

Computer and Information Research Scientists Labor Market Analysis: San Diego County

November 2018

Summary

According to available labor market information, there is a small labor market demand of 94 annual job openings for *Computer and Information Research Scientists*. The average demand for an occupation in San Diego County is 276 annual job openings. This occupation's entry-level wages and median earnings are higher than the Self-Sufficiency Standard, suggesting that students who successfully complete a program and obtain employment in a related field may earn living wages. The labor market analysis suggests that new training programs created for this occupation should be in graduate-level coursework and/or promoted to working professionals (or incumbent workers) for “upskilling” or supplementing their prior education and training.

The following list summarizes findings from the labor market analysis below for *Computer and Information Research Scientists*:

- Between 2017 and 2022, *Computer and Information Research Scientists* are projected to increase by 94 jobs or 10 percent.
- Employers in San Diego County will need to hire 83 workers annually to fill new jobs and backfill jobs due to attrition such as retirement or turnover.
- Between 2010 and 2017, there was an average of 192 online job postings per year for *Computer and Information Research Scientists* in San Diego County.
- *Computer and Information Research Scientists* earn median hourly earnings of \$58.34; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is \$15.99 per hour.
- There are 10 CIP codes associated with this occupation.
- Between January 1, 2015 and December 31, 2017, the top five employers in San Diego County for this occupation were Booz Allen Hamilton, Accenture, Teradata Operations, Illumina, and Qualcomm.
- The typical entry-level education is a master's degree.

Introduction

This report provides labor market information in San Diego County for the following occupational code in the Standard Occupational Classification (SOC)¹ system:

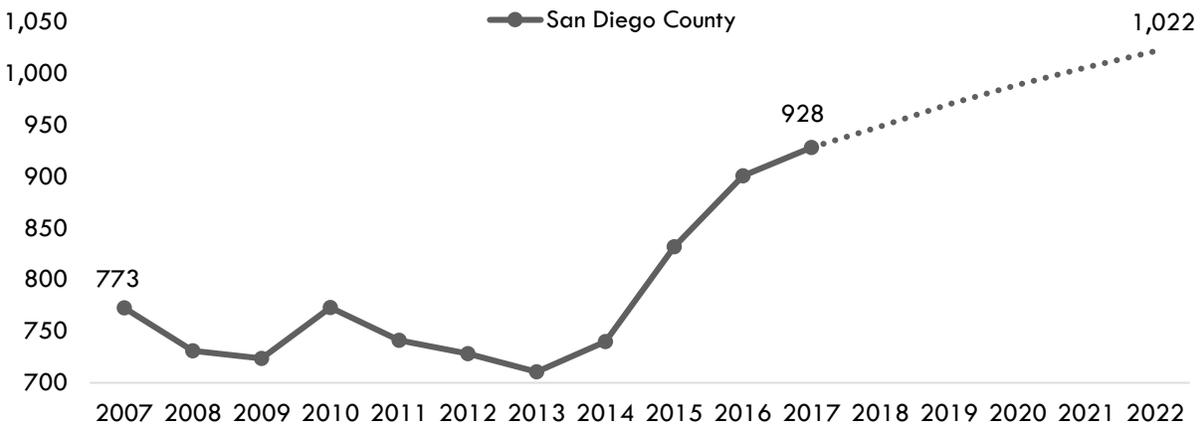
Computer and Information Research Scientists (SOC 15-1111): Conduct research into fundamental computer and information science as theorists, designers, or inventors. Develop solutions to problems in the field of computer hardware and software. Sample reported job titles include:

- Software Engineer
- Control System Computer Scientist
- Systems Programmer
- Systems Engineer
- Systems Analyst
- Scientific Programmer Analyst
- Programmer
- Engineering Director
- Computer Science Professor

Projected Occupational Demand

Between 2017 and 2022, *Computer and Information Research Scientists* are projected to increase by 94 jobs or 10 percent (Exhibit 1). Employers in San Diego County will need to hire 83 workers annually to fill new jobs and backfill jobs due to attrition such as retirement or turnover.

Exhibit 1: Number of Jobs for Computer and Information Research Scientists (2007-2022)²



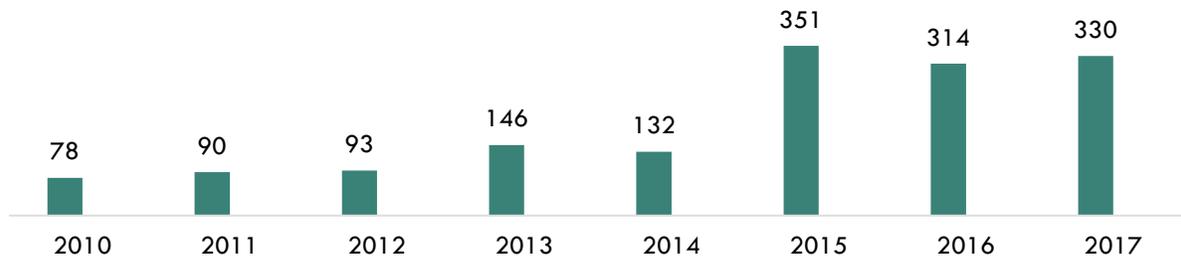
¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc/).

² Economic Modeling Specialists, Int'l. (EMSI). San Diego (6073). 2018.04 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2007-2022.

Online Job Postings

Between 2010 and 2017, there was an average of 192 online job postings per year for *Computer and Information Research Scientists* between 2010 and 2017 in San Diego County (Exhibit 2).

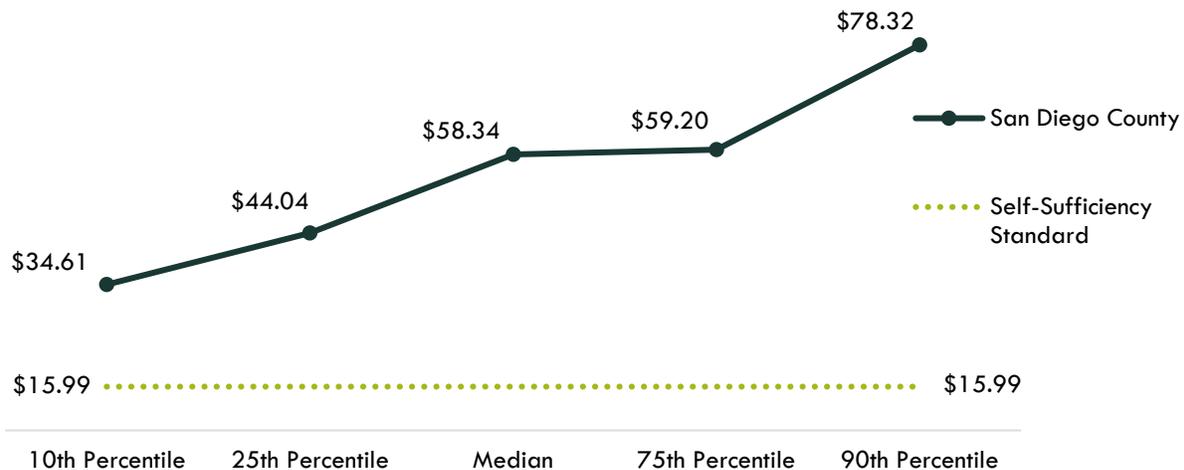
Exhibit 2: Number of Online Job Postings for *Computer and Information Research Scientists* in San Diego County (2010-2017)³



Earnings

Computer and Information Research Scientists earn median hourly earnings of \$58.34; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 3).⁴

Exhibit 3: Hourly Earnings for *Computer and Information Research Scientists* in San Diego County⁵



³ Labor Insight Jobs. Burning Glass Technologies. San Diego, CA. Full years 2010-2017.

⁴ The self-sufficiency wage in San Diego for one adult is \$15.99. insightccd.org/2018-self-sufficiency-standard.

⁵ EMSI. San Diego (6073). 2018.04 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁶ There is no TOP code associated with *Computer and Information Research Scientists* perhaps due to the minimum entry-level educational requirement of the occupation being a master's degree. The closest potential TOP code could be Computer Systems (070200). There are 10 CIP codes associated with this occupation (Exhibit 4).⁷ According to CIP data, these programs provide awards for multiple occupations, therefore, these CIP codes' awards are not analyzed in this brief.

Exhibit 4: Related TOP and CIP Codes for *Computer and Information Research Scientists*

SOC 15-1111: Computer and Information Research Scientists

CIP 11.0101: Computer and Information Sciences, General

CIP 11.0102: Artificial Intelligence

CIP 11.0103: Information Technology

CIP 11.0104 Informatics

CIP 11.0199: Computer and Information Sciences, Other

CIP 11.0401 Information Science/Studies

CIP 11.0701: Computer Science

CIP 11.0804 Modeling, Virtual Environments and Simulation

CIP 26.1103: Bioinformatics

CIP 51.2706 Medical Informatics

Demand vs. Supply

A complete labor market demand and supply analysis could not be completed for this report due to insufficient data.

⁶ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

⁷ National Center for Education Statistics (NCES). CIP-SOC crosswalk. nces.ed.gov/ipeds/cipcode/resources.aspx?y=55

Student Outcomes

There are no student outcomes data available in the CTE LaunchBoard for this occupation due to no related TOP code.

Top Employers and Work Locations

Between January 1, 2015 and December 31, 2017, the top five employers in San Diego County for this occupation were [Booz Allen Hamilton Inc.](#), [Accenture](#), [Teradata Operations, Inc.](#), [Illumina Inc.](#) and [Qualcomm](#) (Exhibit 5).

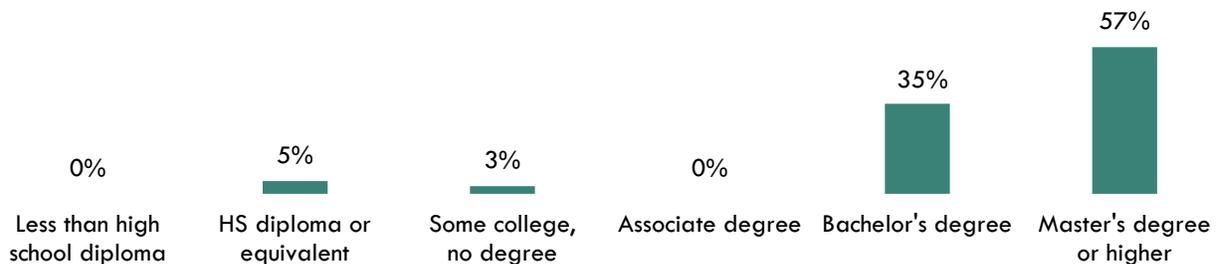
Exhibit 5: Top Employers in San Diego County for Computer and Information Research Scientists⁸

Top Employers	
<ul style="list-style-type: none"> Booz Allen Hamilton Inc. Accenture Teradata Operations, Inc. Illumina, Inc. Qualcomm 	<ul style="list-style-type: none"> Intel Corporation Id Analytics, Inc. Intuit Thermo Fisher Scientific Inc. University of California, San Diego

Skills, Education, and Certifications

Exhibit 6 indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this profession. The typical entry-level education is a [master's degree](#).⁹

Exhibit 6: National Educational Attainment of Computer and Information Research Scientists¹⁰



⁸ Labor Insight Jobs. Burning Glass Technologies. San Diego, CA. Full years 2015-2017.

⁹ EMSI. San Diego (6073). 2018.04 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

¹⁰ Bureau of Labor Statistics, Educational attainment for workers 25 years and older by detailed occupation. bls.gov/emp/ep_table_111.htm.

Exhibit 7 lists the top specialized, soft and software skills that appeared in online job postings for the occupation between January 1, 2015 and December 31, 2017.

Exhibit 7: Top Skills for Computer and Information Research Scientists in San Diego County¹¹

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Data Science • Machine Learning • Data Mining • Big Data • Data Analysis 	<ul style="list-style-type: none"> • Research • Communication Skills • Teamwork / Collaboration • Problem Solving • Creativity 	<ul style="list-style-type: none"> • Python • Apache Hadoop • Java • R • SQL

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Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor’s Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

¹¹ Labor Insight Jobs. Burning Glass Technologies. San Diego, CA. Full years 2015-2017.