**** **Multimedia Game Design and Animation Occupations**

**Labor Market Information Report**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

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# Recommendation

Based on all available data, there appears to be a significant undersupply of Multimedia Game Design and Animation 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 about 1,855 students annually in the Bay region and 293 students annually in the East Bay sub-region. The demand may be somewhat overstated, because there are other emerging occupations included in SOC code 15-1199 (Computer Occupations, All Other), which includes Video Game Designers as one of the emerging occupations. However, even if the demand for this occupation was eliminated from the demand calculation, there would still be an undersupply in the region of about 600 students annually and in the East Bay sub-region of about 100 students annually.

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 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 and region, as well as to outcomes across all CTE programs at Ohlone College and in the region.

# Introduction

This report profiles Multimedia Game Design and Animation Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new program at Ohlone College.

|  |
| --- |
| * **Multimedia Artists and Animators (SOC 27-1014):** Create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials. |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 27%* |
|  |
| * **Computer Occupations, All Other (SOC** **15-1199):** All computer occupations not listed separately. Includes Video Game Designers (SOC 15-1199.11) |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 35%* |
|  |
| * **Film and Video Editors (SOC 27-4032):** Edit moving images on film, video, or other media. May edit or synchronize soundtracks with images. Excludes “Sound Engineering Technicians” (27-4014). |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 28%* |

# Occupational Demand

**Table 1. Employment Outlook for Multimedia Game Design and Animation 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 |
| Multimedia Artists and Animators | 4,361 | 4,735 | 375 | 9% | 2,190 | 438 | $12.63 | $35.44 |
| Computer Occupations, All Other | 13,687 | 15,178 | 1,491 | 11% | 6,267 | 1,253 | $25.33 | $52.40 |
| Film and Video Editors | 1,390 | 1,580 | 190 | 14% | 887 | 177 | $21.30 | $29.67 |
| **Total** | **19,438** | **21,493** | **2,056** | **11%** | **9,345** | **1,869** | **$22.19** | **$46.97** |

*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 Multimedia: Game Design and Animation 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 |
| Multimedia Artists and Animators | 708 | 763 | 55 | 8% | 342 | 68 | $11.16 | $24.39 |
| Computer Occupations, All Other | 2,211 | 2,420 | 209 | 9% | 972 | 194 | $23.94 | $47.87 |
| Film and Video Editors | 331 | 381 | 51 | 15% | 215 | 43 | $21.36 | $28.32 |
| **TOTAL** | **3,250** | **3,565** | **314** | **10%** | **1,530** | **306** | **$20.89** | **$40.76** |

*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 (July 2017 - June 2018)**

|  |  |  |
| --- | --- | --- |
| Occupation | Bay Region | East Bay |
| Video Game Designers (15-1199.11) | 752 | 82 |
| Multimedia Artists and Animators (27-1014.00) | 683 | 52 |
| Film and Video Editors (27-4032.00) | 115 | 9 |
| **Total** | **1,550** | **143** |

*Source: Burning Glass*

**Table 4. Top Job Titles for Multimedia Game Design and Animation Occupations for latest 12 months (July 2017 - June 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | East Bay | Common Title | Bay | East Bay |
| Interaction Designer | 399 | 24 | Technology | 19 | 1 |
| Video Editor | 109 | 9 | Engineer | 18 | 2 |
| Animator | 83 | 5 | Content Producer | 13 | 1 |
| Game Designer | 69 | 4 | Environment Artist | 12 |  |
| Graphic Designer | 40 | 3 | Lead Game Designer | 12 |  |
| Interactive Designer | 40 | 5 | Technical Pm | 12 | 1 |
| Visual Effects Artist | 35 | 1 | Developer | 10 |  |
| Senior Engineer | 25 | 2 | Concept Artist | 9 | 1 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Multimedia Game Design and Animation 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) | 4,340 | 4,974 | 15% | 16.5% |
| Computer Systems Design Services (541512) | 2,551 | 2,916 | 14% | 9.7% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 2,340 | 3,111 | 33% | 8.9% |
| Software Publishers (511210) | 1,893 | 2,170 | 15% | 7.2% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 1,650 | 1,676 | 2% | 6.3% |
| Motion Picture and Video Production (512110) | 1,314 | 1,379 | 5% | 5.0% |
| Data Processing, Hosting, and Related Services (518210) | 955 | 1,246 | 30% | 3.6% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 710 | 727 | 2% | 2.7% |
| Other Computer Related Services (541519) | 638 | 785 | 23% | 2.4% |
| Independent Artists, Writers, and Performers (711510) | 378 | 356 | (6%) | 1.4% |
| Teleproduction and Other Postproduction Services (512191) | 328 | 342 | 4% | 1.2% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 311 | 324 | 4% | 1.2% |
| Temporary Help Services (561320) | 302 | 323 | 7% | 1.2% |
| Administrative Management and General Management Consulting Services (541611) | 263 | 320 | 22% | 1.0% |
| Colleges, Universities, and Professional Schools (611310) | 250 | 269 | 8% | 1.0% |

*Source: EMSI 2018.2*

**Table 6. Top Employers Posting Multimedia Game Design and Animation Occupations in Bay and East Bay Sub-Region (July 2017 - June 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | East Bay |
| Google Inc. | 34 | Activision | 13 | Fresenius | 18 |
| Apple Inc. | 26 | Machine Zone | 11 | General Electric Company | 11 |
| Electronic Arts Incorporated | 25 | Spartan Tool Llc | 11 | Big Fish Games, Inc | 6 |
| Intuit | 23 | Wells Fargo | 11 | Pandora Media | 4 |
| Facebook | 21 | Box Incorporated | 10 | Accenture | 3 |
| Fresenius | 19 | Glu Mobile Inc | 10 | Ideahelix | 3 |
| Take-Two Interactive | 19 | Telltale, Inc | 10 | Babylist, Inc | 2 |
| General Electric Company | 16 | Cryptic Studios Incorporated | 9 | Big Fish Games | 2 |
| Zynga | 16 | Kixeye Inc | 9 | Disney | 2 |

*Source: Burning Glass*

# Educational Supply

There is one colleges in the Bay Region issuing one award annually on TOP 0614.20 - Electronic Game Design. There is one other educational institution issuing 13 awards annually on one CIP code 50.0411 Game and Interactive Media Design, for a total of 14 awards annually in the region.

**Table 7. Awards on TOP 0614.20 - Electronic Game Design in the Bay Area**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| College | Sub-Region | CIP Code | Headcount | Associates | Certificates | Total |
| Santa Rosa | North Bay | n/a | n/a | 1 | 0 | 1 |
| SAE Expression College | East Bay | 50.0411 | n/a | 13 | 0 | 13 |
| **Total Bay Region** | |  |  | **14** | **0** | **14** |
| **Total East Bay Sub-Region** | |  |  | **13** | **0** | **13** |

# *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 is 2014-17 unless there are only awards in 2016-17. The annual average 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 1,869 annual openings for the Multimedia Game Design and Animation occupational cluster and 14 annual awards for an annual gap of 1,855. In the East Bay, there is also a gap with 306 annual openings and 13 annual award for an annual gap of 293. The demand may be somewhat overstated, because there are other emerging occupations included in SOC code 15-1199 (Computer Occupations, All Other), which includes Video Game Designers as one of the emerging occupations. However, even if the demand for this occupation was eliminated from the demand calculation, there would still be an undersupply in the region of about 600 students annually and in the East Bay sub-region of about 100 students annually.

# 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) | Ohlone College (All CTE Programs) | State (0614.20) | Bay (0614.20) | East Bay (0614.20) | Ohlone College (0614.20) |
| % Employed Four Quarters After Exit | 74% | 82% | 58% | n/a | n/a | n/a |
| Median Earnings Two Quarters After Exit | $10,310 | $25,095 | $4,063 | n/a | n/a | n/a |
| Median % Change in Earnings | 46% | 20% | 94% | n/a | n/a | n/a |
| % of Students Earning a Living Wage | 63% | 84% | 32% | n/a | n/a | n/a |

*Source: Launchboard Pipeline (version available on 7/31/18)*

# Skills, Certificates and Education

**Table 9. Top Skills for Multimedia Game Design and Animation Occupations in Bay Region (July 2017 - June 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Adobe Photoshop | 434 | Maya | 136 | Adobe Premiere | 77 |
| Interaction Design | 236 | Process Design | 133 | Art Direction | 73 |
| UX Wireframes | 227 | User Research | 129 | Python | 73 |
| Visual Design | 212 | Product Management | 125 | Java | 71 |
| Prototyping | 211 | Video Editing | 124 | Software Engineering | 71 |
| User Interface (UI) Design | 203 | Product Design | 122 | Design Thinking | 69 |
| Project Management | 194 | Customer Contact | 118 | Microsoft C# | 69 |
| Adobe Indesign | 193 | Software Development | 116 | Omnigraffle | 67 |
| Adobe Acrobat | 172 | C++ | 104 | Social Media | 66 |
| Adobe Creative Suite | 169 | Information Architecture | 98 | Quality Assurance and Control | 61 |
| Game Development | 169 | Scheduling | 98 | Illustration | 57 |
| Animation | 166 | Budgeting | 97 | Web Site Design | 57 |
| Graphic Design | 163 | Motion Graphics | 89 | 3D Modeling / Design | 55 |
| Adobe Aftereffects | 158 | Human Computer Interaction | 85 | Business Development | 52 |
| Adobe Illustrator | 158 | Product Development | 81 | Customer Service | 51 |
| JavaScript | 139 | E-Commerce | 80 | SAP | 51 |

*Source: Burning Glass*

**Table 10. Certifications for Multimedia Game Design and Animation Occupations in the Bay Region (July 2017 - June 2018)**

Note: 12% 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 |
| Adobe Photoshop | 434 | Product Design | 122 |
| Interaction Design | 236 | Customer Contact | 118 |
| UX Wireframes | 227 | Software Development | 116 |
| Visual Design | 212 | C++ | 104 |
| Prototyping | 211 | Information Architecture | 98 |
| User Interface (UI) Design | 203 | Scheduling | 98 |
| Project Management | 194 | Budgeting | 97 |
| Adobe Indesign | 193 | Motion Graphics | 89 |
| Adobe Acrobat | 172 | Human Computer Interaction | 85 |
| Adobe Creative Suite | 169 | Product Development | 81 |
| Game Development | 169 | E-Commerce | 80 |
| Animation | 166 | Adobe Premiere | 77 |
| Graphic Design | 163 | Art Direction | 73 |
| Adobe Aftereffects | 158 | Python | 73 |
| Adobe Illustrator | 158 | Java | 71 |
| JavaScript | 139 | Software Engineering | 71 |
| Maya | 136 | Design Thinking | 69 |
| Process Design | 133 | Microsoft C# | 69 |
| User Research | 129 | Omnigraffle | 67 |
| Product Management | 125 | Social Media | 66 |
| Video Editing | 124 | Quality Assurance and Control | 61 |

*Source: Burning Glass*

**Table 11. Education Requirements for Multimedia Game Design and Animation Occupations in Bay Region**

Note: 51% 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 | 40 (5%) |
| Associate Degree | 14 (2%) |
| Bachelor’s Degree or Higher | 698 (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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