



Occupation Report

Computer and Information Research Scientists

Sacramento-Roseville-Folsom, CA MSA

A horizontal line with three circular markers: a light blue circle on the left, a dark blue circle in the middle, and a grey circle on the right.

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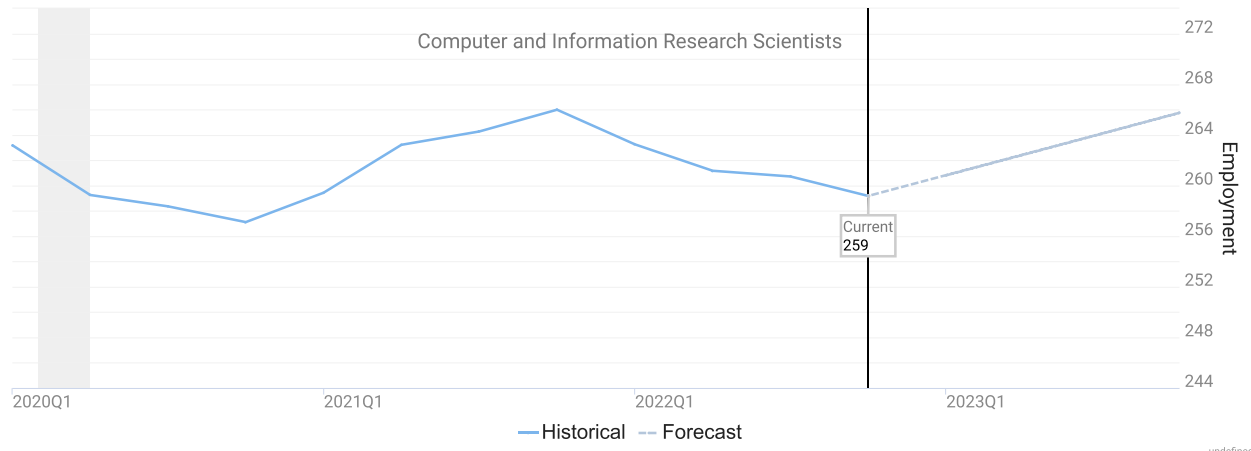
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Occupation Snapshot



6-Digit Occupation	Empl	Avg Mean Wages	LQ	3-Year Empl Change	Annual Demand	Forecast Ann Growth
Computer and Information Research Scientists	259	\$189,000	1.12	-7	26	2.5%
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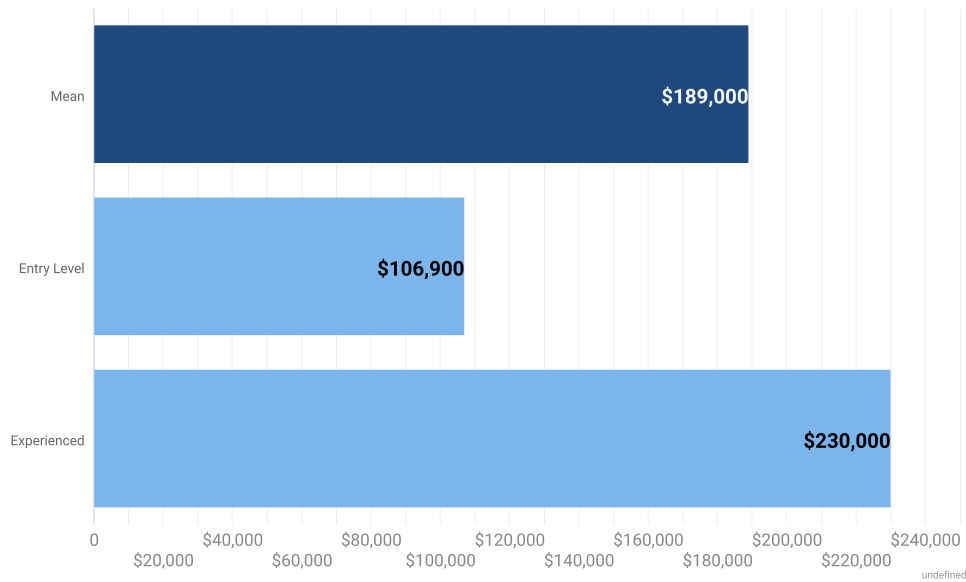
- 💡 “Annual Demand” is the projected need for new entrants into an occupation. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.
- 💡 “Forecast Ann Growth” is the expected change in jobs due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix and population growth (as computed and modeled by Chmura).

Employment by Industry

Industry Title	% of Occ Empl	Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Scientific Research and Development Services	34.8%	90	70	26	96
Computer Systems Design and Related Services	19.1%	50	40	19	59
Colleges, Universities, and Professional Schools	7.7%	20	15	6	21
Architectural, Engineering, and Related Services	3.8%	10	7	2	9
Administration of Environmental Quality Programs	3.7%	10	7	1	8
Software Publishers	3.6%	9	7	2	10
Justice, Public Order, and Safety Activities	3.2%	8	6	1	7
Employment Services	3.1%	8	6	2	8
Administration of Economic Programs	2.5%	7	5	1	6
Web Search Portals, Libraries, Archives, and Other Information Services	1.6%	4	3	2	6
Administration of Human Resource Programs	1.6%	4	3	1	4
National Security and International Affairs	1.5%	4	3	1	3
Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	1.5%	4	3	1	4
Executive, Legislative, and Other General Government Support	1.4%	4	3	1	3
Outpatient Care Centers	1.4%	4	3	1	4
Management, Scientific, and Technical Consulting Services	1.4%	4	3	1	4
Management of Companies and Enterprises	1.3%	3	3	1	3
Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	1.0%	3	2	1	3
Computer and Peripheral Equipment Manufacturing	0.9%	2	2	1	2
Semiconductor and Other Electronic Component Manufacturing	0.8%	2	2	1	2
All Others	4.1%	11	8	2	10

-  The industry distribution indicates the industries in which workers in the occupation(s) are primarily found.
-  “10-Year Empl Growth” may show industries with positive as well as negative growth; this would indicate that the occupation(s) being examined are expected to expand within some industries while contracting in others.

Wages

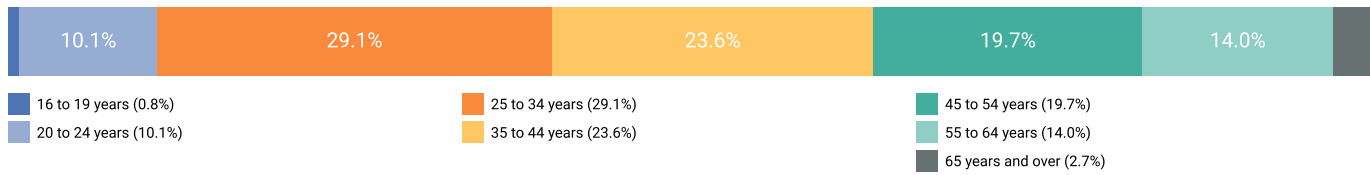


Occupation	Mean	Median	Entry Level	Experienced
Computer and Information Research Scientists	\$189,000	\$157,300	\$106,900	\$230,000

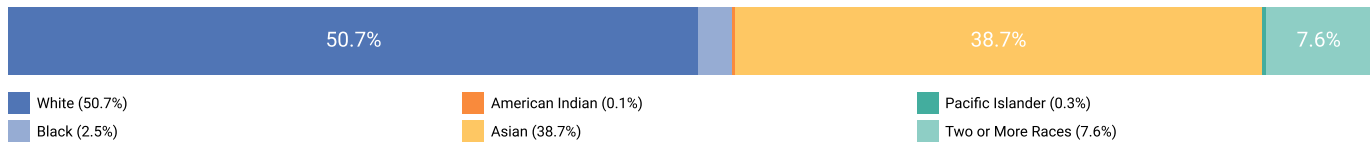
- 💡 Occupation wages here utilize BLS OEWS data, imputed and brought forward by Chmura.
- 💡 When this report is run for an occupation group, the table above displays up to the top ten detailed occupations which have the highest average wages within the occupation group.

Occupation Demographics

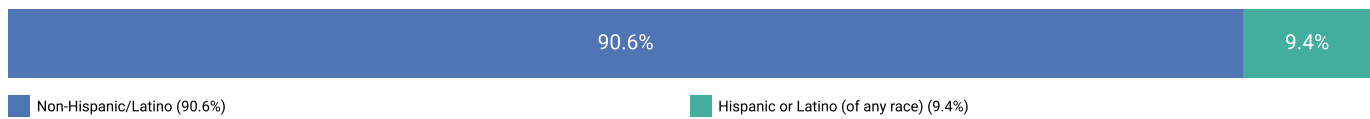
Age



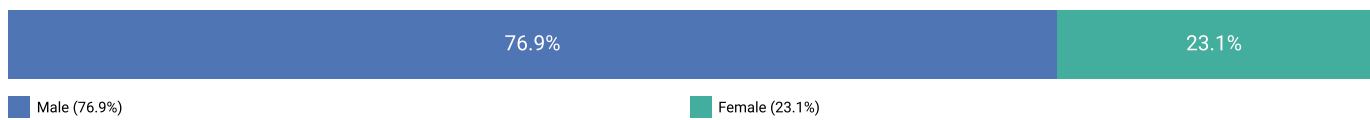
Race



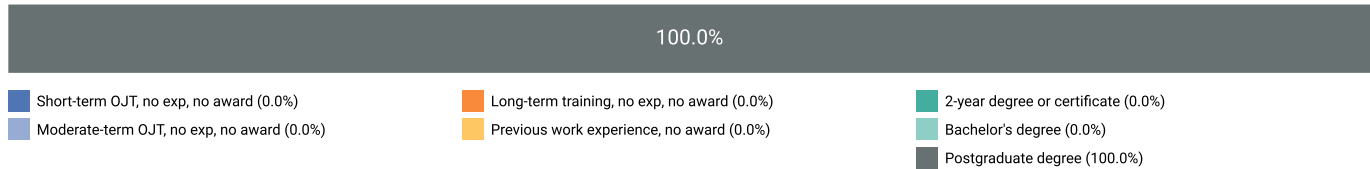
Ethnicity



Gender

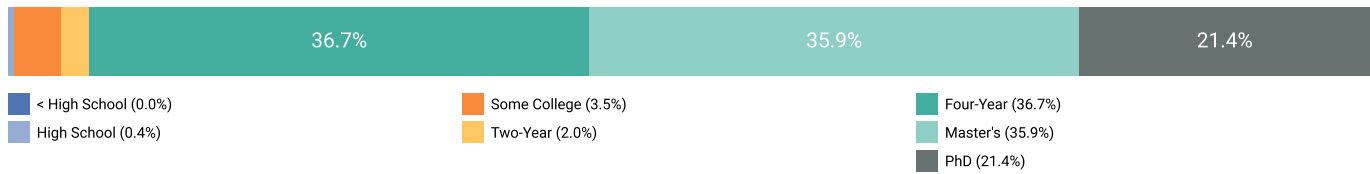


Education and Training Requirements



Education Profile

Educational Attainment



Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Computer and Information Research Scientists	Master's degree	None	None


 The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this occupation(s) in aggregate.

 The table indicates typical education and training requirements rather than the mix of attainment of workers in such positions.

Postsecondary Programs Linked to Computer and Information Research Scientists

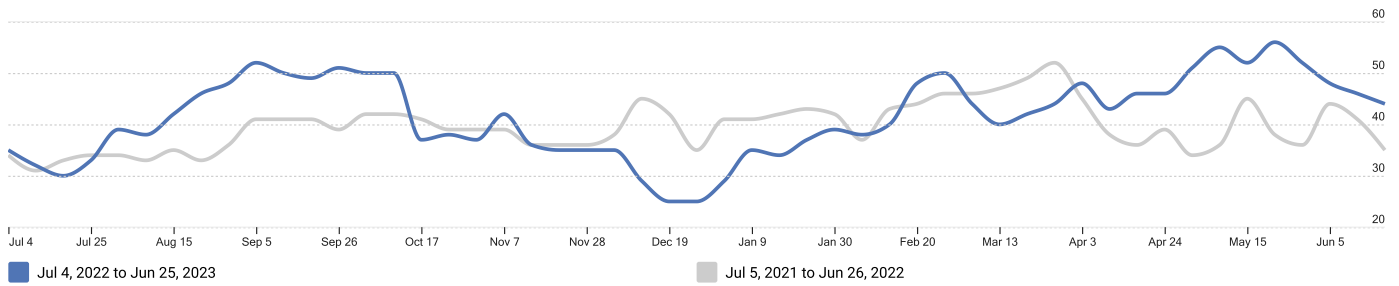
Program	Awards
American River College	
Computer Science	43
California State University-Sacramento	
Computer Science	310
Cosumnes River College	
Computer and Information Sciences, General	18
Computer Science	17
Folsom Lake College	
Computer Science	24
MTI College	
Cloud Computing	17
Sacramento City College	
Information Technology	13
University of California-Davis	
Computer Science	444
Medical Informatics	7
William Jessup University	
Computer Science	16


 The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.

 Among postsecondary programs at schools located in the Sacramento-Roseville-Folsom, CA MSA, the sampling above identifies those most linked to Computer and Information Research Scientists. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

RTI (Job Postings)

Active Job Ads by Date



 Online job ads are a timely indicator of local demand. Occupation assignments shown below are made by Chmura based upon analysis of job titles and job descriptions. Top employers and listed job requirements are shown on the following pages.

Occupations

SOC	Occupation	Active Job Ads
15-1221.00	Computer and Information Research Scientists	295

Locations

Location	Active Job Ads	
Sacramento, California	150	
Folsom, California	36	
Sacramento County, California	11	
University of California Davis	10	
Davis, California	9	
Elk Grove, CA 95624	6	
West Sacramento, California	6	
Sacramento, CA 95814 (Downtown area)	5	
Roseville, California	4	
Elk Grove, California	3	



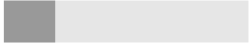
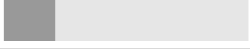



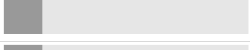
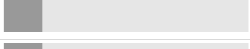
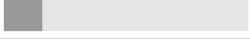
Employers

Employer Name	Active Job Ads	
Intel Corporation	18	
Deloitte	11	
Intel	11	
Micron Technology	10	
Pacific Northwest National Laboratory	9	
Davis, California	8	
University of California, Davis	8	
Meta	6	
Abbvie	5	
Oracle	5	



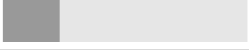
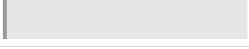


Hard Skills

Skill Name	Active Job Ads	
Python	201	
Computer Programming/Coding	148	
Machine Learning	140	
Structured Query Language (SQL)	111	
Statistics	103	
Data Science	75	
Mathematics	70	
Data Analysis	62	
PyTorch	47	
TensorFlow	46	

Job Titles

Job Title	Active Job Ads	
Data Scientist	19	
RESEARCH SCIENTIST III (EPIDEMIOLOGY/BIOSTATISTICS)	6	
Advanced Analytics, PowerBI, Machine Learning and Artificial Intelligence (SK)	4	
Senior Data Scientist	4	
AI/ML Health Data Scientist- Consultant	3	
CMPTL AND DATA SCI RSCH SPEC 4 (Data Scientist)	3	
Data Scientist Supervisor	3	
Principal Data Scientist	3	
Principal Data Scientist - Marketing Measurement & Optimization	3	
Systems Research Engineer	3	

Education Levels

Minimum Education Level	Active Job Ads	
Bachelor's degree	116	
Master's degree	61	
Doctoral or professional degree	27	
High school diploma or equivalent	2	
Associate's degree	1	
Unspecified/other	88	

Programs

Program Name	Active Job Ads	
Computer Science	128	
Statistics	62	
Mathematics	56	
Engineering	42	
Computer Engineering	38	
Quantitative	33	
Electrical Engineering	31	
Data Science	29	
Physics	19	
Economics	18	

Top Skill and Certification Gaps

Top 10 Skill Gaps in Sacramento-Roseville-Folsom, CA MSA

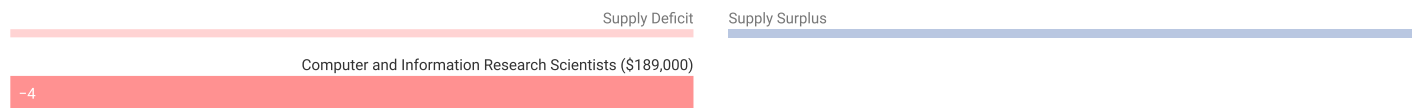
Name	Candidates	Openings	Gap
Information Security	1	4	-3
Field Programmable Gate Array (FPGA)	0	4	-3
Linux	3	5	-3
Personal Computers (PC)	0	2	-2
Presentation	0	2	-2
Graphics Processing Unit (GPU)	1	2	-1
Microsoft Excel	2	3	-1
Perl	1	2	-1
HBase	0	1	-1
SQL Server Integration Services (SSIS)	0	1	-1



Top 10 Certification Gaps in Sacramento-Roseville-Folsom, CA MSA

Name	Candidates	Openings	Gap
Secret Clearance	2	0	2

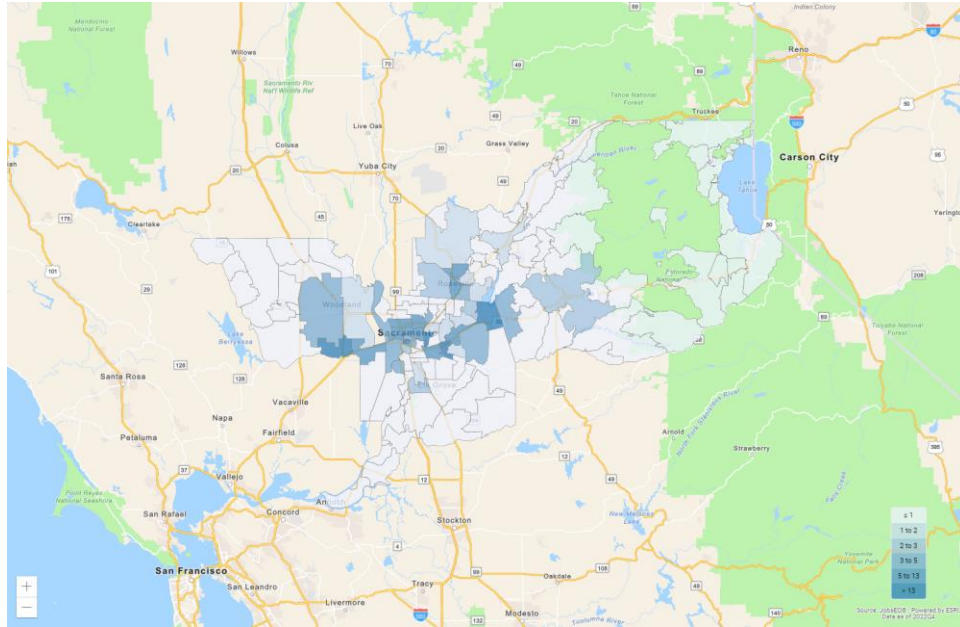
 Skill and certifications gaps can help inform employee development programs, as well as provide a comparison of the needs of regional employers to the supply.

Occupation Gaps



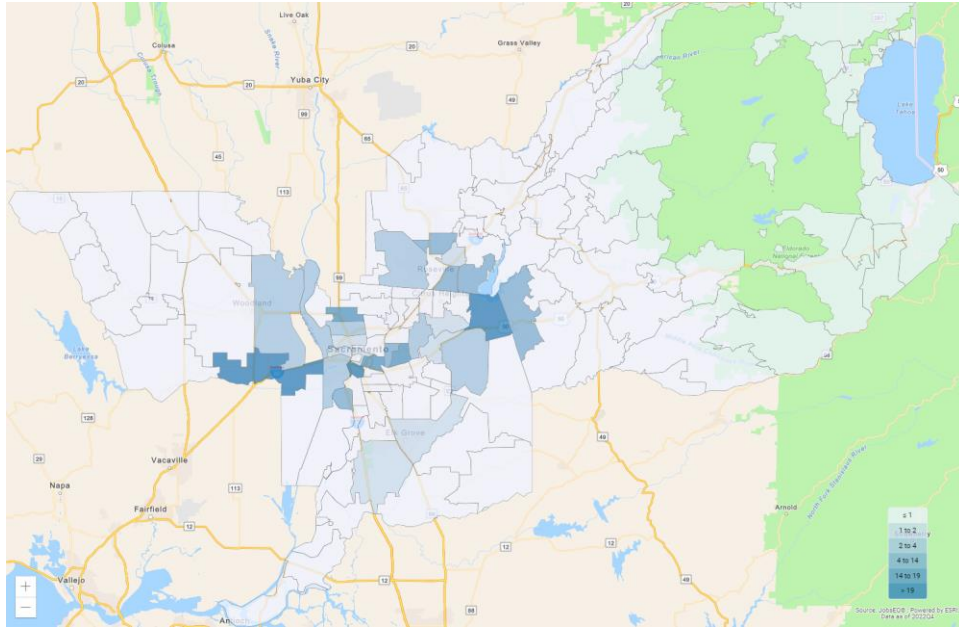
-  The above are the potential average annual gaps over 10 years. Many variables go into this analysis, but at its core it is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents. When an area, for example, has an occupation expected to grow quickly but the educational requirement for the occupation does not match well with the educational attainment of its residents, there is a high potential for an occupation shortfall in the region. Alternatively, slow-growing or contracting occupations often represent potential supply surpluses.
-  The potential supply shortfall is an underlying force that the market needs to resolve one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, and/or increased demand and wages enticing more local residents to get training for these occupations. While this an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.

Geographic Distribution



Top ZCTAs by Place of Work for Computer and Information Research Scientists, 2022Q4

Region	Employment
ZCTA 95814	31
ZCTA 95630	27
ZCTA 95827	24
ZCTA 95616	17
ZCTA 95825	14
ZCTA 95815	10
ZCTA 95670	9
ZCTA 95834	7
ZCTA 95838	7
ZCTA 95826	6

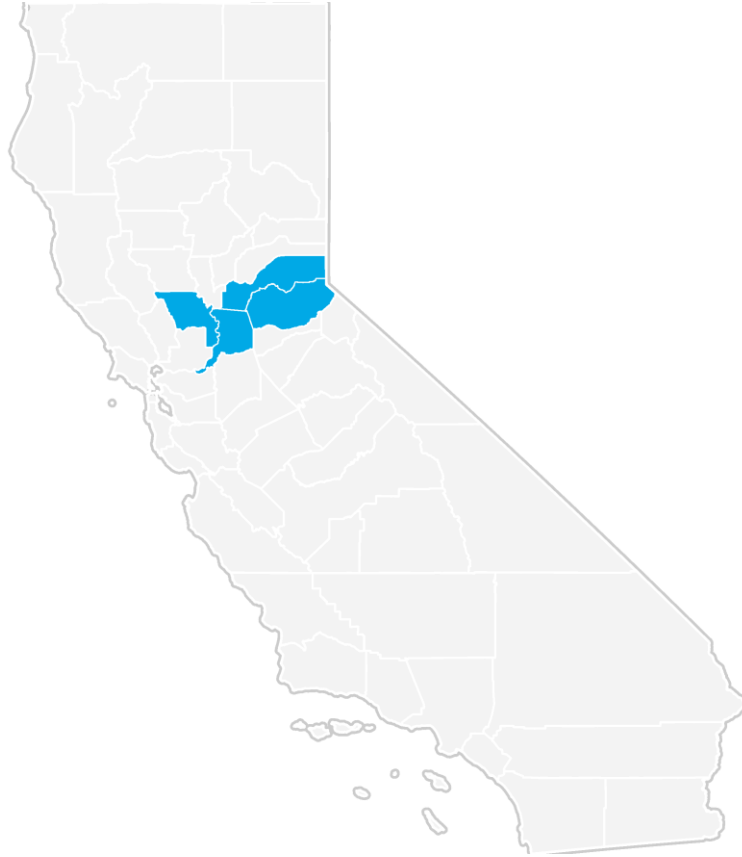


Top ZCTAs by Place of Residence for Computer and Information Research Scientists, 2022Q4

Region	Employment
ZCTA 95616	36
ZCTA 95630	34
ZCTA 95618 (Yolo County, CA portion)	20
ZCTA 95818	19
ZCTA 95819	17
ZCTA 95835	15
ZCTA 95816	15
ZCTA 95864	14
ZCTA 95765	11
ZCTA 95762	11

💡 “Place of work” employment is based upon the location of employers for these workers. “Place of residence” data refers to the home locations of the workforce, which is typically the preferred data set to use when calculating labor availability within a drive-time or radius of a potential worksite.

Sacramento-Roseville-Folsom, CA MSA Regional Map



Data Notes

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2022Q4 and is based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OEWS data. Employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts. Wages by occupation are as of 2022Q4, utilizing BLS OEWS data, imputed and brought forward by Chmura. Entry-level and experienced wages are derived from these source data, computed by Chmura.
- Industry employment is as of 2022Q4 and is based upon BLS QCEW data, imputed by Chmura where necessary, and supplemented by additional sources including Census ZBP data.
- Education and training requirements are from the BLS. Educational attainment mix and other occupation demographics data are modeled by Chmura for 2022Q4 using regional occupation employment from JobsEQ, ZCTA-level demographics data from the Census Bureau, and national occupation-demographics patterns from the BLS.
- Postsecondary awards are per the NCES and are for the 2020-2021 academic year. Any programs shown are linked with the occupation(s) being analyzed via the program-occupation crosswalk, which may not be comprehensive. Any programs shown reflect only data reported to the NCES; reporting is required of all Title IV schools. Training providers that do not report data to the NCES are not reflected.
- Job ads data are online job posts from the Real-Time Intelligence (RTI) data set, produced wholly by Chmura and gleaned from over 40,000 websites. Data reflect ads active during the last twelve month period ending 06/29/2023 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.
- For skill and certification gaps, openings and candidates are based upon regional occupation demand (growth plus separations) and the percent of skill demand and supply. Skill demand mix data are per a one-year sample of RTI data; skill supply data are estimated using a five-year sample of resumes data; both data sets compiled as of August 2021. Data may be based, at least in part, on data from broader geographies; see the Skill Gaps analytic export for more details.
- Occupation gaps are modeled by Chmura, indicating long-term potential supply and demand mismatches in a region due, in part, to job demand and labor pool dynamics, including educational attainment and projected growth.
- Occupation employment by place of residence is as of 2022Q4 and modeled by Chmura based upon occupation employment by place of work and commuting patterns. Commuting patterns are derived from source data from the Census Bureau, occupation-specific commuting tendencies, and updated to reflect more recent population and employment estimates.
- Figures may not sum due to rounding.

Region Definition

Sacramento-Roseville-Folsom, CA MSA is defined as the following counties:

El Dorado County, California

Placer County, California

Sacramento County, California

Yolo County, California

FAQ

What is (LQ) location quotient?

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is annual demand?

Annual demand is a of the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.