**** **Residential Automation Cloud Based Occupations**

**Labor Market Information Report**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

May 2018

# Recommendation

Based on all available data, there appears to be a significant undersupply of Residential Automation Cloud Based workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda and Contra Costa Counties). The annual gap is 3,770 students annually in the Bay region and about 765 in the East Bay.

The TOP code provided for this report is 0934.30 – Telecommunications Technology. However, there are currently no community college programs in the region issuing awards on this TOP code. There are students taking courses on this TOP code in the region. It is recommended that this data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state, as well as to outcomes across all CTE programs at Laney College and in the region.

# Introduction

This report profiles Residential Automation Cloud Based Occupations in the 12 county Bay region and in the East Bay sub-region for a new program at Laney College.

|  |
| --- |
| * **Database Administrators (SOC 15-1141):** Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. May plan, coordinate, and implement security measures to safeguard computer databases. |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 21%* |
|  |
| * **Network and Computer Systems Administrators (SOC 15-1142**): Install, configure, and support an organization’s local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability. May monitor and test Web site performance to ensure Web sites operate correctly and without interruption. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software. May supervise computer user support specialists and computer network support specialists. May administer network security measures. |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 38%* |
|  |
| * **Computer Network Support Specialists (SOC 15-1152):** Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption. |
| *Entry-Level Educational Requirement: Associate's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 41%* |
|  |
| * **Career/Technical Education Teachers, Secondary School (SOC 25-2032)**: Teach occupational, career and technical, or vocational subjects at the secondary school level in public or private schools. |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 5%* |
|  |
| * **Data Entry Keyers (SOC 43-9021):** Operate data entry device, such as keyboard or photo composing perforator. Duties may include verifying data and preparing materials for printing. |
| *Entry-Level Educational Requirement: High school diploma or equivalent* |
| *Training Requirement: Short-term on-the-job training* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 47%* |

# Occupational Demand

**Table 1. Employment Outlook for Residential Automation Cloud Based Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Database Administrators | 5,154 | 6,018 | 864 | 17% | 2,621 | 524 | $24.78 | $49.53 |
| Network and Computer Systems Administrators | 17,522 | 19,892 | 2,369 | 14% | 8,090 | 1,618 | $30.28 | $49.52 |
| Computer Network Support Specialists | 8,325 | 9,539 | 1,213 | 15% | 4,426 | 885 | $23.72 | $38.39 |
| CTE Teachers, Secondary School | 958 | 1,049 | 91 | 9% | 431 | 86 | $21.73 | $31.64 |
| Data Entry Keyers | 4,881 | 5,470 | 589 | 12% | 3,602 | 720 | $11.61 | $16.89 |
| **Total** | **36,840** | **41,967** | **5,126** | **14%** | **19,169** | **3,834** | **$25.33** | **$42.22** |

*Source: EMSI 2018.2*

**Bay Region** includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Residential Automation Cloud Based Occupations in East Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Database Administrators | 991 | 1,132 | 140 | 14% | 474 | 95 | $25.84 | $49.16 |
| Network and Computer Systems Administrators | 3,797 | 4,144 | 348 | 9% | 1,563 | 313 | $26.50 | $47.79 |
| Computer Network Support Specialists | 1,828 | 2,030 | 201 | 11% | 895 | 179 | $22.99 | $36.79 |
| CTE Teachers, Secondary School | 326 | 364 | 38 | 12% | 155 | 31 | $19.80 | $30.14 |
| Data Entry Keyers | 1,225 | 1,362 | 137 | 11% | 888 | 178 | $13.04 | $19.15 |
| **TOTAL** | **8,168** | **9,032** | **864** | **11%** | **3,974** | **795** | **$23.35** | **$40.49** |

*Source: EMSI 2018.2*

**East Bay Sub-Region** includes Alameda and Contra Costa Counties

### Job Postings in Bay Region and East Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (May 2017 - April 2018)**

|  |  |  |
| --- | --- | --- |
| Occupation | Bay Region | East Bay |
| Database Administrators (15-1141.00) | 7,169 | 1,207 |
| Network and Computer Systems Administrators (15-1142.00) | 4,854 | 886 |
| Data Entry Keyers (43-9021.00) | 2,218 | 858 |
| Computer Network Support Specialists (15-1152.00) | 687 | 151 |
| Career/Technical Education Teachers, Secondary School (25-2032.00) | 99 | 44 |
| **Total** | **15,027** | **3,146** |

*Source: Burning Glass*

**Table 4. Top Job Titles for Residential Automation Cloud Based Occupations (May 2017 - April 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | East Bay | Common Title | Bay | East Bay |
| Systems Administrator | 1,173 | 217 | Database Developer | 150 | 36 |
| Data Engineer | 1,134 | 131 | Database Analyst | 142 | 24 |
| Data Entry Clerk | 767 | 287 | Administrator | 126 | 18 |
| Senior Data Engineer | 605 | 37 | Data Entry Operator | 124 | 64 |
| Database Administrator | 597 | 103 | Information Technology Administrator | 114 | 20 |
| Data Entry Specialist | 384 | 186 | Window Systems Administrator | 108 | 17 |
| ETL Developer | 359 | 160 | Salesforce Administrator | 104 | 19 |
| Senior Systems Administrator | 303 | 55 | Network Manager | 100 | 20 |
| Data Entry | 289 | 93 | SQL Database Administrator | 94 | 14 |
| Linux Administrator | 270 | 39 | MySQL Database Administrator | 86 | 18 |
| Oracle Database Administrator | 248 | 20 | Hadoop Engineer | 83 | 57 |
| Database Engineer | 232 | 15 | Data Center Technician | 80 | 13 |
| Linux Systems Administrator | 212 | 27 | Customer Engineer | 77 | 9 |
| Network Administrator | 209 | 51 | Unix Administrator | 77 | 12 |
| SQL Developer | 199 | 65 | Technical Specialist | 75 | 11 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Residential Automation Cloud Based Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Industry – 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2017)** | **Jobs in Industry (2022)** | **% Change (2017-22)** | **% in Industry (2017)** |
| Custom Computer Programming Services (541511) | 5,299 | 6,504 | 23% | 14.4% |
| Computer Systems Design Services (541512) | 3,434 | 4,228 | 23% | 9.3% |
| Data Processing, Hosting, and Related Services (518210) | 2,209 | 3,011 | 36% | 6.0% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 1,900 | 2,415 | 27% | 5.2% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 1,445 | 1,441 | (0%) | 3.9% |
| Elementary and Secondary Schools (Local Government) (903611) | 1,308 | 1,414 | 8% | 3.6% |
| Software Publishers (511210) | 1,089 | 1,330 | 22% | 3.0% |
| Local Government, Excluding Education and Hospitals (903999) | 988 | 1,010 | 2% | 2.7% |
| Temporary Help Services (561320) | 848 | 940 | 11% | 2.3% |
| Electronic Computer Manufacturing (334111) | 795 | 859 | 8% | 2.2% |
| Other Computer Related Services (541519) | 745 | 999 | 34% | 2.0% |
| Wired Telecommunications Carriers (517311) | 698 | 685 | (2%) | 1.9% |
| Colleges, Universities & Professional Schools (State Government) (902612) | 645 | 674 | 4% | 1.8% |
| Colleges, Universities, and Professional Schools (611310) | 608 | 662 | 9% | 1.6% |
| R&D in the Physical, Engineering & Life Sciences (except Nanotechnology & Biotechnology) (541715) | 562 | 577 | 3% | 1.5% |
| General Medical and Surgical Hospitals (622110) | 410 | 413 | 1% | 1.1% |
| Office Administrative Services (561110) | 388 | 415 | 7% | 1.1% |
| Computer & Computer Peripheral Equipment & Software Merchant Wholesalers (423430) | 379 | 379 | 0% | 1.0% |

*Source: EMSI 2018.2*

**Table 6. Top Employers Posting Residential Automation Cloud Based Occupations in Bay Region and East Bay (May 2017 - April 2018)**

Note: 41% of records in the region and 52% in the sub-region have been excluded because they do not include an employer. As a result, the chart below may not be representative of the full sample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Employer** | **Bay** | **Employer** | **Bay** | **Employer** | **East Bay** |
| Advantage Sales & Marketing | 196 | Facebook | 45 | Advantage Sales & Marketing | 68 |
| Apple Inc. | 147 | SAP | 45 | Uc San Diego | 39 |
| Google Inc. | 86 | Workday, Inc | 44 | Workday, Inc | 34 |
| Wells Fargo | 78 | Palo Alto Networks | 43 | Wells Fargo | 31 |
| Salesforce | 70 | Xoriant Incorporated | 41 | Lawrence Livermore National Lab | 30 |
| Vmware Inc | 70 | Etouch Systems Corporation | 40 | University California | 28 |
| Amazon | 64 | General Dynamics | 39 | Accenture | 18 |
| Accenture | 61 | Uc San Diego | 39 | Ross Stores | 16 |
| Deloitte | 55 | Okaya Infocom | 37 | Tesla Motors | 14 |
| Oracle | 54 | Autodesk Incorporated | 35 | UC Berkeley | 14 |
| Cisco Systems Inc | 53 | Flexton Incorporated | 31 | East Bay Municipal Utility District | 12 |
| Infoobjects Inc | 52 | Lawrence Livermore National Lab | 30 | Ellie Mae | 11 |
| Stanford University | 47 | Mumba Technologies | 30 | Bank of the West | 10 |
| University California | 47 | Wipro | 30 | Openmind Technologies | 10 |

*Source: Burning Glass*

# Educational Supply

There are no colleges in the Bay Region issuing awards on TOP 0934.30 - Telecommunications Technology. However, there are three other postsecondary institutions in the region issuing 64 awards annually on CIP 15.0303 - Electrical, Electronic and Communications Engineering Technology/Technician and CIP 47.0101 - Electrical/Electronics Equipment Installation and Repair, General.

**Table 7. Headcount on TOP 093430 - Telecommunications Technology and Awards on CIP 15.0303 - Electrical, Electronic and Communications Engineering Technology/Technician and CIP 47.0101 - Electrical/Electronics Equipment Installation and Repair, General**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| Laney | East Bay | 41 | 0 | 0 | 0 |
| Skyline | Mid-Peninsula | 18 | 0 | 0 | 0 |
| CET-Sobrato | Silicon Valley | n/a | 0 | 35 | 35 |
| ITT Technical Institute-Concord | East Bay | n/a | 20 | 0 | 20 |
| ITT Technical Institute-Oakland | East Bay | n/a | 9 | 0 | 9 |
| **Total Bay Region** | | **59** | **29** | **35** | **64** |
| **Total East Bay Sub-Region** | | **41** | **29** | **0** | **29** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards for other postsecondary is for 2013-16.

# Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 3,834 annual openings for the Residential Automation Cloud Based occupational cluster and 64 annual awards for an annual undersupply of 3,770. In the East Bay, there is also a gap with 795 annual openings and 29 annual awards for an annual undersupply of 766.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 093430 - Telecommunications Technology**

Note: Laney College is the only college in the Bay region with sufficient number of students on this TOP code.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **2015-16** | **Bay  (All CTE Programs)** | **Laney**  **(All CTE Programs)** | **State (093430)** | **Laney (093430)** | **Top College on 093430 in the State** | |
| % Employed Four Quarters After Exit | 74% | 67% | 73% | 58% | LA Trade-Technical | 85%  (13 students) |
| Median Earnings Two Quarters After Exit | $10,310 | $9,960 | $8,230 | $7,775 | Imperial Valley | $8,230  (no. of students n/a) |
| Median % Change in Earnings | 46% | 46% | 74% | 156% | American River | 162%  (no. of students n/a) |
| % of Students Earning a Living Wage | 63% | 61% | 64% | 50% | LA Trade-Technical | 70%  (10 students) |

*Source: Launchboard Pipeline (version available on 5/14/18)*

# Skills, Certificates and Education

**Table 9. Top Skills for Residential Automation Cloud Based Occupations in Bay Region (May 2017 - April 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Skill** | **Postings** | **Skill** | **Postings** | **Skill** | **Postings** |
| SQL | 4,065 | Microsoft Active Directory | 973 | Debugging | 611 |
| Python | 3,375 | Teradata DBA | 959 | AWS Redshift | 606 |
| Linux | 3,232 | Data Science | 932 | Disaster Recovery Planning | 602 |
| System Administration | 2,774 | Software Engineering | 911 | Ruby | 593 |
| Teamwork/Collaboration | 2,740 | Domain Name System (DNS) | 856 | DevOps | 591 |
| Java | 2,436 | NoSQL | 856 | Microsoft PowerShell | 578 |
| Data Entry | 2,133 | Salesforce | 850 | Configuration Management | 562 |
| Oracle | 2,131 | Relational Databases | 843 | Oracle PL/SQL | 559 |
| Apache Hadoop | 2,017 | Machine Learning | 841 | Informatica | 556 |
| Big Data | 1,895 | SQL Server | 824 | C++ | 552 |
| Extraction Transformation and Loading (ETL) | 1,814 | Virtualization | 772 | Database Design | 544 |
| UNIX | 1,799 | Cisco | 763 | Data Transformation | 542 |
| Database Administration | 1,648 | Data Modeling | 762 | Database Management | 539 |
| VMware | 1,248 | Scheduling | 751 | MongoDB | 534 |
| Data Warehousing | 1,238 | Data Analysis | 741 | JavaScript | 531 |
| Customer Service | 1,232 | Apache Webserver | 718 | Chef Infrastructure Automation | 524 |
| Technical Support | 1,223 | Quality Assurance & Control | 683 | Hardware & Software Installation | 520 |
| MySQL | 1,143 | Information Systems | 682 | Dynamic Host Configuration Protocol (DHCP) | 517 |
| Apache Kafka | 1,118 | Bash | 679 | Git | 511 |
| PERL Scripting Language | 1,103 | UNIX Shell | 662 | Hardware & Software Configuration | 508 |
| Shell Scripting | 1,097 | Data Quality | 657 | Data Management | 491 |
| Scala | 1,089 | Windows Server | 655 | Network Administration | 490 |
| Software Development | 1,081 | PostgreSQL | 643 | Cassandra | 486 |
| Apache Hive | 1,057 | Tableau | 625 | Scalability Design | 479 |
| Pipeline (Computing) | 1,033 | Transmission Control Protocol / Internet Protocol (TCP / IP) | 622 | JavaScript | 531 |
| Project Management | 1,026 | Puppet | 620 | Chef Infrastructure Automation | 524 |

*Source: Burning Glass*

**Table 10. Certifications for Residential Automation Cloud Based Occupations in the Bay (May 2017 - April 2018)**

Note: 89% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| **Certification** | **Postings** | **Certification** | **Postings** |
| IT Infrastructure Library (ITIL) Certification | 291 | Cisco Certified Network Professional (CCNP) | 131 |
| Driver's License | 267 | ITIL Certification | 123 |
| Security Clearance | 240 | Microsoft Certified Solutions Expert (MCSE) | 119 |
| Cisco Certified Network Associate (CCNA) | 232 | Certified Salesforce Administrator | 118 |
| CompTIA Security+ | 161 | Project Management Certification | 97 |

*Source: Burning Glass*

**Table 11. Education Requirements for Residential Automation Cloud Based Occupations in Bay Region**

Note: 79% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |
| --- | --- |
| **Education (minimum advertised)** | **Latest 12 Mos. Postings** |
| High school or vocational training | 976 (14%) |
| Associate Degree | 275 (4%) |
| Bachelor’s Degree or Higher | 5,745 (82%) |

*Source: Burning Glass*

# Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

# Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

For more information, please contact:

* Karen Beltramo, Data Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), [karen@baccc.net](mailto:karen@baccc.net) or (831) 332-1253
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, [jcarrese@ccsf.edu](mailto:jcarrese@ccsf.edu) or (415) 452-5529