstraZeneca, Amazon Web Services, IonQ, and NVIDIA towards quantum computational modeling, and recommended that biopharma companies invest in human capital for quantum computing applications.

Figure 2: Word cloud of keywords used in this report's platform and database searches.

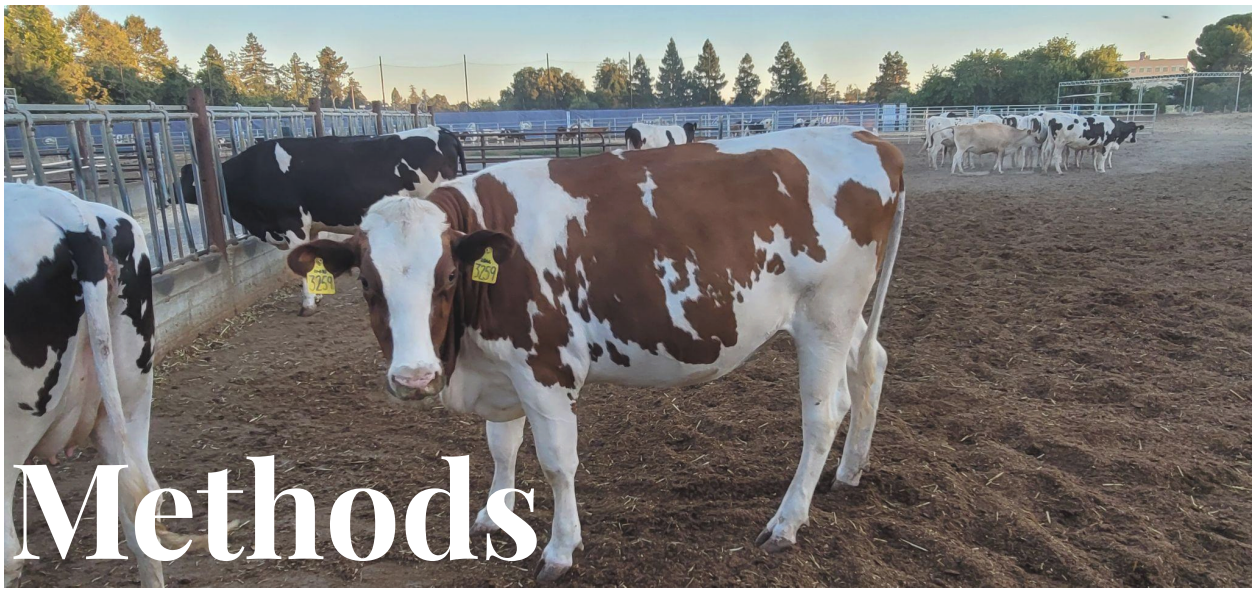
Motivation

If and Only If (Iff) Technologies is a company originally formed at the University of California, Davis located within the Sacramento Valley; Iff consulting in, and develops tools for, application in biopharmaceutical research and development fields. Iff's focus is at the intersection of quantum and bioinformatics, more specifically looking at the development and scaling of biologic products using quantum-based approaches to solve the pressing needs of today's clinically-ill patients. The intersection of quantum and biopharmaceutical niches is often difficult to explicitly discover in the job and talent market. Iff Technologies has developed this research report to quantify the availability of jobs in this growing niche worldwide, and the number of qualified individuals ready to work in this niche in the Sacramento Valley.

Looking at the California Economic Development Department's Occupation Profile for the Biochemists and Biophysicists Occupation, there are 12,208 Scientific Research and Development organizations and 918 Pharmaceutical Manufacturing organizations in Sacramento County alone hiring 50% and 7% of the state's total workforce for this role, respectively [33]. Moreover, according to the Sacramento Biotech Collaborative in its July 2025 webinar, [5] there are 10,390 total life science jobs predicted to exist in the Sacramento area by 2026 and a yearly growth of 21.2% of these roles. With a total number of life science jobs of roughly 72,000, based on Q1 2025 data from Biospace [14], to exist in 2026 in the United States [6], Sacramento would represent roughly 1.5% of total biopharma jobs in the United States. Considering the biopharma industry's potential CAGR of 15% [7] and the recently reported growth of the overall cross-sector quantum niche of 25% [8], it would appear that quantum in biopharma is not only a specific industrial focus that is likely already occupationally-targeted by global biopharma entities in the Sacramento area, but also is one of tremendous interest for the global economy.

Therefore, the purpose of this report was to discover whether or not companies should search for talent in the Sacramento Valley, as well as whether qualified individuals in the Sacramento Valley are able to pursue these jobs in the current market. Iff Technologies believes that there exist numerous companies looking to hire

and conduct their commercial business using quantum chemistry, quantum information science, and/or quantum devices and their uses in biopharma oriented work, and there is a labor pool in the Sacramento Valley that can address the needs of companies looking to hire at the intersection of quantum and biopharma.



Methods

Defining The Sacramento Valley

For the working definition of this report, we defined The Sacramento Valley to include the counties of Yolo, Sacramento, Sutter, Colusa, Butte, Glenn, Tehama, Shasta, and Yuba; this excluded other Sacramento megaregion/Gold counties such as Plumas, Sierra, Nevada, Placer, El Dorado, and Amador that extended too far into the Sierra Nevada Foothills. In the Job search methods, LinkedIn already had a predefined definition of the greater Sacramento Area; we could not entirely clarify what the geographical ranges of this predefined definition were, but we were able to ascertain that it excluded regions that were distinctively not in the Sacramento Valley that were generally within the Northern California Megaregion and associated geographical area (e.g., Humboldt Tech in Eureka, San Joaquin Valley Area municipalities, Reno-Tahoe Area, Solano County-Bay Area megaregion).

Job Searches on Online Website Platforms

We conducted a simple job search using combinations of key words related to quantum computing, quantum chemistry, quantum algorithms, bioinformatics, and biosensing on several different job search platforms. We completed this type of search because we wanted to identify jobs in both the technology and the life science sectors that overlap between quantum and biopharma. We created fresh accounts on all sites except Handshake and LinkedIn. We attempted to set up a blank Catalant account and were rejected twice. Physicsworld did not require an account. While Ziprecruiter and Glassdoor enforced a “United States Only” filter and Wellfound enforced a “North America” filter, most sites allowed global searches. We tried to standardize the key words across all sites, but some did not allow free searching or did not filter searches to include both of the mentioned key words. See Appendix B

for key word lists and results from each site. Freelancer and Kolabtree specifically did not allow free searching, so we tried to keep words close to the subject matters we were searching for. For those that did not filter searches to include both key words and ended up showing an extensive list of jobs, such as Physicsworld, Handshake, Wellfound, Ziprecruiter, and Kolabtree, we selected ten listings per job site that showed some relevance towards the niche. For Glassdoor, we conducted the first few key word searches and were given multiple pages of results. We created tables showing which jobs appeared on each job search site and the words used to search.

Job platforms referenced, reviewed, and investigated may or may not utilize machine learning applications; job platforms referenced are not transparent concerning machine learning implementation in construction, maintenance, or operations. Warranties cannot be guaranteed concerning non-implementation of machine learning in job platforms' performance.

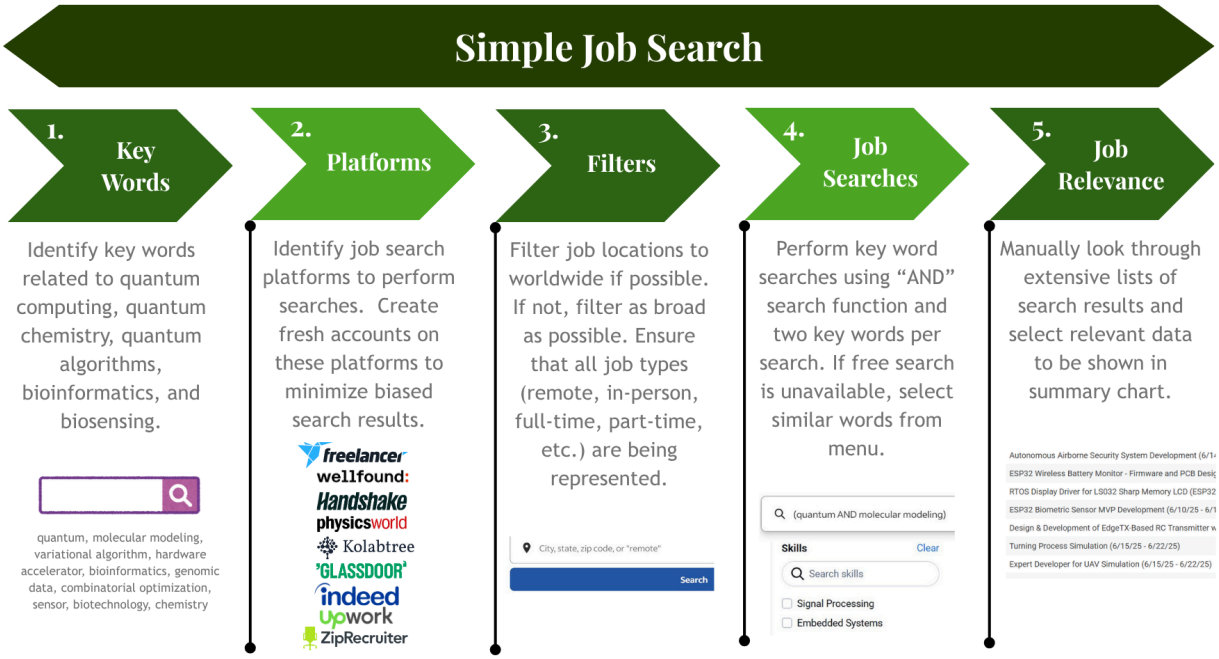


Figure 4: Methodologies used to find initial set of jobs in "Simple Job Search".

California State University, Sacramento - Alumni in Biopharma

We also tried to contact California State University, Sacramento alumni who work in biopharmaceutical companies. After looking through the Alumni Association and Career Center pages, no connections were found in this niche. We searched for alumni in the biopharmaceutical field on LinkedIn, and reached out for interviews regarding their positions, companies, and their companies' interests in quantum.

From MilliporeSigma at their previously-held Rocklin, CA office, the life sciences branch of Merck KgA, we contacted a current Sacramento State student. This student was able to secure a lab technician position at MilliporeSigma without a completed college degree, with a focus on antibody packaging. He found the job through Indeed and was trained on site. He believes that the Protein Buffers Department at MilliporeSigma would benefit greatly from quantum. MilliporeSigma is

now rehiring this team in St. Louis, Missouri [9-10] (see Discussion for further comments).

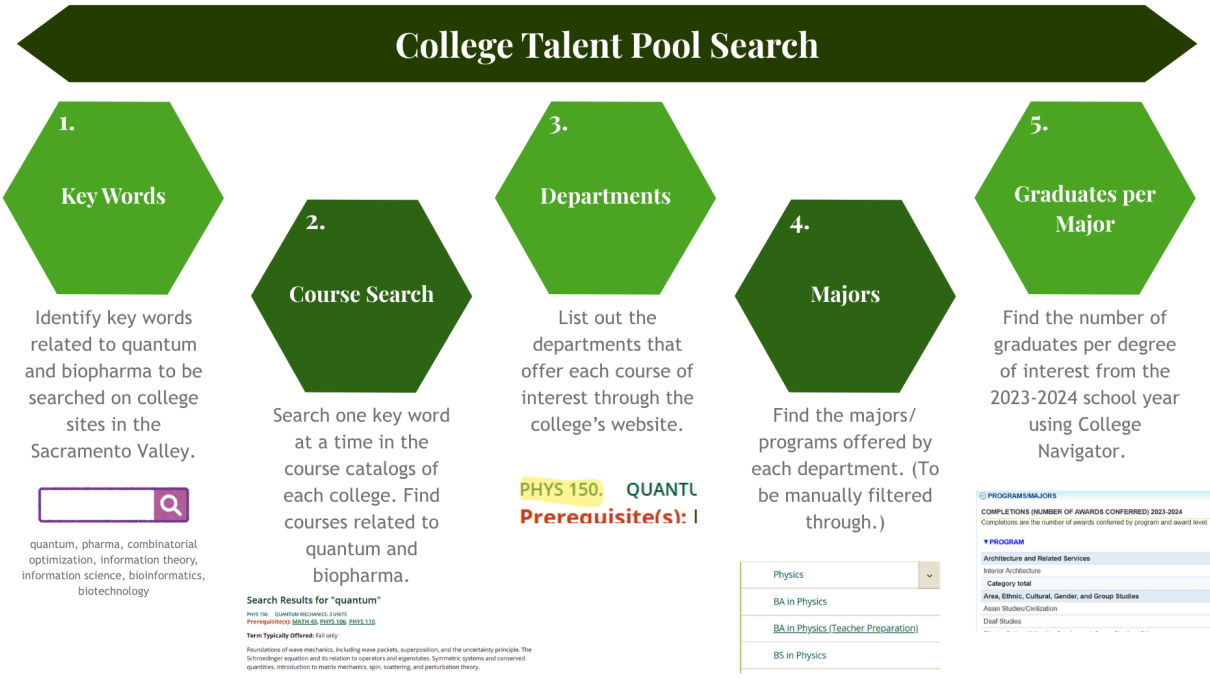


Figure 5: Completion of course review across the colleges in the Sacramento Valley, including University of California, California State University, and Community College courses, for those that matched the keyword list compiled for "quantum" and "biopharma".

Identifying Talent Pool in the Sacramento Valley

In order to identify the talent pool in our specified niche within the Sacramento Valley, we first searched single key words on the course catalogs of colleges within the Sacramento Valley. Single key words were more effective than multiple key words in this case because courses offered by colleges are typically more broad than the fields they are able to align with. In the case of community colleges, we were only able to search for the upcoming Fall 2025 semester. We were able to identify which departments offered courses related to our field of study. Then, we looked into which majors and certifications were offered by the departments of interest. We used a site called College Navigator [11] to search for how many students completed these programs in the 2023-2024 school year. There were some discrepancies between the majors and certifications listed on each college's website and the ones listed on College Navigator. If a certain major from the college's website was completely unlisted on College Navigator, we were unable to list completion numbers. If, however, there was a very similar major listed on the site, we included information for that major. We noted down the total numbers of completions for each program or major.

We looked into people currently living in the Sacramento Valley who are skilled at quantum and biopharma, but who may not have studied in the region. To do so, we found several companies that may have hired within the Sacramento Valley, including companies involved in the Sacramento Biotech Partnership and PhRMA. We searched

these companies on LinkedIn and found people associated with the companies who were living in the Sacramento Valley. We also searched for talent at other potential companies of interest. The LinkedIn skill search feature was limiting, but we filtered by "What they do" and then searched for "What they are skilled at" related to quantum or biopharma to identify potential talent.

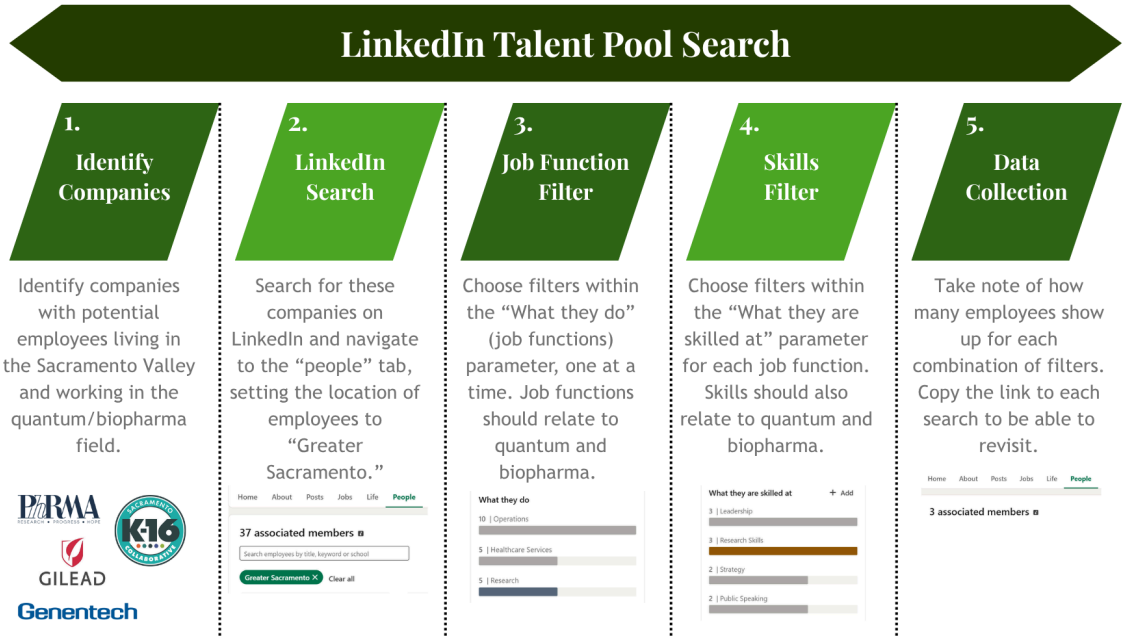


Figure 6: Completion of LinkedIn review of pre-selected companies with interests in the Information Technology and Biopharma Sectors with Sacramento offices for roles that matched the keyword list that was created for "quantum" and "biopharma" to identify local talent that fit at the intersection of these niches.

Figure 7: Word cloud of local Sacramento Valley Colleges and Universities researched in this report.

Simple Job Search

The simple job search resulted in 122 jobs that were directly at the intersection of quantum and biopharma. These results can be found in Appendix C.

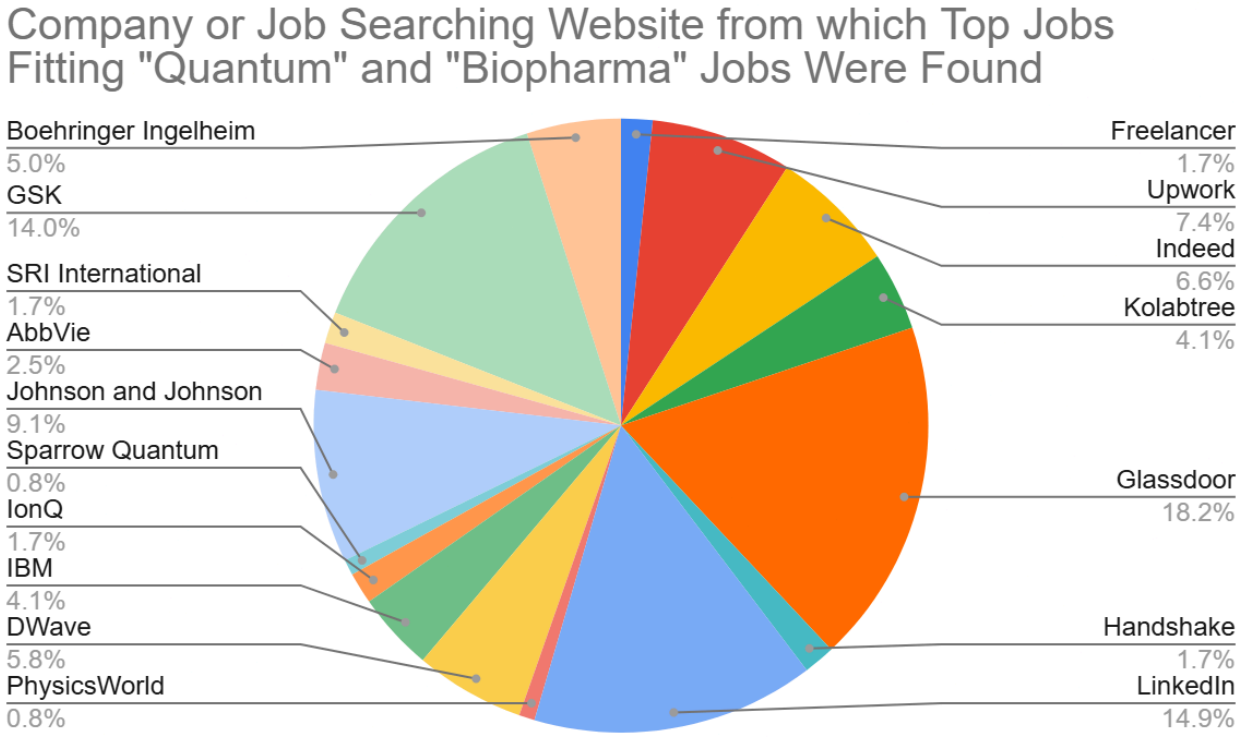


Figure 8: Sites from where we selected 122 jobs at the intersection of “quantum” and “biopharma” keywords were found.

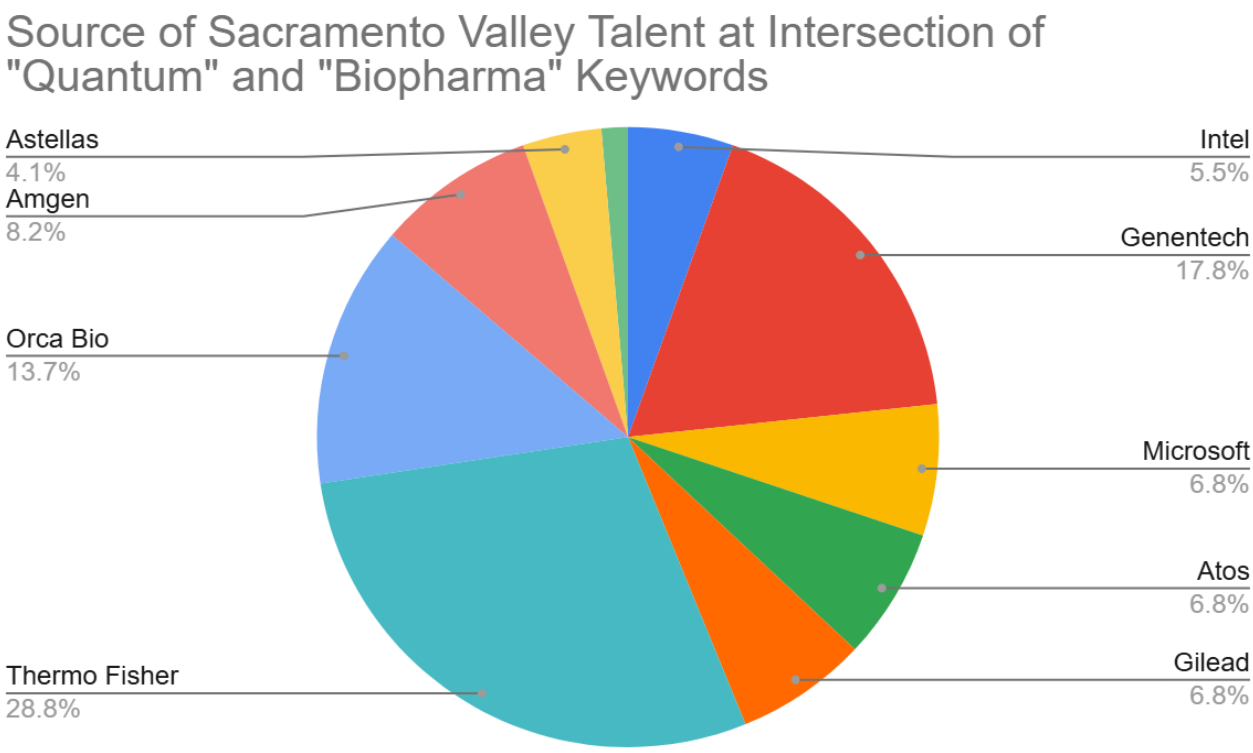


Figure 9: Sources of Sacramento Valley labor pool with skills and/or job responsibilities that fit the keyword list of “quantum” and “biopharma”.

Companies Interested in Quantum in Pharma

One employee we reached out to at Veeva Systems expressed that his company was not interested in quantum at the moment. An employee at Merck KgA discussed that his company does have employees working on quantum chemistry, and also currently engages in internship programs that hire quantum researchers, especially Masters and PhD students. An employee at D-Wave referred us to her company’s career page and stated that the company currently has several positions open in quantum. The Pistoia Alliance, a member-led consortium composed of several pharma and tech companies, is also not currently hiring in quantum according to our discussions with an employee. See Appendix C for jobs found on each of the webpages for the Pistoia Alliance/QED-C/QuPharm Community of Interest, and the key words used to find them.

Figure 10: Word cloud of companies at the cross-section of quantum and biopharma in the Sacramento Valley County constituencies.

California State University, Sacramento - Alumni in Biopharma

In one interview with a Sacramento State University alumni who worked at Gilead Sciences until very recently, we asked if the interviewee thought quantum information science based or quantum device based technologies would be useful in his work. He stated that it would be applicable in early drug discovery because the company is currently wasting a lot of time and resources on manually finding optimal compounds. However, the interviewee expressed personal concerns about how viable and accessible quantum approaches are for big companies in their current states. These concerns stemmed from the overpromises made by Microsoft in regards to its quantum chip (i.e., “Majorana 1”). When asked if his company was currently hiring, he briefly discussed lay-offs but mentioned that they are also hiring a lot. Other interview questions included what his company works on, what he did in his company, and what kinds of devices were used. Throughout the interview, we learned that Gilead sciences produces antivirals, but is also beginning to move towards oncology (e.g., *via* Kite). Their current technologies and methods include high performance liquid chromatography (HPLC), gas chromatography (GC), microscopy, cell culture, mass spectroscopy, and particle size analysers (zeta sizers). These methods require employee set-up and some are very manual. The interviewee expressed that Gilead wants to move towards machine learning because current methods are basically “guess and check.” Another alumni we reached out to from Sutro Biopharma did not know about quantum, and we were unable to stay in contact. We also reached out to an alumni working at Bayer but were unable to schedule an interview during the research round of this report.

Talent Pool Identified in the Sacramento Valley

The LinkedIn talent search yielded a talent pool of 181 at the Sacramento Biotech Partnership, 13 at PhRMA member companies, and 1460 collectively at the other companies that we searched. We also identified 62 courses at 4 local universities that fit the quantum in biopharma niche.

Webinar by Sacramento Biotech Talent Partnership

The webinar hosted by the Sacramento Biotech Talent Partnership discussed the implementation of a project in which biotech companies would partner with colleges to produce relevant talent that has been trained in the skills these companies are searching for. This process is called “talent pipeline management”. Methods include projecting job demand and communicating job requirements to colleges. From this, potential talent can be trained more specifically in school for the biotech industry. This Biotech Partnership hopes to expand greatly in 2026-2027. Another noticeable topic from this webinar was that many biotech companies favor Sacramento due to its low-cost infrastructure, strong R&D in healthcare systems, and its talent providers.

Discussion

Job Sites

One job site that particularly caused issues was LinkedIn, although it did help in other research tasks. After several attempts to include LinkedIn job listings as quality data, we decided to set them aside. LinkedIn presents its search engine in different manners based on how it is accessed, and each manner lists different jobs and functions completely different. Some versions of the search engine did not clearly state if jobs were sponsored, some did not allow searches for multiple key words grouped, and some had mandatory location filters. Another reason for disregarding LinkedIn was that its listings were heavily targeted based on the account searching for jobs.

Course Search Uncertainty

Although the course search gave some idea of what is being taught in colleges, it comes with a certain amount of uncertainty. Course descriptions are often vague, around 3-4 sentences long. They often disclude some information being taught while including outdated information. The only sure way to know what is being taught in each course would be to attend the actual courses and observe.

LinkedIn Issues

The LinkedIn skill search when looking into talented people working in the Sacramento Valley had some flaws. LinkedIn only allowed a handful of skills to be searched, and very few of them were related to quantum or biopharma. Although we were able to find some talent through these searches, there may have been more that we were unable to find. Another flaw was that not everybody with a certain skill would have that skill specifically listed on their LinkedIn profile pages, and not everybody who is associated with a certain company would even have a LinkedIn account. This limited the technical thoroughness of the search.

Statement About Gilead's Oncology

Gilead Sciences, according to our interviewee, is currently working towards oncology. Upon further research through the company website, we found that Gilead has created a division called Kite Oncology to try and improve cancer care by combining therapies and technologies. They are also hoping to implement their antibody-drug conjugates in cancer therapy. Also on their website, they list three biological pathways they are currently using to target tumors. These pathways include

"[triggering] tumor-intrinsic cell death, [promoting] immune-mediated tumor killing, and [remodeling] the tumor-permissive microenvironment."[10] Clinical trials are currently ongoing for these methods and their corresponding medicines. This kind of development may require quantum chemical modeling methodologies at the least if *ab initio* modeling techniques are required [11].

SWaP-C and Trade-Offs

When selecting quantum sensors, the SWaP-C method is used to optimize results. SWaP-C includes considering scalability, ease of use, ease of system integration, size, weight, power, and cost. According to the QED-C, some of the trade-offs considered in SWaP-C include "signal-to-noise ratio, selectivity, and spatial resolution."[1] Another thing often examined within this method is how niche some technology is compared to the cost. If a technology is highly specific and also highly costly, companies may not invest in it. This current review did not reveal major insights into the SWaP-C required of quantum technologies by current biopharma companies, but we did find jobs, especially in optimization-related roles, that were oriented around this improving overall SWaP-C in machinery used in pharmaceutical/biologics manufacturing, thus indicating potential avenues of inquiry.

Example skills required in different jobs

It would appear that there are overlaps between different jobs that are in different sectors that do not overtly label themselves as quantum, yet were results that came up for each of our keywords.

For example, consider the role "Fixing a Protein's PDB Structure (Schrödinger)" posted on Upwork on May 22, 2025 that would appear to be from a life sciences researcher, given its focus on PDB) and the role "Quantum Life Science Chemist", which is posted by PsiQuantum, a quantum technology company, on Ziprecruiter. These may appear to be very different job postings, with the former more focused on protein structure improvement and the later more holistically focused on chemistry, including wet lab chemistry. However, Schrödinger, which is likely what was implied by "Schrödinger", is a software suite that includes numerous quantum and classical chemical modeling tools that are focused around protein modeling. Therefore, someone who has mastery in Schrödinger's platform and its toolings should potentially be a match for both jobs.

Sacramento Chip Manufacturing Sector crossover to Quantum

The Greater Sacramento area's chip manufacturing companies are large-scale and impactful, including but not limited to Bosch, Samsung, and Intel. The Greater Sacramento Economic Council states that this area has "*26 (times) more concentrated semiconductor growth capital than the U.S. average.*" Intel in particular has been able to manufacture a silicon spin qubit chip called Tunnel Falls, with the help of CMOS technology. This chip, according to the company website, has been made available for further research in quantum development [15]. The chip could potentially be a significant step towards developing a quantum computing system. Even common manufacturing approaches for CMOS are relevant for QPUs. Developments such as the first silicon photonic-electronic chip have been tested in

large-scale manufacturing [16], making them accessible and promising for the future of quantum computing systems. With the rapid development of quantum technologies, there must be a workforce and talent available to keep up and continue growth.

LLM Usage in Pharma

Some pharma companies have been showing interest in LLM technologies. Use cases of these technologies vary widely across companies, including usage as a decision-making tool at Moderna. LLMs are also involved in protein design at Amgen and R&D optimization at Pfizer [17]. LLM availability can be either internal for researchers' use or comprehensive "across business units" [18]. They also vary in how embedded they are within the work environment, ranging from conditions where companies have a specific "AI division" to companies that require all their research employees to be skilled at LLM usage. In the case of companies where all employees must be skilled in AI usage, such as AstraZeneca, there are certain competency plans in place to ensure employees know what they are doing. AstraZeneca's plan provides employee training episodes with knowledge about generative AI, how to leverage it, and its ethical use. The company's program results in certifications ranking from "bronze" to "platinum" and "diamond," based on skillset [19]. Other companies require biotech and computational biology hires to be skilled in AI usage without training, although conditional onboarding activities are unclear. This necessity of extra knowledge creates a divide in job availability, with many companies looking for senior-level workers and not investing in entry-level. 49% of hires in a study by Pharma Pay Watch were senior-level, whereas just 20% were entry-level [20]. The discrepancy between readily-available AI skills in biotech/computational biology and company demand has left a need for talent, specifically in computational areas that may overlap with quantum. In a survey of around 300 biopharma stakeholders in the U.S. and Europe, 30% of biopharma stakeholders are "early adopters" of investment in quantum computing, expecting it to be integrated in AI use and classical computing. 13% of the stakeholders currently use QC in their organizations [21].

Biopharma Market Context

Current "patent cliff" [22,23,24] navigation has also putatively affected company strategies, involving cost cuts as well as biopharma entities' aims for meaningful drug development in very short time frames [23] to offset theoretical profit loss from the development of generic drugs by other companies, with companies such as Gilead Sciences hoping to develop over 10 approved therapies by 2030. However, research into generics marketing after patent expiration has shown that brand creation and brand retention is much more important in ensuring long term profitability. For example, Humira has strong brand recognition and a different delivery mechanism to other biosimilars. Additionally, recent FDA changes have been making animal trials harder to get approved, allowing countries like China [25] to lead in licensing deals in 2025 due to their more relaxed restrictions of animal testing. The FDA regulations push *in vivo* or molecular research when it comes to complex human diseases and other issues due to human safety concerns and the ethics surrounding animal trials [26]. Due to the restricted allowance of animal studies, these biopharma companies have been shifting more towards products that can be modeled

with quantum chemistry, including antibody-drug conjugates and radiopharmaceuticals. This is where the use of methods that could provide a meaningful speedup while maintaining high accuracy of *in silico* modeling capabilities, such as Grover's Search and other quantum algorithms, are useful as well. This could create a high demand for quantum technology. The increased relevance of quantum in biopharma has created a job and talent niche that is often difficult to discover and identify.

Potential Solutions for Improving Hiring and Value Creation for Quantum in Biopharma

There need to be other, more-localized and also skill-specific means of finding talent beyond LinkedIn; the Sacramento Biotech Collaborative and Quantum Economic Development Consortium could be good potential avenues for doing this.

In terms of practical web interface improvements, it would be helpful if these types of websites had very clearly listed career portals that include things like student internships and certification programs. Another suggestion would be to list out job categories for people to search through with their own key words that associate with either the job title or the job description. One issue we ran into in our job search was that the searches were only filtering through job titles and not job descriptions on some sites. It would help to also show jobs directly related to the search, and then in a separate category towards the bottom of the page, jobs that are similar to the ones searched for. In terms of companies actively looking for talent, it may be helpful to include some sort of email service to register for through the company website. This service could allow users to enter their skills and be sent emails including new relevant job openings at the company and hyperlinks to apply. It could also serve as a company newsletter to bring interest towards the company's actions and achievements.

Some more holistic improvements for hiring would include clearly listing the skill sets needed for jobs and to highlight the company's values in the job postings. Collaboration with academic institutions is a step in the right direction in terms of value creation. One thing that not many biopharma companies do is attend career fairs. This gives future talent the chance to see what these companies are practically looking for, and to meet the employer first-hand. It would also be beneficial to these companies and their employees if employees were encouraged to pursue further education (e.g., advanced quantum chemistry modeling that would lead to greater quantum technology demand) while still working. Investing into talent would create value as a company and encourage employees to stay because there would be possibilities of growth within the company.

Potential Search Changes

1. Evaluate pay rate and cost of living for effectively finding meaningful paying jobs for the Sacramento talent pool globally given the cost of living in the Sacramento Valley;
2. Evaluate jobs that were not posted in English and on regional job boards in areas that do not have jobs in United States;

3. Archive every single job post to start developing a database of job postings to allow for longer time scale analysis in this industrial niche.

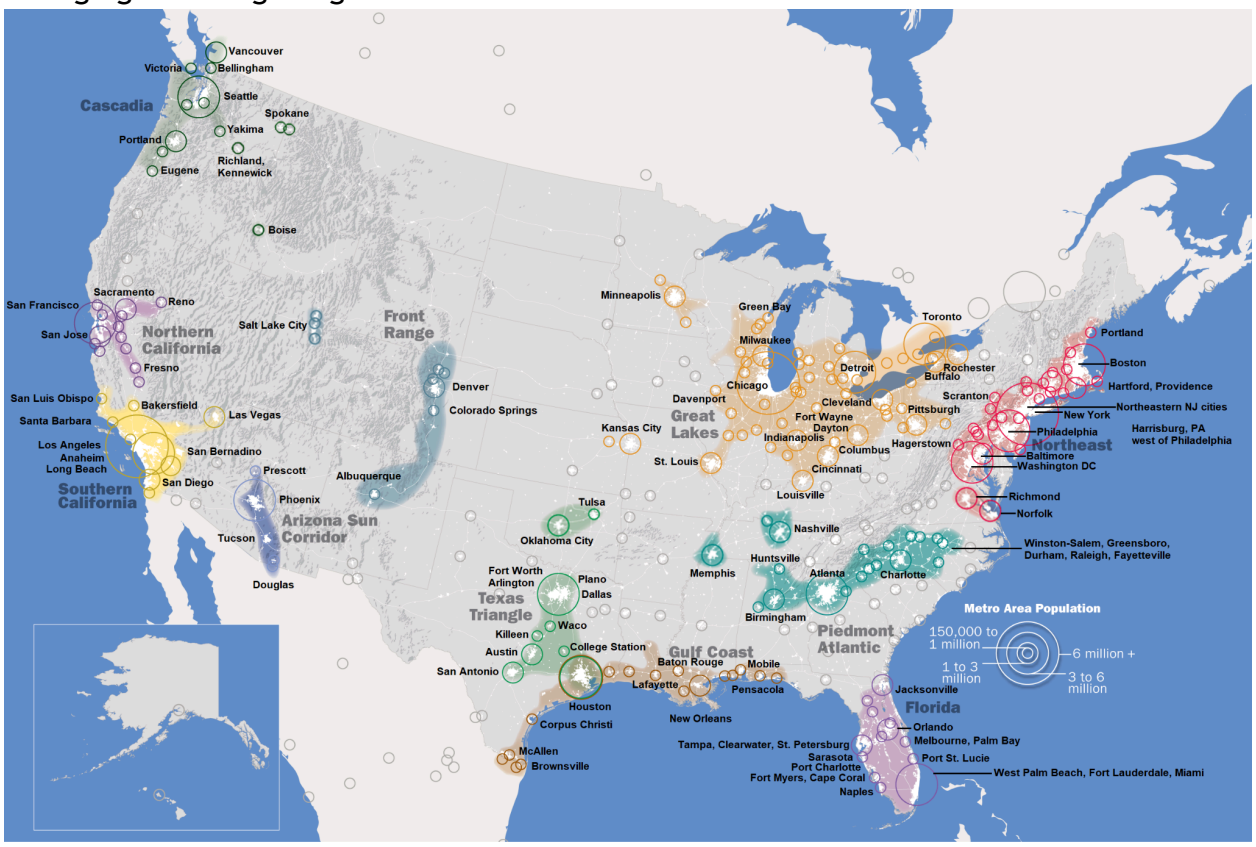
Integration of the Sacramento Valley with the Northern California Megaregion

The Northern California Megaregion (NCMR) comprises several megaregions of northern California collectively, specifically the San Francisco–Oakland Metropolitan Area, San Jose Metropolitan Area, the North Bay (Santa Rosa, Napa, Vallejo), the Northern San Joaquin Valley, the Yuba City Metropolitan Area, the Monterey Bay Area, and the Sacramento MSA that also includes the distantly-integrated Truckee μSA ("Micropolitan"); Truckee Meadow has been delisted and removed from current NCMR project descriptions due to several factors. While Truckee is largely included in the Sacramento MSA due to Highway 80 corridor, railroad, and county associations, Truckee is largely in-between Sacramento and the larger, separate Tahoe-Reno MSA that is on Nevada's side geographically.

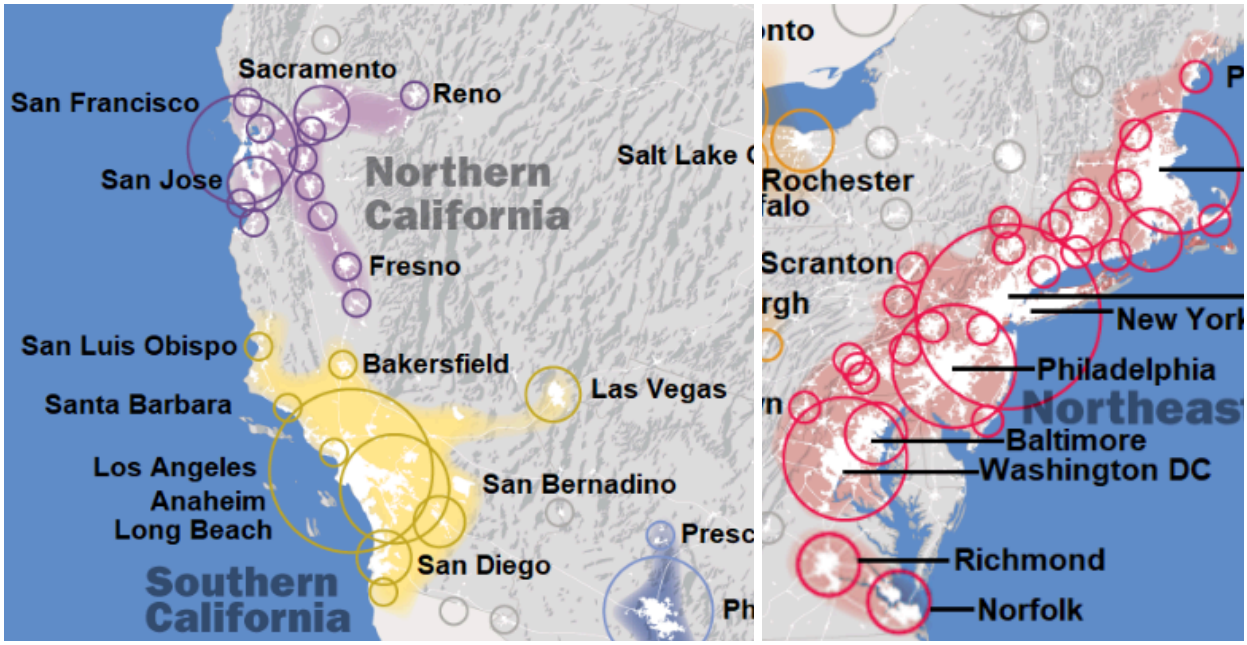
Sacramento's geographical integration buttressing the North Bay, Greater Bay, and Stockon's northern top of the San Joaquin Valley areas makes both promising logistical opportunities plausible but also indicates several detractions, namely competition by proximity, greater distance from the Bay Area's intense biotechnology sector, and because the Bay Area integrates and predominantly drives all of the NCMR activities. However, certain underutilized advantages, such as access to Marine Highways [27] and large scale freight management infrastructure, as well as lower earthquake and tsunami risks than other regions in California, can provide effective benefits for the entire West Coast economic region and greater United States, especially given the continued growth of the APAC pharmaceutical market with largely different cultural contexts for medicine approvals (e.g., Chinese medicine usage of Ashwagandha, spp. *Withania somnifera* [28]), continued global reliance on the FDA as a global standard for pharmaceutical review, and California's mission to develop a resilient pharmaceutical industry.

Moreover, there is a lack of effective communication about the biopharma industry in the region and appropriately stressing its strengths. For example, most recently, a number of pharmaceutical companies have announced investments into workforce development programs in Virginia. However, the goals are marginal as compared to Sacramento Valley and the Northern California Megaregion generally; the initial goal is to produce only 2000-2500 highly-trained professionals in this multi-billion dollar investment [29], alongside a current pharmaceutical manufacturing program that aims to issue 125 certifications after an investment of $5 million into essential active pharmaceutical ingredient development in Petersburg, Virginia [30]. This low jobs production figure is after the state of Virginia's outlay of over $10 million to each facility [31] that companies such as AstraZeneca are developing in Virginia, with a potential maximum grant of $191.3 million [32] to be offered. Our report clearly identifies there already exist over 1,500 people within the Sacramento Valley alone with quantum and biopharma overlap, which is a subsect of the larger biopharma industry. Current estimates around the actual demographic count of biopharma involvement in the region is to be infilled by the We Prosper program by the end of 2025.

Emerging U.S. Mega Regions

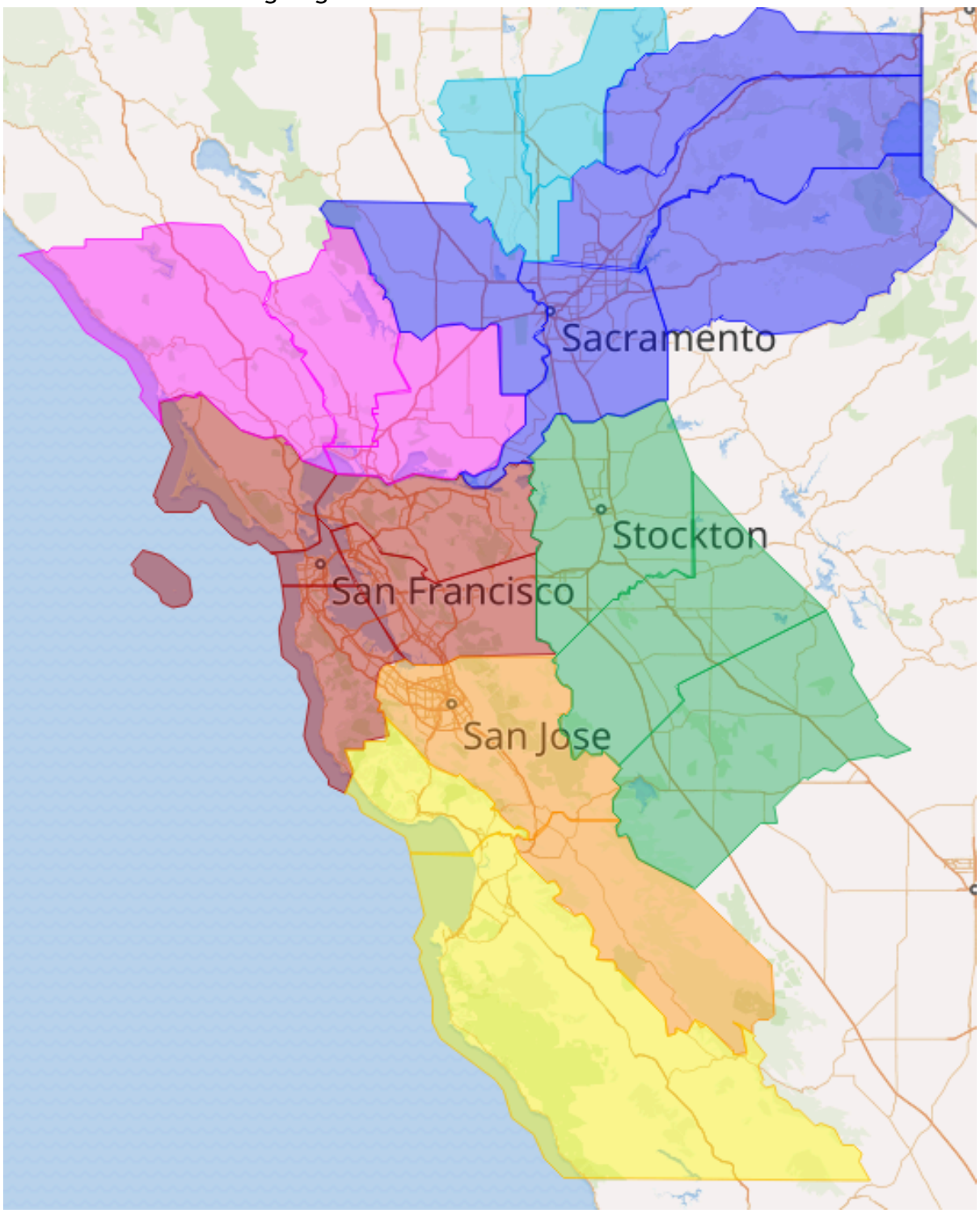


Eleven of the emerging megaregions within the United States according to the Regional Plan Association



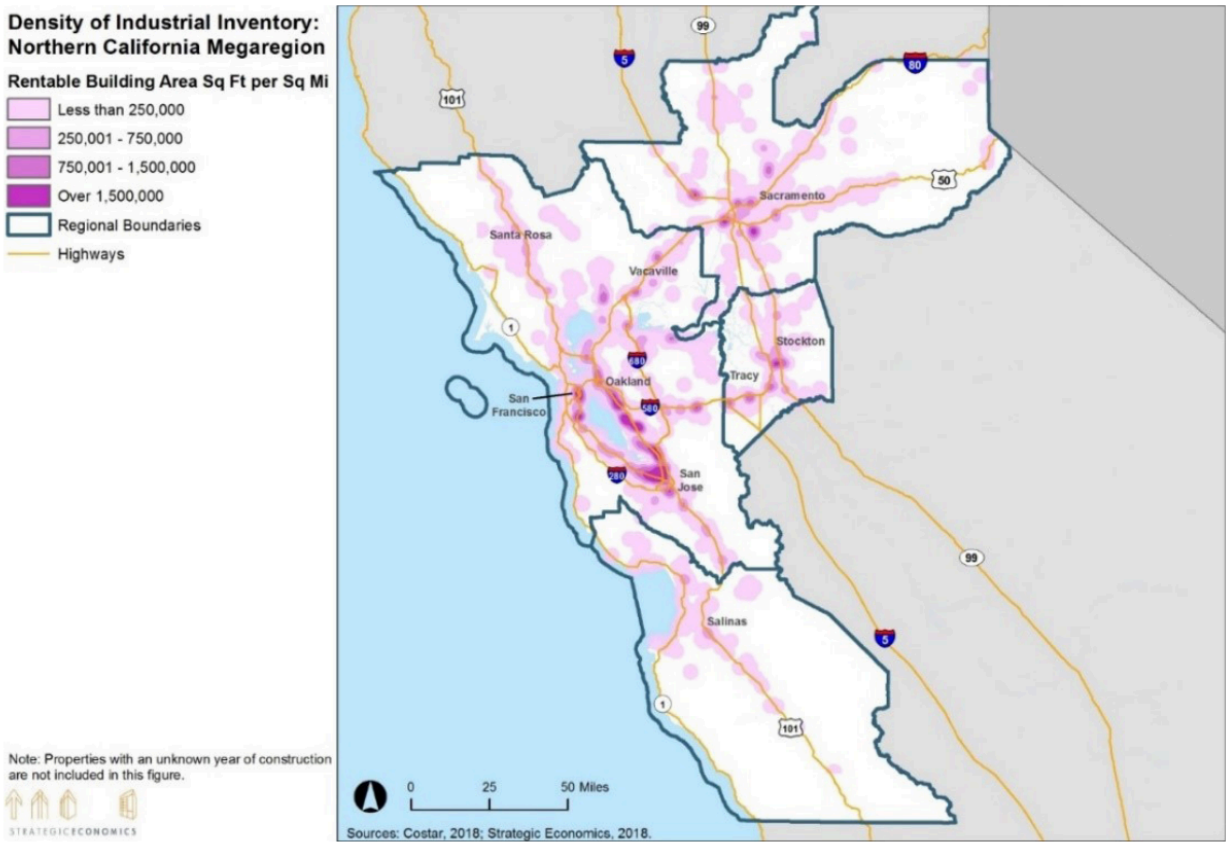
NorCal CA-99/I-80 Corridor and SoCal Megaregions contrasted with Norfolk-Richmond I-95 Corridor MSA and Eastern Seaboard Metroplex Megaregion (D.C.-to-Boston)

Northern California Megaregion



The expanding Northern California Megaregion, including San Francisco–Oakland Metropolitan Area San Jose Metropolitan Area; Sacramento MSA and Truckee μSA (Truckee Meadow has been delisted and removed from current NCMR project descriptions); North Bay (Santa Rosa, Napa, Vallejo); Northern San Joaquin Valley; Yuba City Metropolitan Area; Monterey Bay Area, as generated from Wikimedia Maps and OpenStreetMaps.

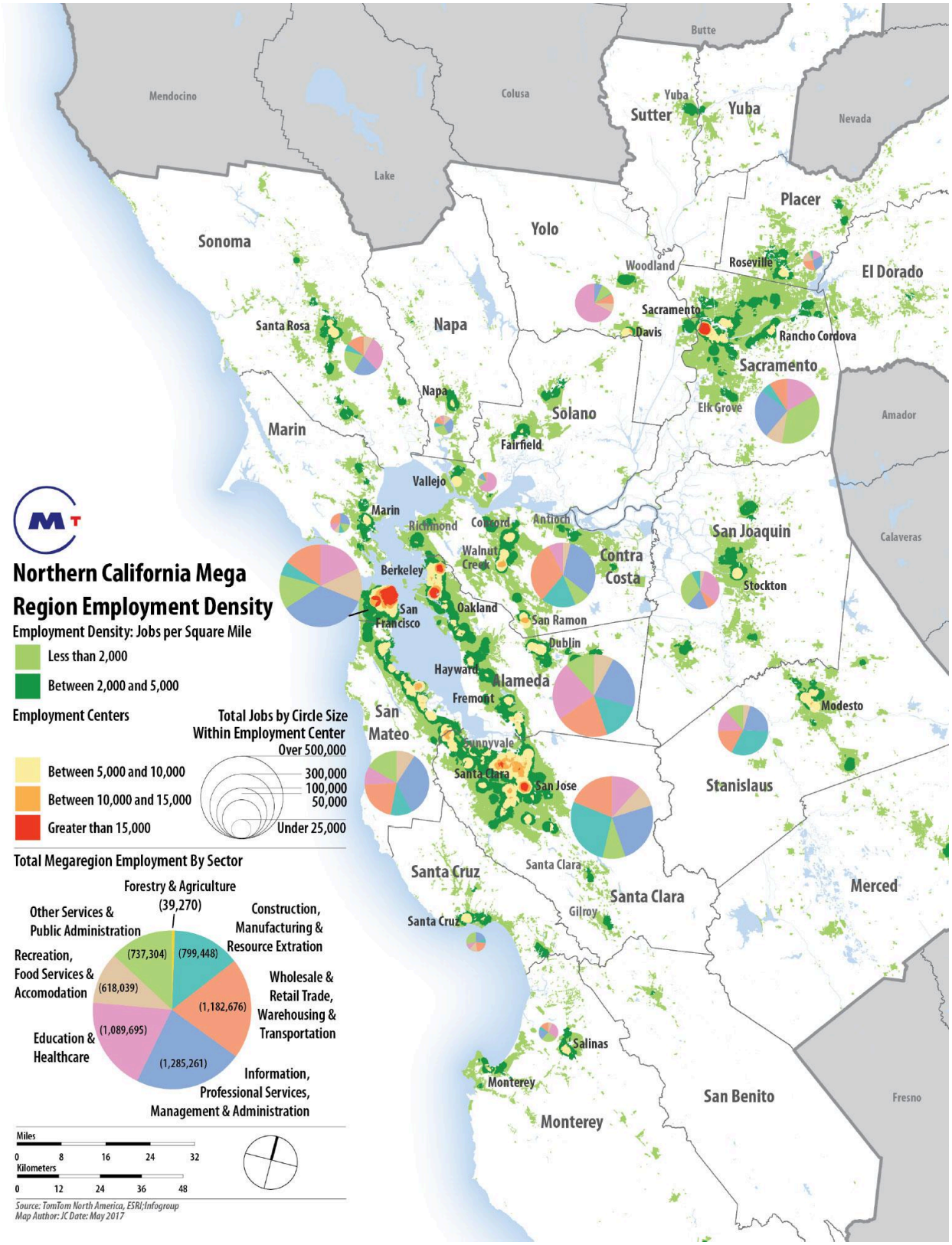
Older Data on NCMR Industrial



Source: CoStar, 2018; Strategic Economics, 2018.

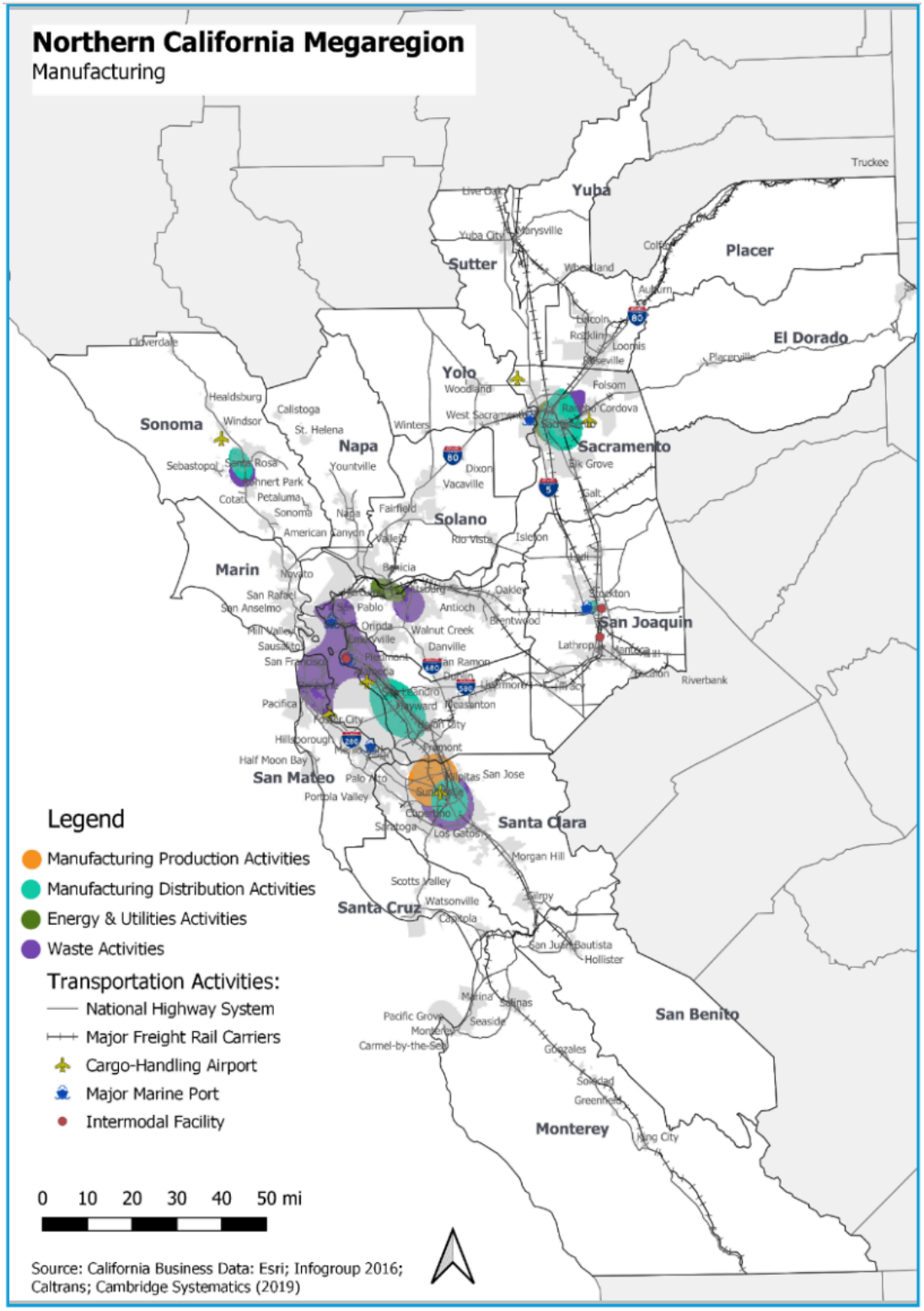
2018 Industrial Density of the NCMR 2018, from Northern California Megaregion Goods Movement Study, https://mtc.ca.gov/sites/default/files/Northern_California_Megaregion_Goods_Movement_Study.pdf.

Older Data on NCMR Employment Statistics



2017 employment sector data on the NCMR

Older Data on NCMR Manufacturing



2019 manufacturing statistics of the NCMR, from Northern California Megaregion Goods Movement Study,
https://mtc.ca.gov/sites/default/files/Northern_California_Megaregion_Goods_Movement_Study.pdf

Issues with Job Classifications

One of the current issues with the quantum industry is that there are currently no job classifications that are recognized or relevantly understood by job classification entities (e.g., U.S. Bureau of Labor Statistics, NAICS, *et cetera*). For example, as used by the USBOL, "*(t)he 2018 Standard Occupational Classification (SOC) system is a federal statistical standard used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 867 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form 459 broad occupations, 98 minor groups, and 23 major groups.*" Additional system code types include Industry Classification Codes, International Standard Classification of Occupations (ILOSTAT), and others. While the SOCs is already complete for its planned update by 2028, meaning that it will not take any further inputs and not consider any further modifications for at least another decade, there are other national and international job classification systems, dictionaries, and repositories that many other entities use and share internationally and industrially. The Chicago Quantum Exchange is currently leading an overhaul proposal for updating SOCs and others with quantum job language and definitions that are almost entirely absent. These job reclassification interests from within the quantum industry and academic training communities, largely intra-state from UC Berkeley-based entities, also are slowly attempting to change the California industrial job ecosystem with improved and augmented job classification language and definitions, such as through the ongoing CA GoBiz jobs report; this report has been authorized by the state congress and signed into an Act recently to help support job growth in CA for both quantum and fusion industries conjointly [12] and which builds upon the prior work of the CA Jobs Blueprint [13].

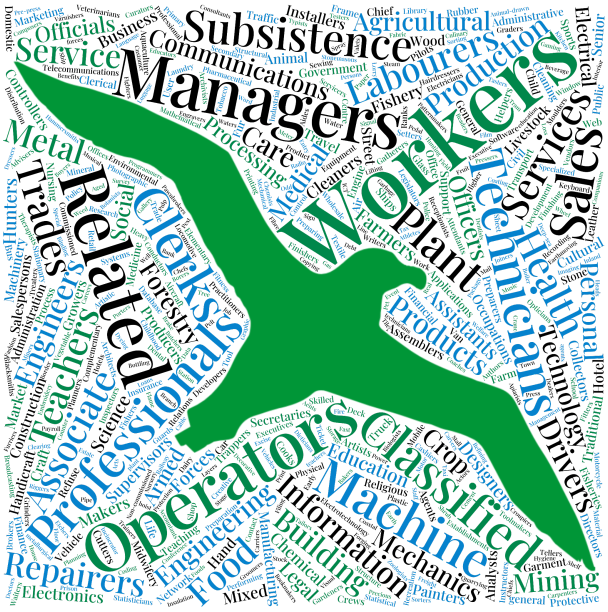


Figure 11: Word cloud of ISCO categories and subcategories representing "industrial navigation of occupational diversity"

Conclusion

This jobs report appears to be the first of its kind, not simply because it was chosen to assess a particularly novel intersection of industrial niches, but largely because other economic reports on that ostensibly should cover pharmaceutical labor economics and quantum labor economics are too granular as administered by the state of California or federal entities that are tasked with assess the current state of jobs and their statistical analysis (e.g., Bureau of Labor Statistics, Census, etc.). Part of the ambient industrial review dearth is due to the fact that there are no job codes for quantum industry specific to much, and pharmaceutical industry codes haven't precisely caught up with actual pharma job skills in demand; another issue is the outdatedness of U.S. Census data that many states, including California, rely upon.

This report also is a first of its kind for the larger quantum economic development community at large, as most quantum companies collectively and individually haven't realistically profiled specified counties or small geographical regions of interest very carefully anywhere inside the U.S.. This report identifies for them a leading method of refined and precision analysis of various job prospects for economic growth in various regions that can be assessed in this manner.

Additionally, this report further identifies that, even within the Sacramento Region, there are potentially hundreds of sufficiently-qualified candidates in mixed entry-, junior-, and senior-level positions currently or able to take on new positions just in the early part of this year alone. This indicates that business development for quantum companies seeking to expand operations or start new ones in the Sacramento Area should have several productive margins of affordable business scaling.

However, this report does strongly indicate that many more geographical and economic regions within this state have been seriously neglected in terms of sufficient jobs analysis, and that further investigatory reports are warrants for several promising regions elsewhere. These near-term reporting opportunities could also further garner significant, crucial, and highly-influential adoption by the entire U.C. System, several

state-area DOE-funded National Laboratories, and the State of California itself in at least two government offices in charge of this matter as directed by the state congress and new law. By increasing more reporting and disseminating further reporting to key political, governmental, academic, research, and industrial stakeholders, significant economic activity could be radically stimulated and largely directed by the contents of these potential report findings.

In all, the Sacramento Region offers several interesting economic development opportunities for affordable business operations even for the niche intersection between quantum and biopharmaceutical interests. Future research into the job markets similarly for the San Joaquin Valley Region and the San Diego Area Region offer several additional developmental opportunities in tapping into local university talent as well as more technological investments in advanced computation and biotechnology; these two Regions potentially have comparable return-on-investment (ROI) figures to the Sacramento Valley Region and would offer much wider and diversified lower-cost developmental expansion and scalability in the crossover between quantum technologies and biopharmaceutical R&D.

Figure 12: Future investigatory Regions of significant opportunities and high return-on-investment ratios comparable to Sacramento Valley Region for biotechnology and computing

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Appendices

Appendix A

Terms	Definitions in this Context
AI (Artificial Intelligence)	Theoretically and historically, a computer system that can perform tasks that otherwise require human-level intelligence. Realistically and in different reports, AI is being used as an umbrella term for various automation oriented and statistical modeling tasks.
Antibody-Drug Conjugates	A targeted therapy typically comprised of a monoclonal antibody, cytotoxic drug, and a small molecule linker,
Biopharma	A pharmaceutical sector that deals with the development of drugs from biological sources and from small molecules; the combination of biotechnology and pharmaceutical development
Industrial Niche	A segment within an industrial market with unique characteristics (e.g. quantum and biopharma), but is not a well recognized sector in its own right (e.g. not a listed industrial sector by government departments of labor or stock markets)
Keywords	Words related to the subject matter that are used to search through platforms.
Labor Pool	A group of people who are qualified, available, and outwardly interested to work in a specific field.
LLM (Large Language Model)	An attempt towards Artificial intelligence that consists of a large corpus of information that is used as a training set to produce new outputs or classify inputs
ML (Machine Learning)	Ideally, it is the computer systems' ability to learn without instruction and develop. Here, ML consists of multi-layered statistical models that are used, in most cases, complete data analysis and aggregation.
Oncology	The study of cancer and its treatments.
Ontology	An organization of a set of concepts, which may or may not include categories
Quantum	Quantum chemistry, quantum information science, and quantum devices.
Schrödinger Software	A software containing tools for molecular modeling and theoretical chemistry calculations.

Appendix B: SIMPLE JOB SEARCH

FREELANCER

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES
Signal Processing	Embedded Systems	Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)
		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
Signal Processing	Simulation	Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		UR5 Robot Simulation Development (6/14/25 - 6/21/25)
		STL File Manipulation Desktop App (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous ai (6/14/25 - 6/21/25)
		Create a Game (6/11/25 - 6/18/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Signal Processing	Scientific Computing	---
Signal Processing	Bioinformatics	Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
Signal Processing	Quantum Computing	---
Signal Processing	Combinatorial Optimization	---
Signal Processing	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)

		Image Processing Guidance with MVtech Halcon (6/16/25 - 6/23/25)
		ML Tiger Detection & Classification (6/16/25 - 6/23/25)
		MT5 Trading Algo Development (6/16/25 - 6/23/25)
		Crypto Trading Algorithm Development (6/16/25 - 6/23/25)
		Hierarchical Deep Learning Framework for Medical Data (6/14/25 - 6/21/25)
		Tree Survey & Homeowner Data Tool Using Satellite Imagery (6/14/25 - 6/21/25)
		ML/DL Binary Classification Code (6/14/25 - 6/21/25)
		State-Space Algorithm Implementation from PDF (6/13/25 - 6/20/25)
		Math & MATLAB Expert for Nonlinear Data (6/13/25 - 6/20/25)
		Math & MATLAB Expert Needed (6/13/25 - 6/20/25)
		FAANG Training for Meta (6/12/25 - 6/19/25)
		Self-hosting Structural Framework (6/12/25 - 6/19/25)
		Backtesting and Optimization of Trading Strategy (6/12/25 - 6/19/25)
		Stock Market Scalping Algo Trader (6/12/25 - 6/19/25)
		TradingView Custom Indicator Development (6/12/25 - 6/19/25)
		Trading Bot Development (6/11/25 - 6/18/25)
		Research Paper Workflow & Algorithm Logic (6/11/25 - 6/18/25)
		Solvelancer math tutor (6/11/25 - 6/18/25)
		Underwater Fish Species Identification (6/11/25 - 6/18/25)
		AI-Powered Image Analysis (6/11/25 - 6/18/25)
		Crypto Signals Enhancement (6/11/25 - 6/18/25)
		Radar-Based Object Classification System (6/10/25 - 6/17/25)

		AI-Powered Predictive Analytics Tool Development (6/10/25 - 6/17/25)
		TradeStation Setup Expert Needed (6/10/25 - 6/17/25)
		C/C++, openCL. adjust a code that already works for AMD GPU (6/10/25 - 6/17/25)
		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Signal Processing	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)
Signal Processing	Quantum	---
Embedded Systems	Simulation	Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		UR5 Robot Simulation Development (6/14/25 - 6/21/25)
		STL File Manipulation Desktop App (6/14/25 - 6/21/25)
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Embedded Systems	Scientific Computing	Autonomous Airborne Security System Development (6/14/25 - 6/21/25)

		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
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Embedded Systems	Bioinformatics	Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)
		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
Embedded Systems	Quantum Computing	Windows AI Installation Expert (6/16/25 - 6/23/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)
		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
Embedded Systems	Combinatorial Optimization	Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)

		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
Embedded Systems	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
		Image Processing Guidance with MVtech Halcon (6/16/25 - 6/23/25)
		ML Tiger Detection & Classification (6/16/25 - 6/23/25)
		MT5 Trading Algo Development (6/16/25 - 6/23/25)
		Crypto Trading Algorithm Development (6/16/25 - 6/23/25)
		Hierarchical Deep Learning Framework for Medical Data (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Tree Survey & Homeowner Data Tool Using Satellite Imagery (6/14/25 - 6/21/25)
		ML/DL Binary Classification Code (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		State-Space Algorithm Implementation from PDF (6/13/25 - 6/20/25)
		Math & MATLAB Expert for Nonlinear Data (6/13/25 - 6/20/25)
		Math & MATLAB Expert Needed (6/13/25 - 6/20/25)
		FAANG Training for Meta (6/12/25 - 6/19/25)
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		TradingView Custom Indicator Development (6/12/25 - 6/19/25)

		Trading Bot Development (6/11/25 - 6/18/25)
		Solvelancer math tutor (6/11/25 - 6/18/25)
		Underwater Fish Species Identification (6/11/25 - 6/18/25)
		AI-Powered Image Analysis (6/11/25 - 6/18/25)
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		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		AI-Powered Predictive Analytics Tool Development (6/10/25 - 6/17/25)
		TradeStation Setup Expert Needed (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
		C/C++, openCL. adjust a code that already works for AMD GPU (6/10/25 - 6/17/25)
		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Embedded Systems	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)
		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)

Embedded Systems	Quantum	Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		ESP32 Wireless Battery Monitor - Firmware and PCB Design (6/14/25 - 6/21/25)
		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)
		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
Simulation	Scientific Computing	Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		UR5 Robot Simulation Development (6/14/25 - 6/21/25)
		STL File Manipulation Desktop App (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous ai (6/14/25 - 6/21/25)
		Create a Game (6/11/25 - 6/18/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Simulation	Bioinformatics	Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		UR5 Robot Simulation Development (6/14/25 - 6/21/25)
		STL File Manipulation Desktop App (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)

		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous ai (6/14/25 - 6/21/25)
		Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
		Create a Game (6/11/25 - 6/18/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Simulation	Quantum Computing	Windows AI Installation Expert (6/16/25 - 6/23/25)
		Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
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		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous ai (6/14/25 - 6/21/25)
		Create a Game (6/11/25 - 6/18/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Simulation	Combinatorial Optimization	Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
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		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous ai (6/14/25 - 6/21/25)

		Create a Game (6/11/25 - 6/18/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Simulation	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
		Image Processing Guidance with MVtech Halcon (6/16/25 - 6/23/25)
		ML Tiger Detection & Classification (6/16/25 - 6/23/25)
		MT5 Trading Algo Development (6/16/25 - 6/23/25)
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		Math & MATLAB Expert Needed (6/13/25 - 6/20/25)
		FAANG Training for Meta (6/12/25 - 6/19/25)

		Self-hosting Structural Framework (6/12/25 - 6/19/25)
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		Research Paper Workflow & Algorithm Logic (6/11/25 - 6/18/25)
		Solvelancer math tutor (6/11/25 - 6/18/25)
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		TradeStation Setup Expert Needed (6/10/25 - 6/17/25)
		C/C++, openCL. adjust a code that already works for AMD GPU (6/10/25 - 6/17/25)
		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Simulation	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
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		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		Autonomous ai (6/14/25 - 6/21/25)
		Create a Game (6/11/25 - 6/18/25)
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Simulation	Quantum	Turning Process Simulation (6/15/25 - 6/22/25)
		Expert Developer for UAV Simulation (6/15/25 - 6/22/25)
		Autonomous Airborne Security System Development (6/14/25 - 6/21/25)
		UR5 Robot Simulation Development (6/14/25 - 6/21/25)
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		Autonomous ai (6/14/25 - 6/21/25)
		Create a Game (6/11/25 - 6/18/25)
		SIMULIA Flow Simulation Support (6/9/25 - 6/16/25)
Scientific Computing	Bioinformatics	Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
Scientific Computing	Quantum Computing	---
Scientific Computing	Combinatorial Optimization	---
Scientific Computing	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
		Image Processing Guidance with MVtech Halcon (6/16/25 - 6/23/25)
		ML Tiger Detection & Classification (6/16/25 - 6/23/25)

		MT5 Trading Algo Development (6/16/25 - 6/23/25)
		Crypto Trading Algorithm Development (6/16/25 - 6/23/25)
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		AI-Powered Predictive Analytics Tool Development (6/10/25 - 6/17/25)
		TradeStation Setup Expert Needed (6/10/25 - 6/17/25)
		C/C++, openCL. adjust a code that already works for AMD GPU (6/10/25 - 6/17/25)

		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Scientific Computing	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)
Scientific Computing	Quantum	---
Bioinformatics	Quantum Computing	Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
Bioinformatics	Combinatorial Optimization	Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
Bioinformatics	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
		Image Processing Guidance with MVtech Halcon (6/16/25 - 6/23/25)
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		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Bioinformatics	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)
Bioinformatics	Quantum	Functional Prediction with Tax4Fun (6/11/25 - 6/18/25
Quantum Computing	Combinatorial Optimization	---
Quantum Computing	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
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		MT5 Trading Algo Development (6/16/25 - 6/23/25)

		Crypto Trading Algorithm Development (6/16/25 - 6/23/25)
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		TradeStation Setup Expert Needed (6/10/25 - 6/17/25)
		C/C++, openCL. adjust a code that already works for AMD GPU (6/10/25 - 6/17/25)
		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Quantum Computing	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)

		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)
Quantum Computing	Quantum	---
Combinatorial Optimization	Algorithm	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
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		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Combinatorial Optimization	Biotechnology	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)
Combinatorial Optimization	Quantum	---
Algorithm	Biotechnology	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
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Algorithm	Quantum	Machine Learning Classification Project (6/16/25 - 6/23/25)
		Expert in Algorithm Design & Analysis (6/16/25 - 6/23/25)
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		Math & MATLAB Expert for Nonlinear Data (6/13/25 - 6/20/25)
		Math & MATLAB Expert Needed (6/13/25 - 6/20/25)
		FAANG Training for Meta (6/12/25 - 6/19/25)
		Self-hosting Structural Framework (6/12/25 - 6/19/25)
		Backtesting and Optimization of Trading Strategy (6/12/25 - 6/19/25)
		Stock Market Scalping Algo Trader (6/12/25 - 6/19/25)
		TradingView Custom Indicator Development (6/12/25 - 6/19/25)
		Trading Bot Development (6/11/25 - 6/18/25)
		Solvelancer math tutor (6/11/25 - 6/18/25)
		Underwater Fish Species Identification (6/11/25 - 6/18/25)
		AI-Powered Image Analysis (6/11/25 - 6/18/25)
		Crypto Signals Enhancement (6/11/25 - 6/18/25)
		Radar-Based Object Classification System (6/10/25 - 6/17/25)

		RTOS Display Driver for LS032 Sharp Memory LCD (ESP32-S3, PlatformIO/Arduino) (6/10/25 - 6/17/25)
		ESP32 Biometric Sensor MVP Development (6/10/25 - 6/17/25)
		AI-Powered Predictive Analytics Tool Development (6/10/25 - 6/17/25)
		TradeStation Setup Expert Needed (6/10/25 - 6/17/25)
		Design & Development of EdgeTX-Based RC Transmitter with ELRS Protocal for Drones (6/10/25 - 6/17/25)
		C/C++, openCL. adjust a code that already works for AMD GPU (6/10/25 - 6/17/25)
		Computer Vision and Deep Learning Work (6/10/25 - 6/17/25)
Biotechnology	Quantum	MATLAB Implementation of Mitochondrial Oxidative Stress Model (6/16/25 - 6/23/25)
		Design Continuous Glucose Monitoring System Sensor (6/10/25 - 6/17/25)

UPWORK

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES
Quantum	Molecular Modeling	Join the FerimunX Project: Unraveling the Mysteries of A Rare, Undiagnosed Autoimmune Disease (6/17/25 - ???)
Quantum	Variational Algorithm	---
Quantum	Hardware Accelerator	---
Quantum	Bioinformatics	Knowledge graph database expert for bioelectric therapeutics startup (6/16/25 - ???)
Quantum	Genomic Data	---
Quantum	Combinatorial Optimization	---
Quantum	Sensor	---
Quantum	Biotechnology	Computational Chemist - Molecular Docking and Dynamics Expert (5/19/25 - ???)
Quantum	Chemistry	---
Molecular Modeling	Variational Algorithm	---
Molecular Modeling	Hardware Accelerator	---

Molecular Modeling	Bioinformatics	Vape Flavor (5/29/25 - ???)
Molecular Modeling	Genomic Data	---
Molecular Modeling	Combinatorial Optimization	---
Molecular Modeling	Sensor	---
Molecular Modeling	Biotechnology	---
Molecular Modeling	Chemistry	---
Variational Algorithm	Hardware Accelerator	---
Variational Algorithm	Bioinformatics	---
Variational Algorithm	Genomic Data	---
Variational Algorithm	Combinatorial Optimization	---
Variational Algorithm	Sensor	---
Variational Algorithm	Biotechnology	---
Variational Algorithm	Chemistry	---
Hardware Accelerator	Bioinformatics	---
Hardware Accelerator	Genomic Data	---
Hardware Accelerator	Combinatorial Optimization	---
Hardware Accelerator	Sensor	---
Hardware Accelerator	Biotechnology	---
Hardware Accelerator	Chemistry	---
Bioinformatics	Genomic Data	---
Bioinformatics	Combinatorial Optimization	---
Bioinformatics	Sensor	---
Bioinformatics	Biotechnology	Fixing a Protein's PDB Structure (shrodinger) (5/22/25 - ???)
Bioinformatics	Chemistry	Deep Learning Expert for Computational Drug Discovery App (5/29/25 - ???)
Genomic Data	Combinatorial Optimization	---
Genomic Data	Sensor	---
Genomic Data	Biotechnology	Freelance Molecular Informatics Scientist (6/2/25 - ???)

Genomic Data	Chemistry	---
Combinatorial Optimization	Sensor	---
Combinatorial Optimization	Biotechnology	---
Combinatorial Optimization	Chemistry	---
Sensor	Biotechnology	---
Sensor	Chemistry	---
Biotechnology	Chemistry	Freelance Chemist for Colorimetric Feasibility Study (6/12/25 - ???)
		Electrochemical Materials Scientist / Battery R&D Lead
		R&D and upscale process development for enzyme-mediated lipid transformation project (5/29/25 - ???)

INDEED

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES
Quantum	Molecular Modeling	Quantum Laboratory Technician
Quantum	Variational Algorithm	---
Quantum	Hardware Accelerator	---
Quantum	Bioinformatics	Bioinformatician (Open Rank) (??? - ???)
		Research Scientist Graduate (Computational Biology (Seed AI-for-Science)) - 2026 Start (PhD) (??? - ???)
Quantum	Genomic Data	---
Quantum	Combinatorial Optimization	---
Quantum	Sensor	Service Tech Coordinator (??? - ???)
Quantum	Biotechnology	Scientist I, Assay Development for Small Molecule & Antibody Discovery (Biochemistry / Cell Biology)
		Research (Scientific) Associate Director, Computational Chemistry
Quantum	Chemistry	Senior Computer Scientist to Lead the Development of AI-Enhanced Drug Discovery Platform (??? - ???)
		Advanced Quantum Testbed (AQT) Postdoctoral Fellow (??? - ???)

		Postdoctoral Researcher in Quantum Computing for Quantum Scattering in Plasmas (??? - ???)
Molecular Modeling	Variational Algorithm	
Molecular Modeling	Hardware Accelerator	---
Molecular Modeling	Bioinformatics	Assistant Project Scientist of Environmental Toxicology in the Rice Laboratory (5/22/25 - 7/25/25)
Molecular Modeling	Genomic Data	---
Molecular Modeling	Combinatorial Optimization	---
Molecular Modeling	Sensor	---
Molecular Modeling	Biotechnology	---
Molecular Modeling	Chemistry	---
Variational Algorithm	Hardware Accelerator	---
Variational Algorithm	Bioinformatics	---
Variational Algorithm	Genomic Data	---
Variational Algorithm	Combinatorial Optimization	---
Variational Algorithm	Sensor	---
Variational Algorithm	Biotechnology	---
Variational Algorithm	Chemistry	---
Hardware Accelerator	Bioinformatics	---
Hardware Accelerator	Genomic Data	---
Hardware Accelerator	Combinatorial Optimization	---
Hardware Accelerator	Sensor	---
Hardware Accelerator	Biotechnology	---
Hardware Accelerator	Chemistry	---
Bioinformatics	Genomic Data	Postdoctoral Scientist - Urbanowicz Lab - Computational Biomedicine (??? - ???)
		2025 MMG Junior Specialist - Namekawa lab (5/28/25 - 8/20/25)
		Assistant Project Scientist-Beleford Lab (1/7/25 - 12/31/25)
		Jr. Specialist-Finger Lab (4/11/25 - 8/4/25)

		Postdoc - Xu Lab (1/6/25 - 7/31/25)
Bioinformatics	Combinatorial Optimization	---
Bioinformatics	Sensor	---
Bioinformatics	Biotechnology	Lead Computer Scientist, Biomedical AI & Multi-omics (??? - ???)
		Senior Consultant - Life Sciences Advisory - Data Scientist (Pharma & Biotech) (??? - ???)
Bioinformatics	Chemistry	
Genomic Data	Combinatorial Optimization	---
Genomic Data	Sensor	---
Genomic Data	Biotechnology	---
Genomic Data	Chemistry	---
Combinatorial Optimization	Sensor	---
Combinatorial Optimization	Biotechnology	---
Combinatorial Optimization	Chemistry	---
Sensor	Biotechnology	Fermentation and bioprocessing scientist/engineer (??? - ???)
		Senior Biological Research Scientist (??? - ???)
Sensor	Chemistry	Product Manager Chemistry (??? - ???)
Biotechnology	Chemistry	Clinical Lab Scientist (Technical) - Microbiology (??? - ???)
		Quality Assurance QMS Lead - Parenteral (??? - ???)
		Research Associate, Formulation (??? - ???)
		QA Associate (??? - ???)

KOLABTREE

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES
Quantum	Molecular Modeling	---
Quantum	Variational Algorithm	---
Quantum	Hardware Accelerator	---
Quantum	Bioinformatics	---

Quantum	Genomic Data	---
Quantum	Combinatorial Optimization	---
Quantum	Sensor	---
Quantum	Biotechnology	---
Quantum	Chemistry	---
Molecular Modeling	Variational Algorithm	---
Molecular Modeling	Hardware Accelerator	---
Molecular Modeling	Bioinformatics	Develop an AI-Powered Customer Sentiment Analysis Tool (5/25/25 - ???)
		Researcher & Scientific Writer | In Silico Leukemia-Microbiome Study (5/25/25 - ???)
		Need a bioinformatician to analyze snATAC-seq, scRNA-seq, bulk-RNA-seq from immune cells (5/8/25 - ???)
		Seeking an Expert in Bioinformatics for Immunoinformatic Analysis to identify Vaccine Epitopes (5/7/25 - ???)
		Comparative genomics analysis (4/30/25 - ???)
		Scientific Consultation for Bio-Energy Jewelry Line Using Crystals and Functional Materials (3/28/25 - ???)
		Natural Language Processing for Sentiment Analysis (2/22/25 - ???)
		Bioinformation and Biostatistician needed to work on a novel cancer classification system (1/13/25)
		Publication Assistance for Breast Cancer Research Paper in Q1 Journals (1/3/25)
Molecular Modeling	Genomic Data	---
Molecular Modeling	Combinatorial Optimization	---
Molecular Modeling	Sensor	---
Molecular Modeling	Biotechnology	---
Molecular Modeling	Chemistry	Starting up a small 'farm-to-skin' product line, need formula to produce in-house

		(6/11/25)
Variational Algorithm	Hardware Accelerator	---
Variational Algorithm	Bioinformatics	---
Variational Algorithm	Genomic Data	---
Variational Algorithm	Combinatorial Optimization	---
Variational Algorithm	Sensor	---
Variational Algorithm	Biotechnology	---
Variational Algorithm	Chemistry	---
Hardware Accelerator	Bioinformatics	---
Hardware Accelerator	Genomic Data	---
Hardware Accelerator	Combinatorial Optimization	---
Hardware Accelerator	Sensor	---
Hardware Accelerator	Biotechnology	---
Hardware Accelerator	Chemistry	---
Bioinformatics	Genomic Data	---
Bioinformatics	Combinatorial Optimization	---
Bioinformatics	Sensor	---
Bioinformatics	Biotechnology	---
Bioinformatics	Chemistry	---
Genomic Data	Combinatorial Optimization	---
Genomic Data	Sensor	---
Genomic Data	Biotechnology	---
Genomic Data	Chemistry	---
Combinatorial Optimization	Sensor	---
Combinatorial Optimization	Biotechnology	---
Combinatorial Optimization	Chemistry	---
Sensor	Biotechnology	---
Sensor	Chemistry	---
Biotechnology	Chemistry	---

ZIPRECRUITER

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES	Column 1
Quantum	Molecular Modeling	Quantum Life Sciences Chemist	6/17/25
		Quantum Cheminformatics Scientist	6/16/25
		Director, Computational Chemistry Methods	5/24/25
Quantum	Variational Algorithm	---	
Quantum	Hardware Accelerator	---	
Quantum	Bioinformatics	Computational Biology Data Analyst	6/10/25
Quantum	Genomic Data	---	
Quantum	Combinatorial Optimization	---	
Quantum	Sensor	---	
Quantum	Biotechnology	---	
Quantum	Chemistry	Quantum Algorithms Researcher (Chemistry/Materials Science	6/4/25
		Open Rank in Quantum Information Science & Engineering	5/31/25
		Quantum Solutions Scientist	6/10/25
Molecular Modeling	Variational Algorithm	Sr. ML Scientist, Molecular Dynamics & Structure-based Drug Design	5/29/25
Molecular Modeling	Hardware Accelerator	---	
Molecular Modeling	Bioinformatics	---	
Molecular Modeling	Genomic Data	---	
Molecular Modeling	Combinatorial Optimization	---	
Molecular Modeling	Sensor	---	
Molecular Modeling	Biotechnology	---	
Molecular Modeling	Chemistry	---	
Variational Algorithm	Hardware Accelerator	---	
Variational Algorithm	Bioinformatics	---	
Variational Algorithm	Genomic Data	---	
Variational Algorithm	Combinatorial	---	

	Optimization		
Variational Algorithm	Sensor	---	
Variational Algorithm	Biotechnology	---	
Variational Algorithm	Chemistry	Staff Scientist - Quantum Chemistry	6/3/25
Hardware Accelerator	Bioinformatics	---	
Hardware Accelerator	Genomic Data	---	
Hardware Accelerator	Combinatorial Optimization	---	
Hardware Accelerator	Sensor	---	
Hardware Accelerator	Biotechnology	---	
Hardware Accelerator	Chemistry	---	
Bioinformatics	Genomic Data	---	
Bioinformatics	Combinatorial Optimization	Scientist, Strain Engineering	6/13/25
Bioinformatics	Sensor	---	
Bioinformatics	Biotechnology	---	
Bioinformatics	Chemistry	---	
Genomic Data	Combinatorial Optimization	---	
Genomic Data	Sensor	---	
Genomic Data	Biotechnology	---	
Genomic Data	Chemistry	---	
Combinatorial Optimization	Sensor	---	
Combinatorial Optimization	Biotechnology	---	
Combinatorial Optimization	Chemistry	---	
Sensor	Biotechnology	---	
Sensor	Chemistry	---	
Biotechnology	Chemistry	---	

GLASSDOOR

KEY WORD 1	KEY WORD 2	LISTINGS
Quantum	Molecular Modeling	Sr Specialist, Optical Engineer

		Staff Quantum Optical Research Associate
		Postdoctoral researcher in experimental condensed-matter physics under high magnetic fields
		Lecturer Pool - Molecular Science and Software Engineering [MSSE] - College of Chemistry
		Staff Atomic Molecular & Optical [AMO] Physicist
		Atomic Molecular & Optical [AMO] Physicist
		Scientist, Optical Engineer
		Principal / Sr. Principal Atomic Molecular & Optical [AMO] Physicist
		Postdoctoral Research Associate - Computational quantum materials and devices
		Postdoctoral Researcher in Quantum Computing for Quantum Scattering in Plasmas
		Research Scientist Graduate [Computational Biology [Seed AI-for-Scoence]] - 2026 Start [PhD]
		PostDoctoral Associate
		Director, Facilities, Space Infrastructure and Capital Planning
		Postdoctoral Fellow-Research Scientist
		Post Doctoral Associate in the Center for Molecular Magnetic Quantum Materials [M2QM]
		Postdoctoral Appointee - Computational Research in Selective Interface Reactions
		Applications Scientist
		Postdoctoral Appointee - Quantum Gravimetry, Onsite
		SENIOR SCIENTIST I COMPUTATIONAL CHEMISTRY
		Post Doctoral Researcher, Quantum Sensors - Safronova Lab

		Senior Scientist, Material Science
		Research [Scientific] Associate Director, Computational Chemistry
		Sr. Scientist, Computational Chemistry
		Bio Informatics and Bio Statistics - Specialist
		Postdoctoral Research Associate
		Scientist/Sr Scientist, Computational Chemistry
		AMO Physicist
		Quantum Laboratory Technician
		Postdoctoral Researcher - Computational Chemistry
		Postdoctoral Research Fellow, Computational Materials Science
		Senior Optomechanical Engineer
Quantum	Variational Algorithm	Staff Scientist - Quantum Chemistry
		Quantum Applied Scientist, Simulation Methods and Tools, AWS Center for Quantum Computing
		Vice President, Visa Research
Quantum	Hardware Accelerator	Technical Business Developer - GenAI, National Security
		AI Research Scientist - Quantum Computing & Emerging Technologies
		Quantum Algorithms Numerics Specialist, Quantum AI
		Quantum Scientist [Quantum Error Correction]
		Postdoctoral Research Associate of Physics (AMQO)
		HPC Optimization Engineer
		Senior Engineer, AI Research
		Sr. Staff Engineer Systems SW Architect
		Sr ML Compiler Engineer, Annapurna Labs
		ML Compiler Engineer I, Annapurna Labs

		Technical Business Developer - GenAI, National Security
		Sr. Machine Learning - Compiler Engineer III, AWS Neuron, Annapurna Labs
		Machine Learning - Compiler Engineer II, Annapurna Labs
		Staff Engineer Systems SW Architect
		Sr. Machine Learning - Compiler Engineer III, AWS Neuron, Annapurna Labs
Quantum	Bioinformatics	Scientist
		Research Scientist Graduate [Computational Biology [Seed AI-for-Scoence]] - 2026 Start [PhD]
		Bio Informatics and Bio Statistics - Specialist
		Senior Scientist, Computational Chemistry
		AI Research Scientist
		Bioinformatician (Open Rank)
		Postdoctoral Scholar in Quantum Physics and Network Dynamics
		Data Science Program Manager
		AI Research Scientist III
		Biostatistician
Quantum	Genomic Data	Tenured Faculty Openings in Tissue Engineering and Regenerative Medicine
		Bio Informatics and Bio Statistics - Specialist
		Bioinformatician (Open Rank)
		Associate or Full Professor - Artificial Intelligence Cluster
Quantum	Combinatorial Optimization	Hewlett Packard Labs - Research Scientist - Generative AI - Early Career
		Quantum Algorithms Scientist - Optimization
		Digital Design Engineer
		Senior Algorithm Researcher
Quantum	Sensor	---

Quantum	Biotechnology	---
Quantum	Chemistry	---
Molecular Modeling	Variational Algorithm	---
Molecular Modeling	Hardware Accelerator	---
Molecular Modeling	Bioinformatics	---
Molecular Modeling	Genomic Data	---
Molecular Modeling	Combinatorial Optimization	---
Molecular Modeling	Sensor	---
Molecular Modeling	Biotechnology	---
Molecular Modeling	Chemistry	---
Variational Algorithm	Hardware Accelerator	---
Variational Algorithm	Bioinformatics	---
Variational Algorithm	Genomic Data	---
Variational Algorithm	Combinatorial Optimization	---
Variational Algorithm	Sensor	---
Variational Algorithm	Biotechnology	---
Variational Algorithm	Chemistry	---
Hardware Accelerator	Bioinformatics	---
Hardware Accelerator	Genomic Data	---
Hardware Accelerator	Combinatorial Optimization	---
Hardware Accelerator	Sensor	---
Hardware Accelerator	Biotechnology	---
Hardware Accelerator	Chemistry	---
Bioinformatics	Genomic Data	---
Bioinformatics	Combinatorial Optimization	---
Bioinformatics	Sensor	---
Bioinformatics	Biotechnology	---
Bioinformatics	Chemistry	---
Genomic Data	Combinatorial Optimization	---
Genomic Data	Sensor	---

Genomic Data	Biotechnology	---
Genomic Data	Chemistry	---
Combinatorial Optimization	Sensor	---
Combinatorial Optimization	Biotechnology	---
Combinatorial Optimization	Chemistry	---
Sensor	Biotechnology	---
Sensor	Chemistry	---
Biotechnology	Chemistry	---

WELLFOUND

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES	Column 1
Quantum	Molecular Modeling	---	
Quantum	Variational Algorithm	Senior Software Developer - Algorithm	4/19/25
		Algorithm Developer - Math Team	5/19/25
Quantum	Hardware Accelerator	---	
Quantum	Bioinformatics	---	
Quantum	Genomic Data	---	
Quantum	Combinatorial Optimization	---	
Quantum	Sensor	---	
Quantum	Biotechnology	---	
Quantum	Chemistry	Quantum Engineer (6/14/25)	https://wellfound.com/jobs/3317612-quantum-engineer
		Senior Software Engineer - Quantum Compilers (5/19/25)	https://wellfound.com/jobs/3289321-senior-software-engineer-quantum-compilers
		Software Engineer for Chemistry Applications (5/22/25)	https://wellfound.com/jobs/1587001-software-engineer-for-chemistry-applications
Molecular Modeling	Variational Algorithm	---	
Molecular	Hardware	---	

Modeling	Accelerator		
Molecular Modeling	Bioinformatics	---	
Molecular Modeling	Genomic Data	---	
Molecular Modeling	Combinatorial Optimization	---	
Molecular Modeling	Sensor	---	
Molecular Modeling	Biotechnology	Imprint - Scientist, Molecular Biology & Immunology	4/19/25
		Nanotechnology, Artificial Intelligence, and Synthetic Biology Consultant (NAIS)	5/19/25
		Software Engineer, Molecular Biology	6/18/25
		Software Engineer, Molecular Biology	5/29/25
Molecular Modeling	Chemistry	---	
Variational Algorithm	Hardware Accelerator	---	
Variational Algorithm	Bioinformatics	---	
Variational Algorithm	Genomic Data	---	
Variational Algorithm	Combinatorial Optimization	---	
Variational Algorithm	Sensor	---	
Variational Algorithm	Biotechnology	---	
Variational Algorithm	Chemistry	---	
Hardware Accelerator	Bioinformatics	---	
Hardware Accelerator	Genomic Data	---	

Hardware Accelerator	Combinatorial Optimization	---	
Hardware Accelerator	Sensor	---	
Hardware Accelerator	Biotechnology	---	
Hardware Accelerator	Chemistry	---	
Bioinformatics	Genomic Data	---	
Bioinformatics	Combinatorial Optimization	---	
Bioinformatics	Sensor	---	
Bioinformatics	Biotechnology	---	
Bioinformatics	Chemistry	Sr. Bioinformatics Software Engineer	(6/5/25)
Genomic Data	Combinatorial Optimization	---	
Genomic Data	Sensor	---	
Genomic Data	Biotechnology	---	
Genomic Data	Chemistry	---	
Combinatorial Optimization	Sensor	---	
Combinatorial Optimization	Biotechnology	---	
Combinatorial Optimization	Chemistry	---	
Sensor	Biotechnology	---	
Sensor	Chemistry	---	
Biotechnology	Chemistry	---	

HANDSHAKE

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES	
Quantum	Molecular Modeling	Material Simulation and Design Engineer - Polymer System	4/19/25
		Cutting-edge Technology Application Engineer (AI for Science)	4/19/25

		Cutting-edge Technology Application Engineer (AI for Science)	4/19/25
Quantum	Variational Algorithm	---	
Quantum	Hardware Accelerator	---	
Quantum	Bioinformatics	---	
Quantum	Genomic Data	---	
Quantum	Combinatorial Optimization	---	
Quantum	Sensor	Quantum Sensor Scientist	1/19/25
		Axions and Quantum Sensing Postdoctoral Fellow	3/19/25
Quantum	Biotechnology	---	
Quantum	Chemistry	Quantum Sensor Scientist	1/19/25
		Chemist/Chemical Engineer/Physicist	5/19/25
Molecular Modeling	Variational Algorithm	---	
Molecular Modeling	Hardware Accelerator	---	
Molecular Modeling	Bioinformatics	---	
Molecular Modeling	Genomic Data	---	
Molecular Modeling	Combinatorial Optimization	---	
Molecular Modeling	Sensor	---	
Molecular Modeling	Biotechnology	---	
Molecular Modeling	Chemistry	---	
Variational Algorithm	Hardware Accelerator	---	
Variational Algorithm	Bioinformatics	---	
Variational Algorithm	Genomic Data	---	
Variational Algorithm	Combinatorial Optimization	---	
Variational Algorithm	Sensor	---	
Variational Algorithm	Biotechnology	---	
Variational Algorithm	Chemistry	---	
Hardware Accelerator	Bioinformatics	---	
Hardware Accelerator	Genomic Data	---	
Hardware Accelerator	Combinatorial Optimization	---	

Hardware Accelerator	Sensor	---	
Hardware Accelerator	Biotechnology	---	
Hardware Accelerator	Chemistry	---	
Bioinformatics	Genomic Data	Bioinformatics Analyst II	1/19/25
		Genomic Data Internship (Remote)	5/19/25
		Computational Science Developer - Koo Lab	1/19/25
Bioinformatics	Combinatorial Optimization	---	
Bioinformatics	Sensor	---	
Bioinformatics	Biotechnology	Assay Development Scientist	1/19/25
Bioinformatics	Chemistry	---	
Genomic Data	Combinatorial Optimization	---	
Genomic Data	Sensor	---	
Genomic Data	Biotechnology	---	
Genomic Data	Chemistry	---	
Combinatorial Optimization	Sensor	---	
Combinatorial Optimization	Biotechnology	---	
Combinatorial Optimization	Chemistry	---	
Sensor	Biotechnology	---	
Sensor	Chemistry	---	
Biotechnology	Chemistry	---	

PHYSICSWORLD

KEY WORD 1	KEY WORD 2	LISTINGS + POST TIMEFRAMES	Column 1
Quantum	Molecular Modeling	Senior AMO Physicist - Neutral Atom Quantum Computing	6/16/25
		Quantum Physicist	6/11/25
		Quantum Theorist, Atomic Physics Focus (Denmark)	5/28/25
Quantum	Variational Algorithm	---	
Quantum	Hardware Accelerator	---	
Quantum	Bioinformatics	---	

Quantum	Genomic Data	---	
Quantum	Combinatorial Optimization	---	
Quantum	Sensor	Senior AMO Physicist - Inertial Sensing	6/16/25
		Staff Scientist - Laser Systems Development	6/6/25
Quantum	Biotechnology	---	
Quantum	Chemistry	Quantum Engineer	5/28/25
		Assistant Professor in Quantum Computing	?
		Postdoc Researcher - Quantum-Enabled Bioimaging	6/13/25
Molecular Modeling	Variational Algorithm	---	
Molecular Modeling	Hardware Accelerator	---	
Molecular Modeling	Bioinformatics	---	
Molecular Modeling	Genomic Data	---	
Molecular Modeling	Combinatorial Optimization	---	
Molecular Modeling	Sensor	---	
Molecular Modeling	Biotechnology	---	
Molecular Modeling	Chemistry	---	
Variational Algorithm	Hardware Accelerator	---	
Variational Algorithm	Bioinformatics	---	
Variational Algorithm	Genomic Data	---	
Variational Algorithm	Combinatorial Optimization	Senior Software Engineer - Quantum Compilers	5/28/25
Variational Algorithm	Sensor	---	
Variational Algorithm	Biotechnology	---	
Variational Algorithm	Chemistry	---	
Hardware Accelerator	Bioinformatics	---	
Hardware Accelerator	Genomic Data	---	
Hardware Accelerator	Combinatorial Optimization	---	

Hardware Accelerator	Sensor	Senior Positions for CEPC Detector R&D	6/18/25
Hardware Accelerator	Biotechnology	---	
Hardware Accelerator	Chemistry	---	
Bioinformatics	Genomic Data	---	
Bioinformatics	Combinatorial Optimization	---	
Bioinformatics	Sensor	---	
Bioinformatics	Biotechnology	---	
Bioinformatics	Chemistry	---	
Genomic Data	Combinatorial Optimization	---	
Genomic Data	Sensor	---	
Genomic Data	Biotechnology	---	
Genomic Data	Chemistry	---	
Combinatorial Optimization	Sensor	---	
Combinatorial Optimization	Biotechnology	---	
Combinatorial Optimization	Chemistry	---	
Sensor	Biotechnology	---	
Sensor	Chemistry	---	
Biotechnology	Chemistry	---	

QUANTUM (D-WAVE)

Company Site Jobs
Business Services
Executive Assistant
IT Systems Administrator II
Security and Network Administrator II
Research and Development
Benchmarking Researcher II
Electrochemical Production Assembler III
Electronics Test Technician Associate II

Experimental Physicist II - Calibration
Mechanical Designer I
Research Technician Associate II
Senior Algorithm Researcher
Senior Curriculum Writer and Instructor - Optimization Methods and Quantum Computing
Senior Equipment Hardware Engineer
Senior FPGA Design Engineer
Senior Performance Researcher
Senior Software Developer in Test (SDET)
Software Developer II (Hybrid-Service)
Software Developer II (Processor Development)
Sales and Marketing
Digital Marketing Manager
Director, Product Marketing
Engagement Manager
Senior Director, Advanced Computing Business
Senior Solutions Architect (UK)
Senior Solutions Architect (US)
Senior Solutions Architect - Optimization (US)
Solutions Architect II

Appendix C: COMPANIES INTERESTED IN QUANTUM

JOHNSON AND JOHNSON

"Function"	"Sub Function"	Company Site Jobs
data analytics and computational sciences	bioinformatics	senior principal scientist, computational multiomics, precision measures
		senior principal scientist, computational multiomics, precision measures
data analytics and computational sciences	data engineering	experienced data engineer - fully remote (US)
		principal data engineer - supply chain, manufacturing and finance - shockwave medical

data analytics and computational sciences	multi-family data analytics & computational sciences	manager, data and digital ops
		vice president, global real world evidence (RWE)
		director, computational multiomics, neuroscience
		director, computational multiomics, neuroscience
data analytics and computational sciences	data science	BPM - advanced analytics
		BPM - advanced analytics
		senior principal scientist, technology innovation, commercial data science
		manager, AI for medical engagement
		director of commercial AI & advanced analytics
		advanced analytics - engagement manager, oncology (hematology)
		advanced analytics - engagement manager, neuroscience/pulmonary hypertension
		manager, R&D data science and digital health (DSH) immunology
		sr analytical monitor - mexico city
		analyst II analytical monitor - mexico city
		principal scientist, safety data science
		director, R&D DSDH RWE & advanced analytics
discovery & pre-clinical/clinical development	biotherapeutics R&D	senior scientist, protein characterization, mass spectrometry
		experienced scientist, viral vector downstream process
		senior scientist, biotherapeutics

		R&D
		senior scientist, automation
		senior scientist, laboratory automation
		principal scientist, lentivirus upstream process
discovery & pre-clinical/clinical development	pharmaceutical product R&D	principal scientist particulate & colloidal systems
		principal or senior scientist in computational chemistry
		(sr) principal scientist parenterals & liquids development
		synthetics lab system integrator
R&D product development	R&D process engineering	staff R&D new product development engineer (two positions)
		principal R&D engineer (sustaining) - shockwave
		sr. R&D engineer (process development) - shockwave
R&D product development	R&D software/systems engineering	senior software engineer
		sr software engineer - real time SW
		software engineer
		senior engineer, R&D product security
		sr AI engineer
		senior manager systems engineering
		product lead engineer, product security
		principal R&D software engineer - shockwave

ABBVIE

KEY WORD 1	KEY WORD 2	Company Site Jobs

Quantum	Molecular Modeling	senior scientist I computational chemistry
		senior scientist I computational chemistry
Quantum	Variational Algorithm	-
Quantum	Hardware Accelerator	-
Quantum	Bioinformatics	-
Quantum	Genomic Data	-
Quantum	Combinatorial Optimization	-
Quantum	Sensor	-
Quantum	Biotechnology	-
Quantum	Chemistry	senior scientist I computational chemistry
		senior scientist I computational chemistry
Molecular Modeling	Variational Algorithm	-
Molecular Modeling	Hardware Accelerator	-
Molecular Modeling	Bioinformatics	-
Molecular Modeling	Genomic Data	-
Molecular Modeling	Combinatorial Optimization	-
Molecular Modeling	Sensor	-
Molecular Modeling	Biotechnology	-
Molecular Modeling	Chemistry	senior scientist I computational chemistry
		senior scientist I computational chemistry
		sr scientist I/II informatics - peptide design
		senior scientist, computational protein design - AI/ML
		scientist II, immuno-pharmacology
Variational Algorithm	Hardware Accelerator	-
Variational Algorithm	Bioinformatics	-
Variational Algorithm	Genomic Data	-
Variational Algorithm	Combinatorial Optimization	-
Variational Algorithm	Sensor	-
Variational Algorithm	Biotechnology	-
Variational Algorithm	Chemistry	-
Hardware Accelerator	Bioinformatics	-
Hardware Accelerator	Genomic Data	-

Hardware Accelerator	Combinatorial Optimization	-
Hardware Accelerator	Sensor	-
Hardware Accelerator	Biotechnology	-
Hardware Accelerator	Chemistry	-
Bioinformatics	Genomic Data	postdoctoral fellow, computational genetic and safety data science
Bioinformatics	Combinatorial Optimization	-
Bioinformatics	Sensor	-
Bioinformatics	Biotechnology	-
Bioinformatics	Chemistry	postdoctoral fellow, functional and cellular genomics
Genomic Data	Combinatorial Optimization	-
Genomic Data	Sensor	-
Genomic Data	Biotechnology	-
Genomic Data	Chemistry	postdoctoral fellow, computational genetic and safety data science
Combinatorial Optimization	Sensor	-
Combinatorial Optimization	Biotechnology	-
Combinatorial Optimization	Chemistry	-
Sensor	Biotechnology	-
Sensor	Chemistry	-
Biotechnology	Chemistry	executive director, discovery neuroscience (all genders) (fulltime, permanent)

SRI INTERNATIONAL

Company Site Jobs
*only 25 jobs
Process Engineer II, IT Applications
Process Development Engineer
Senior Student Associate
Simulation & Test Engineer
Semiconductor, Chemical Safety Engineer

IT Applications Engineer - Semiconductors
Intern, Computational and Applied Mathematics
Computer Scientist, Neurosymbolic Computing
Rochester Institute of Technology Co-op: Electrical Engineering
Stevens Institute of Technology Co-op: Electrical Engineering
Analog IC Design Engineer
Education Research Assistant, Assessor (Preschool/Kindergarten in Charlotte, NC)
Postdoctoral Research Associate, Computational Design
Research Scientist, Computational Design
Research Intern, Computational Design
Semiconductor Wafer Fab Process Engineers - Plasma Etch
ISSO (Information Systems Security Officer
Mechanical Engineer
Cleanroom Technician, Advanced Imaging
Cybersecurity Analyst/Information Systems Security Officer (ISSO)
Research Experimental Physicist
Test Engineer - Analog, ATE
Semiconductor Fab Integration Engineer
Research Electrical Engineer in Hardware Security
Sr Research Engineer, Radar/Remote Sensing

STRANGEWORKS

N/A No job portal

GSK

KEY WORD 1	KEY WORD 2	Company Site Jobs
Quantum	Molecular Modeling	-
Quantum	Variational Algorithm	-
Quantum	Hardware Accelerator	-

Quantum	Bioinformatics	principal scientist/senior scientist neuro-3D complex models
		scientific leader, molecular design
		principal scientist oligonucleotide development UK
		senior scientist - analytical sciences biopharmaceutical process
		ausbildung 2026 biologielaborant (m/w/d)
Quantum	Genomic Data	lead for advanced biology and detection tech
		microbiologist lead
		sterile processing and facility design microbiological technical expert
		GSK biological's biotech apprentice programme - Tuas, Singapore - 2025
		microbiological technologist - secondment/FTC
		directeur sante securite environnement H/F
Quantum	Combinatorial Optimization	-
Quantum	Sensor	-
Quantum	Biotechnology	GSK biological's biotech apprentice programme - Tuas, Singapore - 2025
		lead for advanced biology and detection tech
		microbiologist lead
		sterile processing and facility design microbiological technical expert
		microbiological technologist - secondment/FTC
		directeur sante securite environnement H/F
Quantum	Chemistry	-
Molecular Modeling	Variational Algorithm	-
Molecular Modeling	Hardware Accelerator	
Molecular Modeling	Bioinformatics	AI/ML engineer II
Molecular Modeling	Genomic Data	AI/ML engineer II
Molecular Modeling	Combinatorial Optimization	-
Molecular Modeling	Sensor	-
Molecular Modeling	Biotechnology	-
Molecular Modeling	Chemistry	scientific leader. molecular design
		senior scientific director, respiratory biology

Variational Algorithm	Hardware Accelerator	-
Variational Algorithm	Bioinformatics	principal scientist/senior scientist neuro-3D complex models
		principal scientist oligonucleotide development UK
		scientific leader, molecular design
		senior scientist - analytical sciences biopharmaceutical process
		ausbildung 2026 biologielaborant (m/w/d)
Variational Algorithm	Genomic Data	(sr.) principal oligo data scientist
		data curation developer
		principal data scientist
		principal statistician
		principle scientist, PMed operations
		reliability engineer 2
		real world data & analytics lead
		senior project engineer
		sr. project engineer
		senior principal - technical architect - externalisation products
		senior principal solution architect
		principal technical architect - M365
		senior principal cloud engineer
		senior principal M365 technical architect - productivity, collaboration & social
		senior principal technical architect - M365 - productivity, collaboration & social
Variational Algorithm	Combinatorial Optimization	-
Variational Algorithm	Sensor	principal data scientist
		reliability engineer 2
		principal statistician
		(sr. principal oligo data scientist
		data curation developer
		principle scientist, PMed operations
		sr. project engineer
		senior project engineer
		senior principal solution architect

		senior principal - technical architect - externalisation products
		principal technical architect - M365
		senior principal cloud engineer
		senior principal M365 technical architect - productivity, collaboration & social
		real world data & analytics lead
		senior principal technical architect - M365 - productivity, collaboration & social
Variational Algorithm	Biotechnology	-
Variational Algorithm	Chemistry	-
Hardware Accelerator	Bioinformatics	-
Hardware Accelerator	Genomic Data	-
Hardware Accelerator	Combinatorial Optimization	regular/senior Vx MES developer
		sr. project engineer
		senior project engineer
		reliability engineer 2
Hardware Accelerator	Sensor	-
Hardware Accelerator	Biotechnology	-
Hardware Accelerator	Chemistry	regular/senior Vx MES developer
		sr. project engineer
		senior project engineer
		reliability engineer 2
Bioinformatics	Genomic Data	director, AI/ML engineering
		AI/ML engineer II
		scientific leader, molecular design
		principal scientist/senior scientist neuro-3D complex models
		principal scientist oligonucleotide development UK
		senior scientist - analytical sciences biopharmaceutical process
		ausbildung 2026 biologielaborant (m/w/d)
Bioinformatics	Combinatorial Optimization	scientific leader. molecular design
		principal scientist/senior scientist neuro-3D complex models
		principal scientist oligonucleotide development UK

		senior scientist - analytical sciences biopharmaceutical process
		ausbildung 2026 biologielaborant (m/w/d)
Bioinformatics	Sensor	scientific leader. molecular design
		principal scientist/senior scientist neuro-3D complex models
		principal scientist oligonucleotide development UK
		senior scientist - analytical sciences biopharmaceutical process
		ausbildung 2026 biologielaborant (m/w/d)
Bioinformatics	Biotechnology	-
Bioinformatics	Chemistry	associate scientist analytical chemistry
		scientific leader, molecular design
		GSK biological's biotech apprentice programme - Tuas, Singapore - 2025
		director, AI/ML engineering
		senior project engineer
		lead for advanced biology and detection tech
		biotechnologist
		microbiologist lead
		sterile processing and facility design microbiological technical expert
		sr. project engineer
		reliability engineer 2
		microbiological technologist - secondment/FTC
		biotechnologist
Genomic Data	Combinatorial Optimization	-
Genomic Data	Sensor	-
Genomic Data	Biotechnology	GSK biological's biotech apprentice programme - Tuas, Singapore - 2025
		lead for advanced biology and detection tech
		microbiologist lead
		sterile processing and facility design microbiological technical expert
		microbiological technologist - secondment/FTC
		directeur sante securite environnement H/F

Genomic Data	Chemistry	oligo data science leader
		(sr.) principal oligo data scientist
		director, AI/ML engineering
Combinatorial Optimization	Sensor	-
Combinatorial Optimization	Biotechnology	-
Combinatorial Optimization	Chemistry	-
Sensor	Biotechnology	GSK biological's biotech apprentice programme - Tuas, Singapore - 2025
		lead for advanced biology and detection tech
		microbiologist lead
		sterile processing and facility design microbiological technical expert
		microbiological technologist - secondment/FTC
Sensor	Chemistry	-
Biotechnology	Chemistry	head of in vivo pharmacology - oligonucleotide sciences

PATHOS

Company Site Jobs
*Only one role across all departments in all locations
IT Operations Manager

[INDEPENDENT NON-COMPANY CONSULTANT] G SITTA SITTAMPALAM

N/A No company site

IBM

Team	Company Site Jobs
Research	quantum computing pre-doctoral researcher
	research scientist
	postdoctoral researcher for climate and sustainability
	postdoctoral researcher - AI for sustainability
	superconducting quantum computing device researcher
	research scientist

	research scientist
	research scientist
	quantum coherence physicist - research scientist
	research scientist, AIU H/W design
	RF/microwave researcher

PHARMA LOGISTICS LTD.

Company Site Jobs
*Only 5 jobs
NetSuite Senior Developer
Customer Success Manager
Shipping and Receiving Associate
Fulfillment Supervisor
Production Associate
Senior Fulfillment Supervisor

SPARROW QUANTUM

Company Site Jobs
*Only 2 jobs
Postdoctoral Researcher
VP of Research

VEEVA SYSTEMS

N/A (No relevant teams)

GALAPAGOS

Company Site Jobs
*Only 5 jobs
Senior/Principal Technician Analytical Development - Flow Cytometry
Senior Clinical Scientist US
Medical Affairs Director EU
(Senior) Technician QC - 6 months - Leiden (NL)
Lab Technician Cell Engineering

IONQ

KEY WORD 1	KEY WORD 2	Company Site Jobs
Quantum	Molecular Modeling	-
Quantum	Variational Algorithm	-
Quantum	Hardware Accelerator	-
Quantum	Bioinformatics	-
Quantum	Genomic Data	-
Quantum	Combinatorial Optimization	-
Quantum	Sensor	-
Quantum	Biotechnology	-
Quantum	Chemistry	director, quantum applications - energy use-cases
		director, quantum applications - sweden site manager
		group product manager - quantum applications, europe
		staff scientist - fault-tolerant quantum algorithms
		staff scientist - quantum chemistry
		senior software engineer - quantum networking
		atomic physicist
		customer success director, chattanooga
		customer success director, europe
		senior staff solutions engineer - financial industry
Molecular Modeling	Variational Algorithm	-
Molecular Modeling	Hardware Accelerator	-
Molecular Modeling	Bioinformatics	-
Molecular Modeling	Genomic Data	-
Molecular Modeling	Combinatorial Optimization	-
Molecular Modeling	Sensor	-
Molecular Modeling	Biotechnology	-
Molecular Modeling	Chemistry	-
Variational Algorithm	Hardware Accelerator	-

Variational Algorithm	Bioinformatics	-
Variational Algorithm	Genomic Data	-
Variational Algorithm	Combinatorial Optimization	-
Variational Algorithm	Sensor	-
Variational Algorithm	Biotechnology	-
Variational Algorithm	Chemistry	-
Hardware Accelerator	Bioinformatics	-
Hardware Accelerator	Genomic Data	-
Hardware Accelerator	Combinatorial Optimization	-
Hardware Accelerator	Sensor	-
Hardware Accelerator	Biotechnology	-
Hardware Accelerator	Chemistry	-
Bioinformatics	Genomic Data	-
Bioinformatics	Combinatorial Optimization	-
Bioinformatics	Sensor	-
Bioinformatics	Biotechnology	-
Bioinformatics	Chemistry	-
Genomic Data	Combinatorial Optimization	-
Genomic Data	Sensor	-
Genomic Data	Biotechnology	-
Genomic Data	Chemistry	-
Combinatorial Optimization	Sensor	-
Combinatorial Optimization	Biotechnology	-
Combinatorial Optimization	Chemistry	-
Sensor	Biotechnology	-
Sensor	Chemistry	-
Biotechnology	Chemistry	-

SARTORIUS

KEY WORD 1	KEY WORD 2	Company Site Jobs
Quantum	Molecular Modeling	-
Quantum	Variational Algorithm	-
Quantum	Hardware Accelerator	-
Quantum	Bioinformatics	-
Quantum	Genomic Data	-
Quantum	Combinatorial Optimization	-
Quantum	Sensor	-
Quantum	Biotechnology	-
Quantum	Chemistry	-
Molecular Modeling	Variational Algorithm	-
Molecular Modeling	Hardware Accelerator	-
Molecular Modeling	Bioinformatics	-
Molecular Modeling	Genomic Data	-
Molecular Modeling	Combinatorial Optimization	-
Molecular Modeling	Sensor	-
Molecular Modeling	Biotechnology	-
Molecular Modeling	Chemistry	-
Variational Algorithm	Hardware Accelerator	-
Variational Algorithm	Bioinformatics	-
Variational Algorithm	Genomic Data	-
Variational Algorithm	Combinatorial Optimization	-
Variational Algorithm	Sensor	-
Variational Algorithm	Biotechnology	-
Variational Algorithm	Chemistry	-
Hardware Accelerator	Bioinformatics	-
Hardware Accelerator	Genomic Data	-
Hardware Accelerator	Combinatorial Optimization	-
Hardware Accelerator	Sensor	-

Hardware Accelerator	Biotechnology	-
Hardware Accelerator	Chemistry	-
Bioinformatics	Genomic Data	-
Bioinformatics	Combinatorial Optimization	-
Bioinformatics	Sensor	-
Bioinformatics	Biotechnology	-
Bioinformatics	Chemistry	-
Genomic Data	Combinatorial Optimization	-
Genomic Data	Sensor	-
Genomic Data	Biotechnology	-
Genomic Data	Chemistry	-
Combinatorial Optimization	Sensor	-
Combinatorial Optimization	Biotechnology	-
Combinatorial Optimization	Chemistry	-
Sensor	Biotechnology	research intern (nanoparticle) - onsite - Marlborough, MA
Sensor	Chemistry	-
Biotechnology	Chemistry	IP search analyst
		graduate trainee
		trainee
		trainee
		manager of regulatory affairs (x|f|m) - hybrid
		intellectual property manager
		IP manager (x|f|m) - hybrid

MERCK GERMANY
N/A No jobs in relevant fields

RCW COMPUTING
N/A No company site found

LAB OF THE FUTURE
N/A No job portal

PISTOIA ALLIANCE
N/A No relevant jobs

NOVO NORDISK

Categories	Company Site Jobs
Clinical Development, Data & AI, Research	Manager for CMC Injectable Formulation & Process
	Scientific Integration Project Lead
	Senior Data Engineer I
	Associate Scientist I - Global Drug Discovery
	Scientist, Quality Control (Microbiology) Days
	Data & AI Strategy Senior Director
	International Medical Vice President, Diabetes
	PMS Associate (1year)
	(Sr.) Data Scientist - Maternity Cover
	Medical Reviewer
	Associate Medical Reviewer
	Primary Packaging Engineer
	(Sr.) Clinical Medical Manager
	BI Data Analyst
	Senior Medical Reviewer
	Senior Director - AI Engineering and Analytics Automation
	AI Engineer
	AI/ML Platform Engineer
	Senior Research Associate - Non-viral Delivery
	Process Engineer I - Active Pharmaceutical Ingredients
	Director/Senior Director for Medical & Science Devices & Digital Health
	Scientist/Principal Scientist for Precision

	Medicine & Biomarkers (parental cover)
	Global Trial Execution Council Manager
	(Senior) Clinical Pharmacology Scientific Director
	3rd Shift Scientist, Quality Control
	Sr. Research Associate - Formulation Scientist
	Principal Scientist, QC - Days
	Data & Analytics Manager
	Junior Start up Specialist
	Data Scientist
	Open Rank Scientist-Assay Automation
	Attending Veterinarian
	Director, Pharmacology and Histopathology
	Open Rank Scientist-Metabolic/Liver Disease cell based assay

ROCHE

Category	Subcategory	Company Site Jobs
Research & Development	Clinical Development	Senior Medical Writer
		Clinical Scientist, Early Development (Immunology)
		Principal Medical Director Multiple Sclerosis & Neuroimmunology
		Nonclinical Scientific Writer
		Pathologist
		(Lead) Clinical Director - Alzheimer's disease
		(Lead) Medical Director (Immunology, Gastroenterology prefered)
		Manager, CAP CLIA Laboratory Operations
		Senior Clinical Development Scientist (Neurodegeneration)
		Customer Projects Expert
		Manager, Clinical Program Management
Research & Development	Devices / Systems / Solutions	GPU Software Engineer

		DevOps Engineer
		Manager Assay Development
		Senior Software Engineer, Cybersecurity
		Software Engineer with DevOps Affinity
		Subchapter lead product & portfolio management
		Sub Chapter Lead Data Exchange
		SW Engineer in Test
		Quality Engineering Senior Lead
		Principal DevOps Engineer
		Technical Project Manager
		Senior Software Engineer
Research & Development	Drug Safety	Associate Director / Director Safety Scientist
		Patient Safety Partner
		Patient Safety Partner
		Patient Safety Partner
		Patient Safety Lead (Qualified Person of Pharmacovigilance)
		Patient Safety Partner
Research & Development	Modelling & Simulation	Pharmacometrician (temporary contract for 2 years)
Research & Development	Research Informatics	Sr. Bioinformatics Engineer

BOEHRINGER INGELHEIM

Job Functions	Company Site Jobs
Development	Technologist, Senior Histology
	(Senior) Analytical Expert
	Pharmaziepraktikum im Bereich "Patient Centricity" in der Pharmazeutischen Entwicklung
	Pharmaziepraktikum QC Systems
	Senior Principal Scientist, Project Team Toxicologist
	Principal Scientist, Material and Analytical

	Sciences
Clinical	Head of Clinical Sciences, Neuroscience & Mental Health
	Animal Research Technician
	Clinical Trial Manager
	Animal Research Technician
	Animal Research Technician
	AH Clinical Veterinarian
Biopharmaceuticals	Unitleitung Upstream Development (m/w/d)
	Praktikum - Einfluss von Hilfsstoffen auf die Stabilitat flussiger Proteininformulierungen
	Praktikum in der Prozessentwicklung Downstream fur Biotherapeutika
	Product Life Cycle Internship
	Post Doc - Characterization of Proteintherapeutics
	Pharmaziepraktikum Drug Discovery Sciences
	(Pharmazie-)Praktikum Pharmaceutical Dev. Biologicals - Primary Packaging & Process Dev. Parenterals
	Postdoctoral Fellow - Biomanufacturing Downstream Process Modeling, Fremont CA
	Ausbildung als Pharmakant*in in Ingelheim 2026
	(Pharmazie-)Praktikum Medical in-use, Pharmaceutical Dev. Biologicals
Data Science	Expert or Scientific Lead IU Digital Portfolio Management
	Lead Site Analyst
	Senior or Principal Scientist of Human Genetics
	Senior Clinical Data Scientist
	Senior Clinical Data Scientist
	Principal Clinical Data Scientist
	Principal Clinical Data Scientist
	Senior Clinical Data Scientist
	Data Enablement Specialist

	Data Enablement Coordinator
	Associate Therapeutics Area Analytics and Insight Manager

Appendix D: COLLEGES IN THE SACRAMENTO VALLEY

CSU SACRAMENTO

key word	courses	depar tment	majors	completions 2023-2024
quantum	quantum mechanics	PHYS 150	PHYSICS	physics, general 9
pharma			physics BA	biology, general 303
combinatorial optimization			physics (teacher preparation) BA	biochemistry, 27
information theory			physics BS	computer science, 266
information science			physics (applied physics) BS	computer software engineering, 0
bioinformatics	genomics, proteotics, and bioinformatics	BIO22 4	physics (biophysics) BS	computer engineering, general 65
			scientific computing and simulation certificate	
			scientific instrument development certificate	
	bioinformatics: data integration and algorithms	CSC2 12	BIOLOGICAL SCIENCE	
biotechnology			biological science BA	
			biological science (biomedical sciences) BS	
			biological science (cell and molecular biology) BS	
			biological science (general biology) BS	
			biological science	

			(ecology, evolution, and conservation) BS	
			biological science (clinical laboratory sciences) BS	
			biological science (microbiology) BS	
			biological science (stem cell) MA	
			biological science MA	
			biological sciences MS	
			biotechnology MS	
			marine science MS	
			biological science honors program	
			issues in natural resource management certificate	
			cooperative education program (work experience)	
			subject matter program (biology)	
			COMPUTER SCIENCE	
			computer science BS	
			computer science MS	
			software engineering MS	
			advanced programs certificate (grad)	
			computer architecture certificate (grad)	
			computer	

			engineering certificate (grad)	
			computer networks and communications certificate (grad)	
			cyber defense and operations certificate	
			data management systems certificate (grad)	
			data mining certificate (grad)	
			game engineering certificate	
			information assurance and security certificate	
			information assurance and security certificate (grad)	
			intelligent systems certificate (grad)	
			software engineering certificate	
			software engineering certificate (grad)	
			systems software certificate	
			systems software certificate (grad)	
			teaching cybersecurity for high schools certificate	

CSU CHICO

key word	courses	depar tment	link	majors	completion s 2023-2024

quantum	applied quantum computing for computer scientists	CSCI 520	https://catalog.csuchico.edu/course-search/?keyword=quantum#	COMPUTER SCIENCE	computer science, 91
	quantum, computing, mathematics, & physics educators program	EDTE 896A	https://catalog.csuchico.edu/course-search/?keyword=quantum#	computer information systems BS	education, general 14
	introduction to modern physics: relativity and quantum theory	PHYS 300	https://catalog.csuchico.edu/course-search/?keyword=quantum#	computer science BS	physics, general 9
	quantum mechanics I	PHYS 435A	https://catalog.csuchico.edu/course-search/?keyword=quantum#	computer science MS	biochemistry 9
				data science certificate	biology, general 96
	quantum mechanics II	PHYS 435B	https://catalog.csuchico.edu/course-search/?keyword=quantum#	EDUCATION	botany/ plant biology 0
pharma				education MA	microbiology, 13
combinatorial optimization				teaching MA	
				teaching credential	
				preliminary administrative services credential program	
information theory				PHYSICS	
information science				physics BS (general physics)	
				physics BS (professional physics)	

				single-subject teaching credential in physics	
bioinformatics	bioinformatics for biologists	BIOL 482	https://catalog.csuchico.edu/course-search/?keyword=quantum#	BIOLOGICAL SCIENCE	
	bioinformatics	CSCI 582	https://catalog.csuchico.edu/course-search/?keyword=quantum#	biological sciences BA	
biotechnology				biological sciences BS	
				microbiology BS	
				biological sciences MS	
				botany MS	
				single subject matter preparation program in science w/ a concentration in biological science	
				biology pre-professional programs	

UC DAVIS

key word	courses	department	majors	degree/program completions 2023-2024
quantum	quantum chemistry: introduction & stationary state properties	CHE 210A	CHEMISTRY	chemical physics, 6
	quantum chemistry: time-dependent systems	CHE 210B	applied chemistry, BS	chemistry, general 92
	quantum chemistry: molecular spectroscopy	CHE 210C	chemical physics, BS	chemistry, other 42
	mathematical quantum mechanics	MAT 265	chemistry & chemical biology, PhD	physics, general 61

	mathematical statistical mechanics & quantum field theory	MAT266	chemistry & chemical biology, MS	physics, other 24
	foundation of quantum mechanics	PHYS 115A	chemistry, BA	applied mathematics, general 79
	applications of quantum mechanics	PHYS 115B	chemistry, BS	mathematics, general 68
	quantum mechanics	PHYS 215A	medicinal chemistry & drug design, BS	computational mathematics, 18
	quantum mechanics	PHYS 215B	pharmaceutical chemistry, MS	mathematics, other 19
	quantum mechanics	PHYS 215C	MATHEMATICS	computer engineering, general 101
	quantum theory of fields	PHYS 230A	applied mathematics, BS	electrical and electronic engineering, 176
	quantum theory of fields	PHYS 230B	mathematics, BA	computer science, 501
	quantum theory of fields	PHYS 230C	mathematics, BS	statistics, general 221
	special topics in applied science: quantum electronics	EAD289I	mathematics, MA	biochemistry 0
	physical chemistry: introduction to quantum mechanics	CHE110A	mathematics, PhD	biochemistry and molecular biology 0
	quantum information theory	MAT267	mathematical & scientific computation, BS	biochemistry, biophysics and molecular biology, other 23
	computational physics lab for quantum mechanics	PHYS 115L	mathematical analytics & operations research, BS	biology, general 334
pharma			PHYSICS & ASTRONOMY	biomedical sciences, general 96
combinatorial optimizatio			applied physics, BS	biophysics 6

n				
information theory	information theory & coding	EEC266	physics, BA	biostatistics 7
	quantum information theory	MAT267	physics, BS	biotechnology 74
information science			physics, MS	cell physiology 12
bioinformatics	statistical methods for bioinformatics	BST226	physics, PhD	environmental toxicology 18
	advanced computational structural bioinformatics	ECS229	ELECTRICAL AND COMPUTER ENGINEERING	genetics, general 108
	special topics in bioinformatics & computational biology	ECS289N	computer engineering, BS	microbiology, general 90
	special topics in bioinformatics & computational biology	ECS189N	electrical & computer engineering, BS/MS integrated degrees program	molecular biochemistry 160
	computational structura; bioinformatics	ECS129	electrical & computer engineering, MS	pharmacology and toxicology 12
	statistical methods for bioinformatics	STA226	electrical & computer engineering, PhD	plant pathology/phytopathology 6
	theory & practice of bioinformatics	ECS124	electrical engineering, BS	zoology/animal biology 81
	applied bioinformatics	BIT150	COMPUTER SCIENCE	ecology 30
biotechnology	biotechnology law & policy	LAW289A	computational biology, minor**	biochemical engineering 15
	current progress in biotechnology	DEB294	computer science & engineering, BS	chemical and biomolecular engineering 32
	biotechnology fundamentals & application	DEB263	computer science, BS	chemical engineering 76
	biotechnology internship	DEB282	STATISTICS	bioengineering and biomedical engineering 116
	internship in biotechnology	BIT092	data science, BS	

	internship in biotechnology	BIT192	statistics, BA	
	selected topics in applied biological systems technology: biotechnology	ABT289B	statistics, BS	
	introduction to biotechnology	BIT001Y	statistics, MS	
	undergraduate seminars in biotechnology	BIT091	statistics, PhD	
	principles of plant biotechnology	BIT160	ANIMAL BIOLOGY (GRADUATE GROUP)	
	genetics & biotechnology laboratory	BIT161A	animal biology, MS	
	plant genetics & biotechnology laboratory	BIT161B	animal biology, PhD	
	professionalism & ethics in genomics & biotechnology	BIT171	GEOGRAPHY (GRADUATE GROUP)	
	laboratory research in genomics & biotechnology	BIT189L	geography, MA	
	honors thesis in biotechnology	BIT194H	geography, PhD	
	advances in animal biotechnology & genetics	ABG211	PLANT SCIENCES	
	current topics in insect biotechnology & genomics	ENT293N	biotechnology, BS	
	genomics & biotechnology of plant improvement	GGG220	ecological management & restoration, BS	
	postharvest biology & biotechnology of fruits & nuts	PLS212	environmental horticulture & urban forestry, BS	
	genomics & biotechnology of plant improvement	PLS220	international agricultural development, BS	
	special topics in chemical engineering: biotechnology	ECH289E	plant sciences, BS	
	current progress in biotechnology	ECH294	CHEMICAL ENGINEERING	
	biotechnology internship	MCB2	biochemical	

		82	engineering, BS	
	biotechnology-a new era, a new struggle	SAS090E	chemical engineering, BS	
	special topics in applied science: biophotonics/biotechnology	EAD289D	chemical engineering, ME	
	biotechnology facility design & regulatory compliance	ECH161C	chemical engineering, MS	
	https://catalog.ucdavis.edu/departments-programs-degrees/#departmentstext		chemical engineering, PhD	
			MOLECULAR AND CELLULAR BIOLOGY	
			biochemistry & molecular biology, BS	
			cell biology, BS	
			genetics & genomics, BS	
			SCIENCE AND SOCIETY	
			contemorary leadership, minor**	
			science & society, minor**	
			BIOTECHNOLOGY	
			cell and gene therapy manufacturing specialization	

AMERICAN RIVER COLLEGE

key word	courses	department	majors	completions 2023-2024
quantum			BIOLOGY AND BIOTECHNOLOGY	biology, general 20
pharma	biotechnology and human health	BIOT301	biology AST	biomedical technology/technician 16
	organic chemistry I	CHEM420	biotechnology AS	health services/allied health/health sciences,

				general 8
	physiology and pharmacology: alcohol and other drugs	HSER341	biotechnology certificate	respiratory care therapy 0
	physiology and pharmacology: alcohol and other drugs	PSYC401	HUMAN SERVICES	psychology, general 159
	respiratory care pharmacology	RC124	chemical dependency studies AA	human services, general 28
combinatorial optimization			human services AA	economics, general 70
			chemical dependency studies certificate	business administration and management, general 251
			human services certificate	business/commerce, general 31
			mental behavioral health certificate	computer and information systems security/auditing/information assurance 19
information theory	business economics	BUS110	PSYCHOLOGY	computer programming, general 29
information science	outlook: basics	CISA126	psychology AAT	computer science 32
	outlook: tools	CISA127	psychology AA	data entry/microcomputer applications, general 5
	beginning word processing - WORD 365/2019	CISA305	RESPIRATORY CARE	
	presentation graphics - powerpoint 365/2019	CISA 340	respiratory care AS	
	introduction to computer information science	CISC310	BUSINESS	
	work experience in computer information science - core	CISC498	business administration 2.0 AST	
	statistics for business	ECON3	entrepreneurship AA	

	and economics	10		
bioinformatics	biotechnology and human health	BIOT301	general business AA	
biotechnology	biotechnology and human health	BIOT301	business information worker certificate	
			computer applications for small business certificate	
			cross-cultural conflict resolution certificate	
			entrepreneurship/small business management certificate	
			general business certificate	
			marketing essentials certificate	
			COMPUTER INFORMATION SCIENCE	
			microcomputer applications AA	
			computer networking management AS	
			computer programming AS	
			database management AS	
			information technology technician AS	
			computer science AS	
			cybersecurity and	

			information assurance AS	
			information systems security management certificate	
			computer networking management certificate	
			database management certificate	
			computer programming certificate	
			microcomputer applications certificate	
			PC support certificate	
			computer information security essentials certificate	
			cybersecurity and information assurance certificate	
			cybersecurity and information security administration certificate	
			enterprise software engineering and development apprenticeship certificate	
			internet marketing certificate	
			network	

			administration essentials - windows certificate	
			web developer certificate	
			web publishing (front-end) certificate	
			ECONOMICS	
			economics AAT	

COSUMNES RIVER COLLEGE

key word	courses	department	majors	total completions 2023-2024
quantum	general chemistry I	CHEM 400	CHEMISTRY	chemistry, general 0
	heat, waves, light and modern physics	PHYS431	chemistry AS	physics, general 7
pharma	pharmacology for the health care professional	AH124	PHYSICS	health services/allied health/health sciences, general 9
	essentials of human anatomy and physiology	BIOL102	physics AS	pharmacy technician/assistant 7
	introduction to pharmacy practice	PHARM300	physics AST	health information/medical records technology 29d
	pharmaceutical information management	PHARM350	ALLIED HEALTH	computer and information science, general 33
	retail operation of pharmaceutical practice	PHARM360	pre-health occupations AS	computer and information systems security/auditing/information assurance 22
	pharmaceutical calculations II	PHARM370	PHARMACY TECHNOLOGY	computer programming, general 17
	preparation of sterile products	PHARM380	pharmacy technology AS	computer science 34
combinatorial optimization			pharmacy technician certificate	information technology 10

information theory	supervision for the allied health professional	HIT160	HEALTH INFORMATION TECHNOLOGY	economics, general 17
information science	introduction to computer information science	CISC310	health information technology AS	
	networking helpdesk practicum	CISCN490	health information coding specialist	
	introduction to relational database design and SQL	CISP351	COMPUTER INFORMATION SCIENCE	
	object oriented programming with C++	CISP400	computer science AS	
	web publishing	CISW300	cybersecurity and information assurance AS	
	XML: introduction to extensible markup language	CISW440	information technology associate AS	
	statistics for business and economics	ECON310	management information systems AS	
	mechanics of solids and fluids	PHYS411	web developer AS	
			computer programmer-SQL certificate	
			database analyst-SQL certificate	
			database design certificate	
			object oriented software development certificate	
			programming in C/C++ certificate	
			relational database administration certificate	
			web programming	

			certificate	
			web publishing certificate	
			computer science certificate	
			cyber defense certificate	
			cybersecurity certificate	
			information technology associate certificate	
			information technology technician certificate	
bioinformatics			ECONOMICS	
biotechnology			economics AAT	

FOLSOM LAKE COLLEGE

key word	courses	department	majors	completions 2023-2024
quantum	general chemistry I	CHEM 400	COMPUTER INFORMATION SCIENCE	computer and information sciences, general 5
pharma	quantitative analysis	CHEM 410	computer science AS	computer programming, general 12
	organic chemistry I	CHEM 420	information technology AS	computer science 39
	organic chemistry II	CHEM 421	computer programming certificate	economics, general 66
combinatorial optimization			algorithmic and logical thinking certificate	biology, general 26
information theory			information technology certificate	environmental science 3

information science	organic chemistry I	CHEM 420	ECONOMICS	
	introduction to computer information science	CISC310	economics AAT	
	work experience in computer information science - core	CISC498	BIOLOGY	
	statistics for business and economics	ECON 310	biological sciences AS	
bioinformatics			biology AST	
biotechnology	biology of organisms	BIOL307	environmental science AS	
			environmental science AST	
			biology UC preparation certificate	
			environmental science certificate	

SACRAMENTO CITY COLLEGE

key word	courses	department	majors	completions 2023-2024
quantum	general physics	PHYS360	CHEMISTRY	chemistry, general 12
	heat, waves, light and modern physics	PHYS430	chemical technology AS	dental assisting 8
pharma	general chemistry I	CHEM 400	chemistry AS	dental hygiene 14
	general chemistry II	CHEM 401	chemical technician, advanced certificate	health services/allied health/health sciences, general 28
	quantitative analysis	CHEM 410	chemical technician, beginning certificate	licensed practical/vocational nurse training 32
	organic chemistry - short survey	CHEM 423	chemical technician, intermediate certificate	registered nursing/registered nurse 45

	instrumentation	CHEM T424	chemical technology certificate	speech communication and rhetoric 33
	patient assessment	DAST103	DENTAL ASSISTING	english language and literature, general 18
	pharmacology	DHYG139	dental assisting AS	chemical technology 35
	pharmacology and implications for nursing	NURSE 315	dental assisting certificate	computer and information systems security/auditing/information assurance 35
	fundamentals of health and nursing care	NURSE 407	DENTAL HYGIENE	computer programming, general 33
	nursing and health maintenance through the lifecycle	NURSE 417	dental hygiene AS	computer science 0
	nursing complex health problems through the life cycle	NURSE 427	NURSING	computer systems analysis 9
	nursing in complex and multiple patient care	NURSE 437	LVN-RN transition to registered nursing AS	data entry/microcomputer applications, general 13
	anatomy, physiology and pathology of the eye	OPT101	nursing, registered AS	data modeling/warehousing and database administration 0
combinatorial optimization			nursing, vocational AS	web page, digital/multimedia and information resources design 3
information theory	group discussion	COMM 331	LVN-RN 30-unit option certificate	web/multimedia management and webmaster 0
	argumentative writing and critical thinking through literature	ENGW R303	nursing, vocational certificate	
information science	introduction to computer information science	CISC310	COMMUNICATION	
	introduction to data communications	CISC355	communication AA	

	microcomputer and applications support	CISC362	communication studies 2.0 AAT	
	introduction to systems analysis and design	CISP457	applied communication skills certificate	
	introduction to web page creation and web accessibility	CISW306	professional and workplace communication certificate	
bioinformatics			ENGLISH	
biotechnology			english AA	
***lot of irrelevant degrees			english AAT	
			COMPUTER INFORMATION SCIENCE	
			computer science AS	
			cybersecurity and information assurance AS	
			data science AS	
			information processing AS	
			management information science AS	
			network administration AS	
			network design AS	
			web developer AS	
			advanced CISCO networking certificate	
			cloud computing certificate	
			computer information security essentials	

			certificate	
			computer science certificate	
			cybersecurity and information assurance certificate	
			data science certificate	
			front-end web developer certificate	
			information processing specialist certificate	
			information processing technician certificate	
			management information science certificate	
			network administration certificate	
			network design certificate	
			PC support certificate	
			programming certificate	
			web developer certificate	
			web production specialist certificate	

YUBA COLLEGE

key word	courses	department	majors	completions 2023-2024
quantum			NURSING	registered nursing 116
pharma	pharmacology	NURS11B	biology-allied health pre-ADN AS	psychology, general 149

	pharmacology	NURS26	biology-allied health pre-BSN AS	biology, general 245
	pharmacology A	PSYCT55	LVN to RN career mobility program AS	
	pharmacology B	PSYCT60	nursing AS	
combinatorial optimization			PSYCHIATRIC TECHNICIAN	
information theory			psychiatric technician certificate	
information science				
bioinformatics				
biotechnology				

BUTTE COLLEGE

key word	courses	department	majors	completions 2023-2024
quantum			BIOLOGY	biology, general 14
pharma			biology AST	health services/allied health/health sciences, general 15
combinatorial optimization			biological sciences AS	
information theory			health occupations preparation AS	
information science				
bioinformatics				
biotechnology	introduction to biology	BIOL1		
	cell, molecular biology	BIOL41		

SHASTA COLLEGE

key word	courses	department	majors	completions 2023-2024
quantum	physics-fluids/therm/wvs/o	PHYS4C	PHYSICS	physics, general 8

	pt/R			
	general college physics	PHYS2B	physics AST	biological and physical sciences 114
pharma	pharma of alcohol/addict subst	ADS14	BIOLOGY	
combinatorial optimization			biological sciences AA	
information theory			natural sciences AS	
information science			natural sciences AA	
bioinformatics				
biotechnology	microbiology	MICR1		

WOODLAND COLLEGE

key word	courses	department	completions 2023-2024
quantum			
pharma			
combinatorial optimization			
information theory			
information science			
bioinformatics			
biotechnology			

Appendix E1: PhRMA MEMBERS

ALKERMES

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
No Relevant Filter	N/A	N/A	https://www.linkedin.com/company/alkermes/people/?facetGeoRegion=90000082

AMGEN

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Research	Research Skills	2	https://www.linkedin.com/company/amgen/people/?facetCurrentFunction=24&facetGeoRegion

			=90000082&facetSkillExplicit=176
	Pharmaceutics	1	https://www.linkedin.com/company/amgen/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=10369
	Laboratory Techniques	1	https://www.linkedin.com/company/amgen/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=12858
Information Technology	Data Analysis	2	https://www.linkedin.com/company/amgen/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=2470
Engineering	Software Development	2	https://www.linkedin.com/company/amgen/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=602
	Biochemistry	1	https://www.linkedin.com/company/amgen/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=1980

ASTELLAS PHARMA

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Information Technology	Pharmaceutics	1	https://www.linkedin.com/company/astellaspharmainc/people/?facetCurrentFunction=13&facetGeoRegion=90000082
Research	Pharmaceutics	1	https://www.linkedin.com/company/astellaspharmainc/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=10369
	Clinical Development	1	https://www.linkedin.com/company/astellaspharmainc/people/?

			facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=1775

ASTRAZENECA

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Research	Clinical Operations	1	https://www.linkedin.com/company/astrazeneca/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=43823

Appendix E2: BIOTECH PARTNERSHIP MEMBERS

THERMO FISHER SCIENTIFIC

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Research	Data Analysis	14	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=2470
	Research Skills	8	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=176
	Analytical Skills	8	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=3203
	Genomics	7	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=3382
	Next-Generation Sequencing (NGS)	6	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=28127

	Laboratory Skills	6	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=43879
	Research and Development (R&D)	6	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=544
	Biotechnology	6	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=784
Engineering	Research and Development (R&D)	7	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=544
	Engineering	5	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=166
	Product Development	4	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=158
	Data Analysis	3	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=2470
	Design of Experiment (DOE)	3	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=4217
	Laboratory Skills	3	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=8

			&facetGeoRegion=90000082&facetSkillExplicit=43879
Information Technology	Research Skills	5	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=176
	Data Analysis	5	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=2470
	Laboratory Skills	5	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=43879
	Biotechnology	5	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=784
	Analytical Skills	4	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=3203
	Life Sciences	4	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=805
	Analytical Chemistry	3	https://www.linkedin.com/company/thermo-fisher-scientific/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=3121

ORCA BIO

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Research	Laboratory Skills	15	https://www.linkedin.com/co

			mpany/orcabio/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=43879
	Data Analysis	14	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=2470
	Biotechnology	8	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=784
Engineering	Data Analysis	7	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=2470
	Laboratory Skills	7	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=43879
	Biotechnology	5	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=784
	Manufacturing Process Improvement	4	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=82
Information Technology	Biotechnology	2	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=784
	Molecular Biology	1	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillE

			xplicit=1167
	Protein Chemistry	1	https://www.linkedin.com/company/orcabio/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=1476

JACKSON LAB
N/A Not available on LinkedIn

Appendix E3: OTHER TALENT IN THE SACRAMENTO VALLEY

INTEL

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Engineering	Embedded Systems	511	https://www.linkedin.com/company/intel-corporation/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=616
	Software Development	449	https://www.linkedin.com/company/intel-corporation/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=602
Information Technology	Software Development	156	https://www.linkedin.com/company/intel-corporation/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=602
	Embedded Systems	99	https://www.linkedin.com/company/intel-corporation/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=616

GENENTECH

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Research	Research Skills	28	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=24&facetGeoRegion=90000082&fac

			etSkillExplicit=176
	Biotechnology	25	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=784
	Laboratory Skills	21	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=43879
	Laboratory Information Management Systems	11	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=24&facetGeoRegion=90000082&facetSkillExplicit=3761
Engineering	Biotechnology	10	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=784
	Pharmaceutics	7	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=10369
	Data Analysis	7	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=2470
	Biopharmaceuticals	5	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=4253
	Laboratory Information Management Systems	4	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=3761
	Design of Experiments	4	https://www.linkedin.com/co

			mpany/genentech/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=4217
Information Technology	Research Skills	6	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=176
	Analytical Skills	5	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=3203
	Biotechnology	4	https://www.linkedin.com/company/genentech/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=784

MICROSOFT

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Engineering	Software Development	41	https://www.linkedin.com/company/microsoft/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=602
	Embedded Systems	21	https://www.linkedin.com/company/microsoft/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=616
Information Technology	Data Analysis	10	https://www.linkedin.com/company/microsoft/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=2470
	Software Development	10	https://www.linkedin.com/company/microsoft/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=602

	Manufacturing Process Improvement	6	https://www.linkedin.com/company/microsoft/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=992

QC WARE

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
N/A	N/A	None in Greater Sacramento	https://www.linkedin.com/company/qcware/people/?facetGeoRegion=90000082

ATOS

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Information Technology	Manufacturing Process Improvement	3	https://www.linkedin.com/company/atos/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=992
	Data Analysis	2	https://www.linkedin.com/company/atos/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=2470
	Information Technology	2	https://www.linkedin.com/company/atos/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=4725
Engineering	Engineering	1	https://www.linkedin.com/company/atos/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=166
	Enterprise Software	1	https://www.linkedin.com/company/atos/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=1989

QUANTINUUM

"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
No Relevant Filters	N/A	N/A	https://www.linkedin.com/company/quantinuumqc/people/?facetGeoRegion=90000082

GILEAD SCIENCES

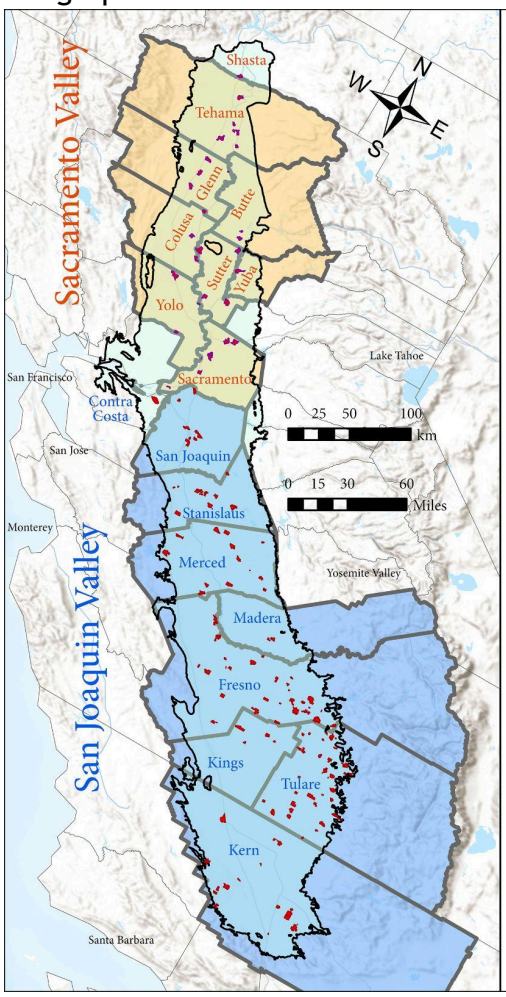
"What they do"	"What they are skilled at"	Number of Employees on LinkedIn	Link
Research	Analytical Skills	6	https://www.linkedin.com/company/gilead-sciences/people/?facetGeoRegion=90000082&facetSkillExplicit=3203
Information Technology	Data Analysis	2	https://www.linkedin.com/company/gilead-sciences/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=2470
	Strategy	1	https://www.linkedin.com/company/gilead-sciences/people/?facetCurrentFunction=13&facetGeoRegion=90000082&facetSkillExplicit=107
Engineering	Software Project Management	1	https://www.linkedin.com/company/gilead-sciences/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=2157
	Data Analytics	1	https://www.linkedin.com/company/gilead-sciences/people/?facetCurrentFunction=8&facetGeoRegion=90000082&facetSkillExplicit=33049

Addendum

Geographical Distribution of Historical native Tribes in the Sacramento Valley Area

Indigenous groups who have claimed or been claimed as residents of the Sacramento Valley. This may be a useful impetus for determining the long-standing working socioeconomic definition of the Sacramento Valley regional development planning, e.g., differential sociolegal negotiation optimization opportunities, especially within the context of historically-optimized trade and transportation logistics [34].

Geographical Distribution of Central Valley's rural disadvantaged communities



Central Valley
California counties
Disadvantaged communities
Sacramento Valley counties
San Joaquin Valley counties

Sacramento Valley

County	Place
Shasta	Cottonwood
Tehama	Bend, Corning, Gerber, Las Flores, Los Molinos, Tehama, Vina
Glenn	Artois, Hamilton City, Orland, Willows
Butte	Biggs, Gridley
Colusa	Colusa, Grimes, Princeton
Sutter	East Nicolaus, Live Oak, Meridian, Robbins
Yuba	Marysville
Yolo	Dunnigan, Knights Landing, University of California-Davis
Sacramento	Foothill Farms, Franklin CDP (Sacramento County), Freeport, Isleton, McClellan Park, Parkway

San Joaquin Valley

County	Place
Contra Costa	Bethel Island
San Joaquin	August, Country Club, French Camp, Garden Acres, Kennedy, Taft Mosswood, Terminous, Thornton
Stanislaus	Airport, Bret Harte, Bystrom, Crows Landing, Empire, Grayson, Hickman, Keyes, Parklawn, Riverdale Park, Rouse, Valley Home, Waterford, West Modesto, Westley
Merced	Ballico, Bear Creek, Delhi, Dos Palos, Dos Palos Y, El Nido, Franklin CDP, Gustine, Le Grand, Planada, Santa Nella, Snelling, South Dos Palos, Winton
Madera	Parksdale, Parkwood
Fresno	Biola, Calwa, Cantua Creek, Caruthers, Del Rey, Firebaugh, Fowler, Huron, Kerman, Laton, Malaga, Mendota, Monmouth, Orange Cove, Parlier, Reedley, Riverdale, San Joaquin, Sanger, Selma, Three Rocks, Tranquility, West Park, Westside
Tulare	Allensworth, Alpaugh, Cutler, Ducor, Earlimart, East Orosi, East Porterville, Exeter, Farmersville, Goshen, Ivanhoe, Lemon Cove, Lindcove, Lindsay, Linnell Camp, London, Matheny, Monson, Orosi, Patterson Tract, Pixley, Plainview, Poplar-Cotton Center, Richgrove, Seville, Strathmore, Sultana, Terra Bella, Teviston, Tipton, Tonyville, Tooleville, Traver, West Goshen, Woodlake, Woodville
Kings	Armona, Home Garden, Lemoore Station, Stratford
Kern	Arvin, Edmundson Acres, Ford City, Fuller Acres, Greenfield, Lamont, Lost Hills, Maricopa, Mayfair, McFarland, McKittrick, Mettler, Mexican Colony, Smith Corner, South Taft, Taft Heights, Tupman, Valley Acres, Weedpatch

Map of the Central Valley's rural communities classified as disadvantaged communities by the California Department of Water Resources with <15 km 2 of area. The Sacramento Valley contains 31 of those communities, while the San Joaquin Valley accounts for 123. Tulare County is the county with more of those communities (37), followed by Fresno (24) and Kern (20) [36].

Geographical Distribution of Regions of California

Typified Regions of California according to politicocultural distribution of socioeconomic activity