**Game Audio Production Occupations**

**Labor Market Information Report**

**Foothill College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

March 2020

# Recommendation

Based on all available data, there appears to be an undersupply of Game Audio Production workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County). There is a projected annual gap of about 3,475 students in the Bay region and 1,297 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0614.20 - Electronic Game Design in the state and region. It is recommended that these 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 and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

# Introduction

This report profiles Game Audio Production Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new program at Foothill College. Labor market information (LMI) is not available at the eight-digit SOC Code level for Video Game Designers (15-1199.11), therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other (at the six digit SOC level) and likely overstates demand for Video Game Designers. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Video Game Designers (15-1199.11).

|  |
| --- |
| * **Computer Occupations, All Other (SOC 15-1199):** All computer occupationsnot listed separately. Excludes “Computer and Information Systems Managers” (11-3021), “Computer Hardware Engineers” (17-2061), “Electrical and Electronics Engineers” (17-2070), “Computer Science Teachers, Postsecondary” (25-1021), “Multimedia Artists and Animators” (27-1014), “Graphic Designers” (27-1024), “Computer Operators” (43-9011), and “Computer, Automated Teller, and Office Machine Repairs” (49-2011). |
| Entry-Level Educational Requirement: Bachelor's degree |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 35% |
| * **Sound** **Engineering Technicians (SOC 27-4014):** Operate machines and equipment to record, synchronize, mix, or reproduce music, voices, or sound effects in sporting arenas, theater productions, recording studios, or movie and video productions. |
| Entry-Level Educational Requirement: Postsecondary *nondegree* award |
| Training Requirement: Short-term *on-the-job training* |
| Percentage of Community College Award Holders *or Some Postsecondary Coursework: 46%* |

# Occupational Demand

**Table 1. Employment Outlook for Game Audio Production Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2018 Jobs | 2023 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Computer Occupations, All Other | 34,304 | 38,084 | 3,780 | 11% | 16,918 | 3,384 | $40.92 | $55.80 |
| Sound Engineering Technicians | 837 | 837 | -1 | 0% | 477 | 95 | $20.41 | $32.08 |
| **TOTAL** | **35,141** | **38,921** | **3,779** | **11%** | **17,395** | **3,479** | **$40.43** | **$55.23** |

*Source: EMSI 2019.4*

**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 Game Audio Production Occupations in Silicon Valley Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2018 Jobs | 2023 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Computer Occupations, All Other | 12,649 | 14,197 | 1,549 | 12% | 6,409 | 1,282 | $46.79 | $64.56 |
| Sound Engineering Technicians | 115 | 126 | 12 | 10% | 78 | 16 | $30.14 | $36.44 |
| **TOTAL** | **12,763** | **14,324** | **1,560** | **12%** | **6,487** | **1,297** | **$46.64** | **$64.31** |

*Source: EMSI 2019.4*

Silicon Valley Sub-Region includes Santa Clara County

### Job Postings in Bay Region and Silicon Valley Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (March 2019 - February 2020)**

| Occupation | Bay Region | Silicon Valley |
| --- | --- | --- |
| Video Game Designers | 1,284 | 401 |
| Sound Engineering Technicians | 376 | 171 |
| **TOTAL** | **1,660** | **572** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Game Audio Production Occupations for latest 12 months (March 2019 - February 2020) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Creator, Food Service Industry | 98 | Developer | 15 |
| Game Designer | 85 | Content Creator | 15 |
| Senior Engineer | 61 | Technical Pm | 13 |
| Engineer | 46 | Creator | 13 |
| Audio Engineer | 30 | Hardware Engineer | 12 |
| Head, Infrastructure | 29 | Guide | 12 |
| Theater Technician | 26 | Concept Artist | 12 |
| Lead Engineer | 25 | Technology | 11 |
| Sap Apo | 24 | Mechanic | 11 |
| Environment Artist | 24 | Lead Environment Artist | 11 |
| Gameplay Engineer | 22 | Director, Crm | 11 |
| Systems Engineer | 21 | Senior Concept Artist | 10 |
| Senior Environment Artist | 17 | Firmware Engineer | 10 |
| Sap Pm | 17 | Test Engineer | 8 |

**Table 4b. Top Job Titles for Game Audio Production Occupations for latest 12 months (March 2019 - February 2020) Silicon Valley Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Silicon Valley | Common Title | Silicon Valley |
| Creator, Food Service Industry | 31 | Environment Artist | 6 |
| Sap Apo | 22 | Audio Engineer | 6 |
| Systems Engineer | 12 | Applications Engineer | 6 |
| Engineer | 12 | Technology Evangelist | 5 |
| Technical Pm | 11 | Principal Environment Artist | 5 |
| Theater Technician | 10 | User Interface (UX)/User Experience (UX) Designer | 4 |
| Lead Engineer | 9 | Technical Pm With Bigdata | 4 |
| Firmware Engineer | 9 | Software Delivery Epm | 4 |
| Test Engineer | 8 | Senior Environment Artist | 4 |
| Staff Engineer | 8 | Senior Engineer | 4 |
| Game Designer | 8 | Sap Integration - Po,Cpi | 4 |
| Developer | 8 | Multiple Sap Roles | 4 |
| Sap Gts Lead | 6 | Lead Environment Artist | 4 |
| Hardware Engineer | 6 | Instrumentation Engineer | 4 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries Hiring Game Audio Production Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2018) | Jobs in Industry (2022) | % Change (2018-22) | % in Industry (2018) |
| Custom Computer Programming Services (541511) | 7,064 | 8,282 | 17% | 20% |
| Computer Systems Design Services (541512) | 4,204 | 4,625 | 10% | 12% |
| Software Publishers (511210) | 2,360 | 2,997 | 27% | 7% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 2,374 | 2,927 | 23% | 7% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 2,091 | 2,030 | -3% | 6% |
| Data Processing, Hosting, and Related Services (518210) | 1,543 | 1,962 | 27% | 4% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 1,311 | 1,346 | 3% | 4% |
| Other Computer Related Services (541519) | 1,022 | 1,243 | 22% | 3% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 575 | 608 | 6% | 2% |
| Electronic Computer Manufacturing (334111) | 483 | 527 | 9% | 1% |
| Temporary Help Services (561320) | 499 | 509 | 2% | 1% |
| Administrative Management and General Management Consulting Services (541611) | 443 | 536 | 21% | 1% |
| Local Government, Excluding Education and Hospitals (903999) | 387 | 402 | 4% | 1% |
| Research and Development in Biotechnology (except Nanobiotechnology) (541714) | 332 | 431 | 30% | 1% |
| Engineering Services (541330) | 347 | 364 | 5% | 1% |

*Source: EMSI 2019.4*

**Table 6. Top Employers Posting Game Audio Production Occupations in Bay Region and Silicon Valley Sub-Region (March 2019 - February 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
| Specialty’s Cafe Bakery | 99 | Quinn Company | 8 | Apple Inc. | 62 |
| Apple Inc. | 64 | Applovin | 8 | Specialty’s Cafe Bakery | 26 |
| Facebook | 37 | Time Warner | 7 | Amazon | 15 |
| Activision | 19 | Jobot | 7 | Google Inc. | 11 |
| Amazon | 18 | IBM | 7 | IBM | 7 |
| Take-Two Interactive | 15 | Cryptic Studios Inc | 7 | Splunk, Inc | 6 |
| Sledgehammer Games Inc | 15 | Best Buy | 7 | Machine Zone | 6 |
| Roblox Corporation | 15 | Bay Area Children's Theatre | 7 | Cryptic Studios Inc | 6 |
| Google Inc. | 13 | Sledgehammer Games | 6 | Best Buy | 5 |
| Disney | 13 | Machine Zone | 6 | Infoways | 4 |
| Pocket Gems | 12 | Box | 6 | Softpath Technologies | 3 |
| Electronic Arts Incorporated | 10 | Patreon | 5 | Servicenow | 3 |
| Striking Distance Studios | 9 | Microsoft Corporation | 5 | Reservenation | 3 |
| Jam City | 9 | Indochino | 5 | Paypal | 3 |
| Glu Mobile Inc | 9 | Antenna Group | 5 | Microsoft Corporation | 3 |
| Ea | 9 | Sony Electronics Inc | 4 | Jazz Pharma | 3 |
| Splunk, Inc | 8 | Salesforce | 4 | Intuit | 3 |

*Source: Burning Glass*

# Educational Supply

There is one (1) community college in the Bay Region issuing one (1) award on average annually (last 3 years) on TOP 0614.20 - Electronic Game Design. There is one (1) other postsecondary institution in the Bay Region issuing three (3) awards on average annually (last 3 years) on CIP 50.0411 - Game and Interactive Media Design. There are no colleges in the Silicon Valley Sub-Region issuing awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0614.20 - Electronic Game Design and CIP 50.0411 - Game and Interactive Media Design in Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Associates | Certificate 18+ Units | Certificate Low Unit | Total |
| Santa Rosa Junior College | North Bay | 1 | 0 | 0 | 1 |
| Academy of Art University | Mid-Peninsula | 3 | 0 | 0 | 3 |
| **Total Bay Region** | | **4** | **0** | **0** | **4** |
| **Total Silicon Valley Sub-Region** | | **0** | **0** | **0** | **0** |

# *Source: Data Mart*

Note: The annual average for awards is 2015-16 to 2017-18.

# Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 3,479 annual openings for the Game Audio Production occupational cluster and four (4) annual (3-year average) awards for an annual undersupply of 3,475 students. In the Silicon Valley Sub-Region, there is also a gap with 1,297 annual openings and no annual (3-year average) awards for an annual undersupply of 1,297 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0614.20 - Electronic Game Design**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay  (All CTE Programs) | Foothill College (All CTE Programs) | State (0614.20) | Bay (0614.20) | Silicon Valley (0614.20) | Foothill College (0614.20) |
| % Employed Four Quarters After Exit | 74% | 77% | n/a | n/a | n/a | n/a |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $15,301 | $4,188 | n/a | n/a | n/a |
| Median % Change in Earnings | 46% | 82% | 87% | n/a | n/a | n/a |
| % of Students Earning a Living Wage | 63% | 76% | 32% | n/a | n/a | n/a |

*Source: Launchboard Pipeline (version available on 3/2/20)*

# Skills, Certifications and Education

**Table 9. Top Skills for Game Audio Production Occupations in Bay Region (March 2019 - February 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| C++ | 240 | Schematic Diagrams | 91 | Zbrush | 62 |
| Project Management | 203 | Maya | 86 | Scrum | 61 |
| Game Development | 200 | Product Management | 86 | System Design | 59 |
| SAP | 167 | Microsoft C# | 80 | EPIC Unreal Engine | 58 |
| Python | 145 | Quality Assurance & Control | 77 | Facebook | 58 |
| Digital Signal Processing (DSP) | 143 | Customer Service | 75 | Product Development | 57 |
| Level design | 135 | Java | 75 | DevOps | 54 |
| Adobe Photoshop | 129 | Prototyping | 75 | Repair | 54 |
| Software Engineering | 126 | Cash Handling | 74 | Audio Systems | 53 |
| Cleaning | 124 | MATLAB | 74 | Music | 52 |
| Scheduling | 105 | Linux | 71 | Technical Support | 52 |
| Audio Engineering | 101 | Debugging | 69 | Digital Audio | 51 |
| Budgeting | 100 | Food Safety | 67 | Teaching | 51 |
| Software Development | 99 | SQL | 67 | Art Direction | 50 |
| Physics | 92 | Sorting | 67 | Audio / Visual Knowledge | 49 |

*Source: Burning Glass*

**Table 10. Certifications for Game Audio Production Occupations in Bay Region (March 2019 - February 2020)**

Note: 87% 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 |
| Food Handler Certification | 110 | Ca License | 3 |
| Food Service Certification | 67 | Board Certified/Board Eligible | 3 |
| Driver's License | 30 | Six Sigma Black Belt Certification | 2 |
| Project Management Certification | 27 | SAP Certification | 2 |
| IT Infrastructure Library (ITIL) Certification | 13 | Mortgage License | 2 |
| Project Management Professional (PMP) | 12 | Licensed Vocational Nurse (LVN) | 2 |
| Security Clearance | 11 | Licensed Professional Engineer | 2 |
| PMI Agile Certified Practitioner (PMI-ACP) | 5 | Lean Six Sigma Certification | 2 |
| Cisco Certified Network Associate (CCNA) | 5 | Leadership In Energy And Environmental Design (LEED) Certified | 2 |
| ITIL Certification | 3 | Basic Life Saving (BLS) | 2 |
| Certified Information Systems Security Professional (CISSP) | 3 | Basic Cardiac Life Support Certification | 2 |
| Certified Information Systems Auditor (CISA) | 3 | Automation Certification | 2 |

*Source: Burning Glass*

**Table 11. Education Requirements for Game Audio Production Occupations in Bay Region**

Note: 54% 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 | Percent 12 Mos. Postings |
| High school or vocational training | 39 | 5% |
| Associate Degree | 14 | 2% |
| Bachelor’s Degree or Higher | 630 | 93% |

*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

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