



3D Modeling and Animation C–Video Game and Interactive Media Art

January 2018

Prepared by the Los Angeles/Orange County Center of Excellence for Labor Market Research

Program Recommendation

This report was compiled by the Los Angeles/Orange County Center of Excellence to provide regional labor market data for the program recommendation of 3D Modeling and Animation C–Video Game and Interactive Media Art. This report may help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Based on the data, the COE cannot conclusively determine that there is an unmet need for a 3D modeling and animation program in the Orange County region. Reasons include:

- Nearly 75 job opportunities will be available in the region annually through 2022
- The median annual wage after animation program completion is less than \$15,000
- 29% of animation program exiters are earning a living wage

Occupation Codes and Descriptions

Currently, there is one occupation in the standard occupational classification (SOC) system and one emerging occupation¹ related to the study of 3D modeling and animation. The occupation titles and descriptions, as well as reported job titles are included in Exhibit 1.

Exhibit 1 – Occupations, descriptions, and sample job titles

O*NET/SOC Code	Title	Description	Sample of Reported Job Titles
15-1199.11	Video Game Designers	Design core features of video games. Specify innovative game and role-play mechanics, story lines, and character biographies. Create and maintain design documentation. Guide and collaborate with production staff to produce games as designed.	Design Director, Designer/Writer, Game Designer, Game Designer/Creative Director, Lead Designer, Lead Game Designer, Lead Level Designer, Mid Level Game Designer, Senior Game Designer, World Designer

¹ New and emerging occupations (N&E) are incorporated into the O*NET-SOC classification system based on the evolving nature of workforce requirements stemming from changes in technology, society, law, and business practices. Incorporating N&E occupations into the O*NET system makes O*NET information more beneficial and responsive. <https://www.onetcenter.org/reports/NewEmerging.html>

27-1014.00	Multimedia Artists and Animators	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.	3D Animator, 3D Artist, Animation Director, Animator, Art Director, Artist, Creative Director, Graphic Artist, Graphic Designer, Illustrator
------------	----------------------------------	--	--

Source: O*NET Online

Current and Future Employment

In Orange County, the number of jobs related to animation is expected to increase by 3% over the next five years. Over 70 job opportunities will be available annually for multimedia artists and animators through 2022 due to new job growth and replacement need (e.g., retirements). Data collection is underway for the emerging occupation and is not yet available; therefore, Exhibit 2 contains detailed employment projections data for multimedia artists and animators.

Exhibit 2 – Five-year projections for animation jobs in Orange County

SOC	Occupation	2017 Jobs	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	Annual Openings
27-1014	Multimedia Artists and Animators	844	872	28	3%	73

Source: Economic Modeling Specialists International (EMSI)

Earnings

In Orange County, the entry-level average wage for multimedia artists and animators is \$11.45 per hour, which is below the MIT Living Wage² estimate of \$14.48 per hour for a single adult. The average annual earnings for this occupation in the region is \$55,292 per year, assuming full-time employment.

Exhibit 3 contains hourly wages and annual average earnings for these workers. Entry-level hourly earnings is represented by the 10th percentile of wage, median hourly earnings is represented by the 50th percentile of wage, and experienced hourly earnings is represented by the 90th percentile of wage, demonstrating various levels of employment.

² MIT Living Wage Calculator. <http://livingwage.mit.edu/>

Exhibit 3 – Earnings for multimedia artists and animators in Orange County

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings	Average Annual Earnings
27-1014	Multimedia Artists and Animators	\$11.45	\$25.36	\$45.13	\$55,292

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements that are relevant to the field of interest. Employer job postings are consulted to understand who is employing in the field of animation, and what they are looking for in potential candidates. To identify job postings related to animation, the keywords animator, multimedia artist, game design, special effect artist, digital artist specialist, 3D and 3D modeling along with the O*NET and SOC codes 15-1199.11 and 27-1014 were used.

Top Occupations

In 2017, there were 145 employer postings for animation-related jobs. Over half of the postings (54%) were for video game designers (79 job postings). There were 133 job postings for the same cluster of occupations in 2016, and 124 job postings in 2015.

Exhibit 4 – Top occupations in job postings (n=145)

SOC/O*NET Code	Occupation	Job Postings, Full Year 2017
15-1199.11	Video Game Designers	79
27-1014.00	Multimedia Artists and Animators	66

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top titles for employers posting animation-related job ads are listed in Exhibit 5. As expected, animator is mentioned in 22% of all relevant job postings (32 out of 145 job postings).

Exhibit 5 –Job titles (n=145)

Title	Job Postings, Full Year 2017
Animator	32
Game Designer	31
FX Artist	11
Graphic Designer	8
Senior Environment Artist	7
Visual Effects Artist	5
Concept Artist	4
Lead Game Designer	4

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the field of animation. Top employers posting job ads included Activision, Blizzard Entertainment, Amazon.com, Nexon America Inc., Carbine Studios, Inxile Entertainment, and Ncsoft Corporation. The top worksite cities in the region for these jobs were Irvine, Aliso Viejo, and Newport Beach.

Exhibit 6 – Top employers (n=121)

Employer	Job Postings, Full Year 2017
Activision	47
Blizzard Entertainment	38
Amazon.com	13
Nexon America Inc	6
Carbine Studios	2
Inxile Entertainment	2
Ncsoft Corporation	2

Source: Labor Insight/Jobs (Burning Glass)

Skills

Job-specific skills desired by employers are: game development, MAYA, Adobe Photoshop, animation, illustration, 3D Studio Max, Adobe Indesign, painting, Adobe Aftereffects, and C++.

Exhibit 7 –Job skills (n=105)

Skills	Job Postings, Full Year 2017
Game Development	48
MAYA	40
Adobe Photoshop	39
Animation	36
Illustration	17
3D Studio Max	15
Adobe Indesign	12
Painting	12
Adobe Aftereffects	11
C++	11

Source: Labor Insight/Jobs (Burning Glass)

Advertised Education Levels

Exhibit 8 displays the education level requested by employers in online job ads. The majority of employers were looking for a candidate with a Bachelor's degree. Approximately 74% of job postings did not specify a level of education.

Exhibit 8 – Advertised education requirements for animation-related occupations (n=38)



Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Animation-related jobs in Orange County are most often found in the independent artists, writers, and performers industry (12% of total jobs in the industry). Exhibit 9 shows the industries that employ the most animation workers in Orange County.

Exhibit 9 – Industries employing the most animation-related workers

NAICS (6-Digit)	Industry	Occupation Jobs in Industry (2017)	% of Occupation in Industry (2017)
711510	Independent Artists, Writers, and Performers	101	12%
512110	Motion Picture and Video Production	84	10%
511210	Software Publishers	75	9%
541511	Custom Computer Programming Services	40	5%
541430	Graphic Design Services	40	5%
541410	Interior Design Services	39	5%
541810	Advertising Agencies	32	4%
541512	Computer Systems Design Services	29	3%
519130	Internet Publishing and Broadcasting and Web Search Portals	25	3%

Source: Economic Modeling Specialists International (EMSI)

Education and Training

Exhibit 10 shows the typical entry-level education requirement for the occupation of interest, along with the typical on-the-job training, and percentage of workers in the field who hold a community college award or have completed some postsecondary courses. About 27% of the workforce in this occupation has completed some community college education as their highest level of education.

Exhibit 10 – Education and training requirements

SOC	Occupation	Typical Entry Level Education	% of Community College Award Holders or Some Postsecondary Coursework
27-1014	Multimedia Artists and Animators	Bachelor's degree	27%

Source: Economic Modeling Specialists International, Bureau of Labor Statistics Employment Projections (Educational Attainment)

Currently, seven community colleges in Orange County train students in animation. Exhibit 11 displays the headcount and annual average community college awards for each of the colleges training in this field. Headcount is the actual number of students enrolled, regardless of credit hours. It is also important to note that an award is not equivalent to a single person in search of a job opening, since a student may earn more than one award (e.g. an associate degree and a certificate).

Between 2012-2015, the total annual average community college awards conferred was 11 (0 associate degrees and 11 certificates) across one program: Animation (0614.40).

Exhibit 11 – CCC Student Awards (by TOP and College)

2012-2015 Annual Average						
TOP Code	Program	College	CCC Headcount	CCC Associate Degrees	CCC Certificates	Total Average CC Awards
0614.40	Animation	Coastline	22	0	0	0
		Cypress	20	0	4	4
		Fullerton	0	0	0	0
		Golden West	58	0	0	0
		Irvine	19	0	1	1
		Orange Coast	59	0	0	0
		Santa Ana	85	0	6	6
		Total	263	0	11	11

Source: California Community Colleges Chancellor's Office MIS Data Mart

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Animation Taxonomy of Program (TOP) code (0614.40) in Orange County for the 2014-15 academic year.

- The median annual wage after program completion is \$14,176
- 29% of students are earning a living wage
- 50% of students are employed within six months after completing a program

Source: CTE LaunchBoard

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represents the labor market demand for positions most closely related to 3D modeling and animation c–video game and interactive media art. Standard occupational classification (SOC) codes were chosen based on the national education level required for employment (associate degree and postsecondary certificate) as well as the proportion of current workers who hold a community college award or have had some community college training. This selection process narrows the labor market analysis to the most relevant employment opportunities for students with community college education and/or training.

Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.