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Computer Science Program Report
For Greater South Bay and Peninsula Region
(Santa Clara and San Mateo Counties)

Computer Science

CIP 2010: A program that focuses on computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, computer development and programming, and applications to a variety of end-use situations.

Target Occupations‡

Computer and Information Systems Managers (11-3021)

Computer and Information Research Scientists (15-1111)

Information Security Analysts (15-1122)

Computer Programmers (15-1131)

Software Developers, Applications (15-1132)

Software Developers, Systems Software (15-1133)

Web Developers (15-1134)

Computer Network Architects (15-1143)

Computer User Support Specialists (15-1151)

Computer Network Support Specialists (15-1152)

Computer Occupations, All Other (15-1199)

‡Based on EMSI crosswalk of the Classification of Instructional Programs (CIP) codes with Standard Occupational Classification (SOC) codes as published by the U.S. Department of Education.

In 2012, the number of computer science jobs in the target occupations in Santa Clara and San Mateo Counties totaled 104,065. The Bureau of Labor Statistics (BLS) expects the total number of positions to increase by 5.6% over the next three years. Regional openings in 2012, which included created jobs and turnover, totaled 4,987. Completions in computer science programs totaled 764 from eight institutions, with an additional 814 completions from other related programs. These other programs are linked to multiple occupations and not all those who complete will enter the target occupations indicated in this report.

Target Occupation Performance

104,065*	5.6%*	$55.72/hr
Jobs (2012)	**Growth (2013-2016)**	**Median Earnings**
National Location Quotient: 3.86†	National: 6.0%	National: $39.18/hr

*Based on total number of jobs for target occupations Santa Clara and San Mateo Counties.
†Represents occupation density as compared to national average (national average=1).

Regional Openings (2012)**	4,987
Regional Program Completions (2012)	764
All Regional Completions for Target Occupations†† (2012)	1,578

**Openings include created jobs and turnover.
††Includes all regional programs applicable to target occupations.

Computer Science Occupations Performance

Target Occupations	Regional Openings (2012)	Average Hourly Earnings	Growth (2013-2016)
Software Developers, Applications (15-1132)	1,295	$56.95	6.5%
Computer Network Architects (15-1143)	178	$66.32	5.3%
Computer and Information Systems Managers (11-3021)	495	$86.94	3.7%
Computer and Information Research Scientists (15-1111)	81	$59.53	4.6%
Information Security Analysts (15-1122)	83	$51.49	8.2%
Software Developers, Systems Software (15-1133)	1,171	$60.83	5.6%
Computer User Support Specialists (15-1151)	678	$34.40	6.4%
Computer Occupations, All Other (15-1199)	148	$43.15	4.1%
Web Developers (15-1134)	217	$45.28	14.1%
Computer Network Support Specialists (15-1152)	244	$41.99	4.4%

Target Occupations	Regional Openings (2012)	Average Hourly Earnings	Growth (2013-2016)
Computer Programmers (15-1131)	398	$48.50	3.6%

Regional Breakdown for Computer Science Occupations

County Name	2013 Jobs	2016 Jobs	2013 Annual Openings	Median Hourly Earnings	2013 National Location Quotient
Santa Clara	85,642	90,318	2,952	$55.47	4.24
San Mateo	21,794	23,185	854	$56.67	2.88
Total	107,436	113,503	3,805	$55.72	

Regional Computer Science Training Providers

8	764*
Institutions	**Completions (2012)**

*Based on IPEDS data.
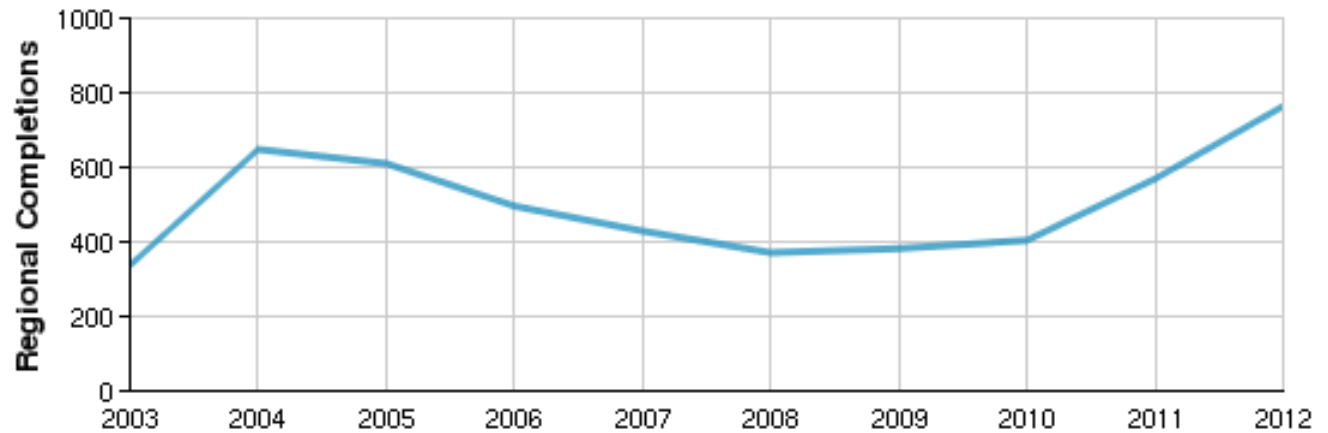
Institution	Degrees	Certificates	Total Completions
Stanford University	335	0	335
International Technological University	273	0	273
San Jose State University	139	0	139
Foothill College	6	0	6
San Jose City College	5	0	5

Other regional programs may train individuals eligible for the targeted computer science occupations, which are based on an occupation-program crosswalk developed by the Department of Education. These additional programs are offered at 17 regional colleges*. As noted earlier, many postsecondary programs are linked to multiple occupations and not all those who complete the program will enter the target occupation.

Related Regional Programs Allowing Entry to Computer Science

20	1,578
Programs (2012)	**Completions (2012)**

Program	2008	2009	2010	2011	2012
Computer Engineering, General (14.0901)	195	194	213	203	270
Computer Software Engineering (14.0903)	308	440	195	245	239
Computer Systems Networking and Telecommunications (11.0901)	59	35	47	23	78
Computer Programming/Programmer, General (11.0201)	33	21	41	43	60
Web Page, Digital/Multimedia and Information Resources Design (11.0801)	20	14	14	12	49
Computer Graphics (11.0803)	18	1	25	21	33
Medical Informatics (51.2706)	9	13	6	19	28
Information Resources Management (52.1206)	18	17	13	37	22
Management Information Systems, General (52.1201)	39	30	14	8	9
Computer and Information Systems Security/Information	32	52	37	55	8

Program	2008	2009	2010	2011	2012
Assurance (11.1003)					
Information Technology (11.0103)	0	4	1	4	6
Computer and Information Sciences, General (11.0101)	7	40	36	13	4
Computer Support Specialist (11.1006)	0	0	0	1	3
Web/Multimedia Management and Webmaster (11.1004)	22	4	3	3	3
Mathematics and Computer Science (30.0801)	4	4	10	6	2
Operations Management and Supervision (52.0205)	0	0	0	1	0
System, Networking, and LAN/WAN Management/Manager (11.1002)	0	0	0	0	0
Data Processing and Data Processing Technology/Technician (11.0301)	0	0	0	0	0
Computer Systems Analysis/Analyst (11.0501)	0	0	0	0	0
Network and System Administration/Administrator (11.1001)	7	1	0	0	0

*Additional colleges: Notre dame de Namur University, Skyline College, Gavilan College, Evergreen Valley College, De Anza College, San Jose City College, Mission College, West Valley College, College of San Mateo, Stanford University, San Jose State University, Canada College, The Art Institute of California- Argosy University Sunnyvale, Carrington College California-San Jose, University of Phoenix- Bay Area Campus, Santa Clara University, and The National Hispanic University.

Target Occupations Demographics

The demographics among those employed in computer science occupations in Santa Clara and San Mateo Counties for 2013 show that a majority are men (76.9%) and between the ages of 25-54 (87.7%).

Gender Demographics (Regional)

Gender	Jobs (2013)	% of Total	
Male	82,664	76.9%	
Female	24,772	23.1%	

Age Demographics (Regional)

Age	Jobs (2013)	% of Total	
14-18 Years	198	0.2%	
19-21 Years	802	0.7%	
22-24 Years	2,756	2.6%	
25-34 Years	29,549	27.5%	
35-44 Years	39,627	36.9%	
45-54 Years	25,076	23.3%	
55-64 Years	8,369	7.8%	
65+ Years	1,058	1.0%	

Industries Employing Computer Science Occupations

A number of industries in Santa Clara and San Mateo Counties employ those trained in computer science and its related occupations. The following table represents a regional industry breakdown of the number of computer science positions employed, the percentage of computer science jobs employed by industry and the percentage computer science jobs represent within all jobs by each industry. While custom computer programming services employed 20.8% of all regional computer science positions in 2013, computer science and its related occupations represent just over half of the total jobs in that industry (50.9%).

Inverse Staffing Patterns (Regional)

Top Five Industries	Occupation Group Jobs in Industry (2013)	% of Occupation Group in Industry (2013)	% of Total Jobs in Industry (2013)
Custom Computer Programming Services (541511)	22,302	20.8%	50.9%
Electronic Computer Manufacturing (334111)	14,462	13.5%	36.4%
Computer Systems Design Services (541512)	13,479	12.5%	51.3%
Software Publishers (511210)	13,140	12.2%	50.6%
Internet Publishing and Broadcasting and Web Search Portals (519130)	7,181	6.7%	28.5%

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department

Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Occupation Data

EMSI occupation employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry.

Staffing Patterns Data

The staffing pattern data in this report are compiled from several sources using a specialized process. For QCEW and Non-QCEW Employees classes of worker, sources include Occupational Employment Statistics, the National Industry-Occupation Employment Matrix, and the American Community Survey. For the Self-Employed and Extended Proprietors classes of worker, the primary source is the American Community Survey, with a small amount of information from Occupational Employment Statistics.

Industry Data

EMSI industry data have various sources depending on the class of worker. (1) For QCEW Employees, EMSI primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns and Current Employment Statistics. (2) Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, BEA State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. (3) Self-Employed and Extended Proprietor classes of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. Projections for QCEW and Non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.