Animation

Inland Empire/Desert Region (Riverside and San Bernardino counties, IEDR) and Los Angeles & Orange counties combined (LA/OC)

This workforce demand report uses state and federal job projection data developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.

Summary

- Employment for *special effects artists and animators* is expected to **increase by 5% between 2019 and 2024** in the Inland Empire/Desert Region. A total of **48 annual job openings** will be available each year over the five-year timeframe.
- The 50th percentile, median hourly wage for *special effects artists and animators* is **$17.43, below the $19.94 per hour self-sustainable hourly wage** estimate for a single adult with one child.
- Over the last three academic years, there were 32 awards issued from regional community college training programs related to animation.
- The COE **does not recommend** creating or expanding animation programs in the IEDR. See the recommendation section for further detail.

Introduction

This report provides data on the occupation and programs related to animation. While the California Community College animation (TOP 0614.40) program provides the most traditional path to animation careers, many community colleges utilize the multimedia (TOP 0614.10) program code for their animation programs. For this reason, community college awards related to multimedia will contribute to the regional supply for *special effects artists and animators*. Labor market data for Los Angeles and Orange counties (LA/OC) is provided in this report as there are more employment opportunities available to individuals willing to commute out of the local region. While labor market data for LA/OC is listed, the program endorsement is based solely upon the employer demand and educational supply data for the Inland Empire/Desert Region (IEDR).

Animation programs prepare students for employment as *special effects artists and animators* through the instruction of the principles and techniques for creating the visual illusion of motion through sequenced images. These programs include animation using digital technology. **Multimedia** programs provide training for *special effects artists and animators* through the instruction of the principles and techniques of using computers to bring together text, sounds, animation, graphic art, and video to create interactive products

to inform, educate, or entertain (Taxonomy of Programs, 2012). The description and a sample of job titles for *special effects artists and animators* are listed below.

Special Effects 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.

Sample job titles: 3D Animator (Three-Dimensional Animator), 3D Artist (Three-Dimensional Artist), Animator, Artist, Designer, Digital Artist, Graphic Artist, Illustrator, Motion Graphics Artist, Multimedia Producer

Entry-Level Educational Requirement: Bachelor's degree
Training Requirement: None
Work Experience Required: None
Incumbent workers with a Community College Award or Some Postsecondary Coursework: 27%

Job Opportunities

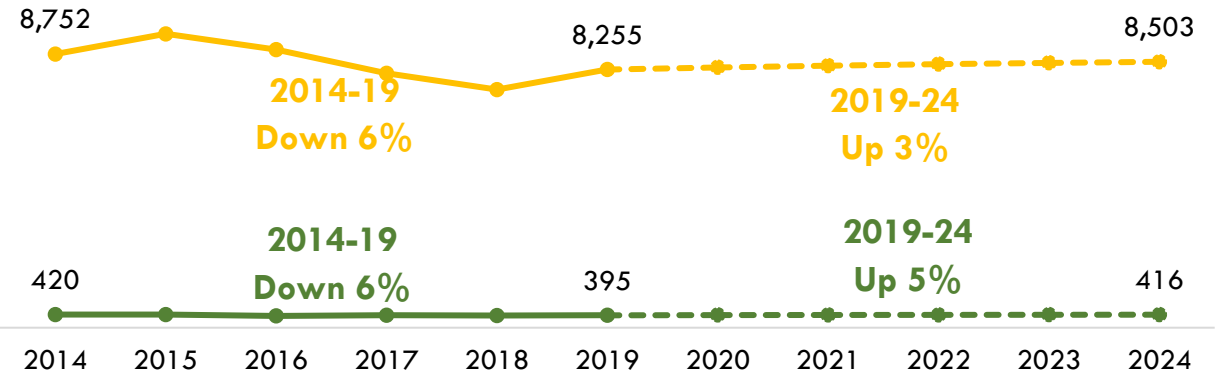
In 2019, there were 395 *special effects artist and animator* jobs in the Inland Empire/Desert Region (IEDR). This occupation is projected to increase employment by 5% through 2024. Employers in the region will need to hire 48 workers annually over the next five years to fill new jobs and backfill jobs that workers permanently vacating (includes occupational transfers and retirements). Exhibit 1 displays five-year projected job growth, and Exhibit 2 displays historical and projected jobs for *special effects artists and animators* in the IEDR and LA/OC.

Exhibit 1: Five-year projections for special effects artists and animators

Region	2019 Jobs	2024 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
IEDR	395	416	5%	242	48	33%
LA/OC	8,255	8,503	3%	4,810	962	22%
Total	**8,650**	**8,920**	**3%**	**5,052**	**1,010**	**22%**

Source: EMSI 2020.3

Exhibit 2: Historical and projected special effects artists and animators jobs in the IEDR (green) and LAOC (yellow), 2014 – 2024



Source: EMSI 2020.3

Industry Employment

Exhibit 3 displays an inverse staffing pattern for *special effects artists and animators* in the IEDR. Inverse staffing patterns reveal the industries employing an occupation. The industries below represent approximately 80% of regional employment for *special effects artists and animators* in 2019.

Exhibit 3: Inverse staffing pattern for special effects artists and animators

Share Employed in Industry	Industry (NAICS4)	5-Year Industry Growth
37.8%	Spectator Sports (7112)	4%
11.9%	Specialized Design Services (5414)	11%
10.9%	Independent Artists, Writers, and Performers (7115)	7%
7.4%	Motion Picture and Video Industries (5121)	7%
3.5%	Other Miscellaneous Manufacturing (3399)	(14%)
3.0%	Computer Systems Design and Related Services (5415)	8%
2.8%	Advertising, Public Relations, and Related Services (5418)	27%
1.6%	Software Publishers (5112)	33%
1.5%	Employment Services (5613)	0%
1.5%	Other Professional, Scientific, and Technical Services (5419)	(17%)
1.5%	Performing Arts Companies (7111)	(33%)

Source: EMSI 2020.3

Job Postings

Exhibit 4 displays the number of job ads posted during the last 12 months, along with the regional and statewide average time to fill for *special effects artists and animators*. Over this period, there were only 13

job advertisements for *special effects artists and animators* in the IEDR. To ensure sufficient job advertisements from which to obtain real-time job posting information, Los Angeles and Orange counties (LA/OC) were added to this job posting search. In the combined four-county region, there were 933 advertisements posted over the last 12 months. The LA/OC region contained 55% of statewide job postings for this occupation.

On average, local employers fill online job postings for *special effects artists and animators* within 38 days. This regional average is seven days shorter than the statewide average of 45 days, indicating that local employers face fewer challenges than other employers in California when looking to fill open positions.

Exhibit 4: Job ads and time to fill, Sep 2019 – Aug 2020

Job Ads	Regional Average Time to Fill (Days)	California Average Time to Fill (Days)
933	38	45

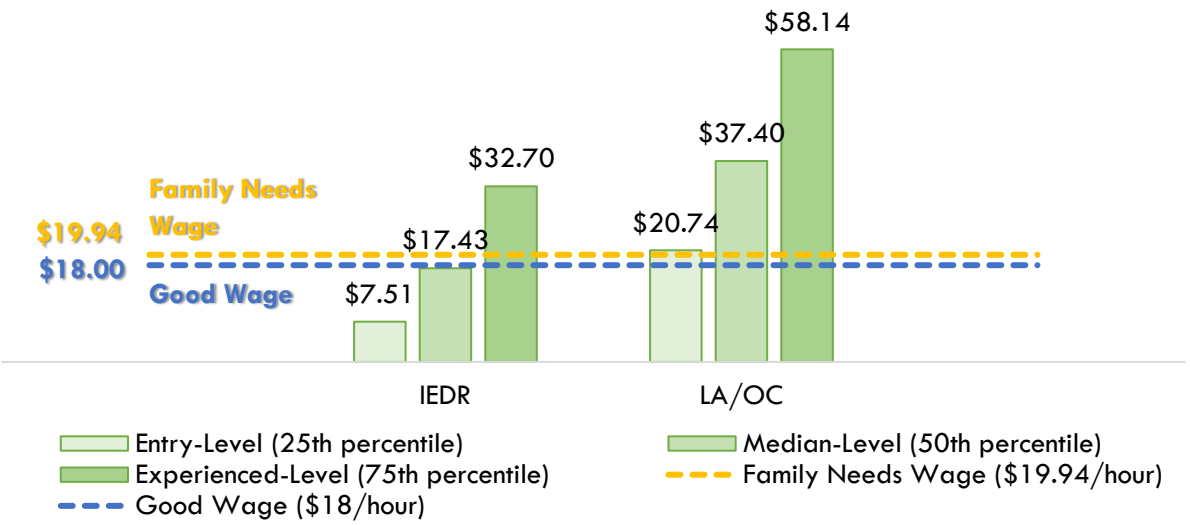
Source: Burning Glass – Labor Insights

Earnings

Community colleges should ensure their training programs lead to employment opportunities that provide a self-sustainable level of income. The Brookings Institute's Advancing Opportunity in California's Inland Empire report found that a "good job" wage in the region is above $18.00 per hour, or $37,440 per year (Shearer, Shah & Gootman, p. 25). The Family Needs Calculator estimates that a self-sustainable wage for a single adult with one school-age child is $19.94 per hour or $41,475 annually (Pearce & Manzer, 2018).

The median wage for *special effects artists and animators* falls below the Brookings Institute's "good job" wage and the Family Needs Calculator self-sustainability rate. Wages for *special effects artists and animators* do not exceed the "good job" wage or self-sustainability rate until at the experienced-level. Exhibit 5, on the next page, displays the IEDR and LA/OC hourly earnings for this occupation. Wages are higher for this occupation in the LA/OC.

Exhibit 5: Hourly earnings for special effects artists and animators



Source: EMSI 2020.3

The occupational guides, developed by the California Labor Market Information Division, does not provide benefit information for *special effects artists and animators* (Occupational Guides, 2020).

Job Titles, Employers, Skills, Education, and Work Experience

Exhibit 6 displays the job titles most frequently included in online job postings for *special effects artists and animators* in the combined region. The job titles displayed below appeared in more than ten advertisements.

Exhibit 6: Job titles for special effects artist and animator, Sep 2019 – Aug 2020

Job Titles	Job Ads
Motion Graphic Designer	64
Animator	30
VFX Artist	26
3D Animator	20
Technical Animator	18
Storyboard Artist	18
Senior VFX Artist	17
Digital Content Producer	16
3D Designer	14
VFX Producer	13

Job Titles	Job Ads
2D Animator	13

Source: Burning Glass – Labor Insights

Exhibit 7 displays the employers that posted ten or more job ads for *special effects artists and animators* over the last 12 months in the four-county combined region.

Exhibit 7: Employers posting the most job ads for special effects artists and animators, Sep 2019 – Aug 2020

Employers	Job Ads
Blizzard Entertainment	61
Sony Electronics Incorporated	33
Disney	19
Activision	17
Riot Games	15
Electronic Arts	14
NBC	13
DreamWorks	13
Third Floor	12
Nexon America, Inc.	11
CBS	11
Bento Box Entertainment	11
Viacom	10
Microsoft Corporation	10
Total for all other employers	*683*
Total	**933**

Source: Burning Glass – Labor Insights

Exhibit 8 displays a sample of specialized, employability, and software and programming skills that employers seek when looking for workers to fill *special effects artist and animator* positions. Specialized skills are job-specific skills that employers are requesting for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is commonly referred to as "soft skills." The skills requested in job postings may be utilized as a helpful guide for curriculum development. Approximately 39% of advertisements for *special effects artists and animators* included a desire for individuals with Adobe Creative Cloud skills. The Adobe Creative Cloud includes Adobe Photoshop, InDesign, Illustrator, Aftereffects, and many others.

Exhibit 8: Sample of in-demand skills from employer job ads for special effects artists and animators, Sep 2019 – Aug 2020

Occupation	Specialized Skills	Employability Skills	Software and Programming Skills
Special Effects Artists and Animators *(n=845)*	• Graphic Design • Motion Graphics • Game Development	• Creativity • Teamwork/ Collaboration • Editing	• Maya • Adobe Creative Cloud • Python

Source: Burning Glass – Labor Insights

Exhibit 9 displays the entry-level education and minimum advertised education requirements typically required to become a *special effects artist and animator*, according to the Bureau of Labor Statistics (BLS), and the educational attainment for incumbent workers with "some college, no degree" and an "associate degree" according to the U.S. Census (2016-17).

Exhibit 9: Typical entry-level education, educational attainment, and the minimum advertised education requirements for special effects artists and animators, Sep 2019 – Aug 2020

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Minimum Advertised Education Requirement from Job Ads			
			Number of job postings	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Special Effects Artists and Animators	Bachelor's degree	27%	293	5%	1%	94%

Source: EMSI 2020.3, Burning Glass – Labor Insights
*Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework

Exhibit 10 displays the typical work experience required and real-time work experience requirements from employer job ads for *special effects artists and animators* over the last twelve months. Employers appear to desire a level of work experience that exceeds what is typically required of this occupation.

Exhibit 10: Typical work experience required and real-time work experience requirements, last 12 months

Occupation	Work Experience Typically Required	Real-Time Work Experience Required from Job Ads			
		Number of job postings	0 – 2 years	3 – 5 years	6+ years
Special Effects Artists and Animators	None	*566*	27%	63%	10%

Source: EMSI 2020.3, Burning Glass – Labor Insights

Student Completions and Program Outcomes

Exhibits 11 and 12 display annual average completion data for the California Community College *multimedia* and *animation* programs, based on the three most recent academic years.

Exhibit 11: 2016-19, Annual average community college awards for the multimedia programs in the IEDR

0614.10 - Multimedia	Associate degree	Certificate requiring 30< 60-semester units	CCC Annual Average Awards, Academic Years 2016-19
Chaffey	3	2	5
Moreno Valley	3	6	9
Mt. San Jacinto	2	1	3
Norco College	5	5	10
Total	**13**	**14**	**27**

Source: MIS Data Mart

Crafton Hills College's digital animation program did not issue awards over the last three academic years.

Exhibit 12: 2016-19, Annual average community college awards for the animation programs in the IEDR

0614.40 - Animation	Certificate requiring 6<18 semester units	CCC Annual Average Awards, Academic Years 2016-19
Crafton Hills	-	0
Palo Verde	5	5
Total	**5**	**5**

Source: MIS Data Mart

California program outcome data may provide a useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP codes and region is provided in Exhibits 13 and 14. The outcome methodology is available in the appendix section of this report.

Exhibit 13: 0614.10 – Multimedia strong workforce program outcomes

Strong Workforce Program Metrics: 0614.10 - Multimedia Academic Year 2017-18, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2018-19)	165	5,316
Completed 9+ career education units in one year (2018-19)	21%	26%
Perkins Economically disadvantaged students (2018-19)	81%	56%
Students who attained a noncredit workforce milestone in a year (2018-19)	-	70%

Strong Workforce Program Metrics: 0614.10 - Multimedia Academic Year 2017-18, unless noted otherwise	Inland Empire/Desert Region	California
Students who earned a degree, certificate, or attained apprenticeship (2018-19)	11%	254
Transferred to a four-year institution (transfers)	-	214
Job closely related to the field of study (2016-17)	-	63%
Median annual earnings (all exiters)	$23,776	$29,650
Median change in earnings (all exiters)	-	92%
Attained a living wage (completers and skills-builders)	48%	40%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Exhibit 14: 0614.40 – Animation strong workforce program outcomes

Strong Workforce Program Metrics: 0614.40 - Animation Academic Year 2017-18, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2018-19)	237	4,081
Completed 9+ career education units in one year (2018-19)	43%	36%
Perkins Economically disadvantaged students (2018-19)	89%	75%
Students who attained a noncredit workforce milestone in a year (2018-19)	-	-
Students who earned a degree, certificate, or attained apprenticeship (2018-19)	-	171
Transferred to a four-year institution (transfers)	12	196
Job closely related to the field of study (2016-17)	80%	49%
Median annual earnings (all exiters)	$17,400	$22,128
Median change in earnings (all exiters)	-	42%
Attained a living wage (completers and skills-builders)	37%	28%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Recommendation

Students completing community college animation programs (TOPs 0614.10 and 0614.40) should be qualified to enter employment as the *special effects artist and animator* occupation. This occupation is expected to have 48 annual job openings over the next five years in the Inland Empire/Desert Region. The *special effects artist and animator* occupation offers a median hourly wage of $17.43 per hour, below the self-sustainable wage of $19.94 per hour for a single adult with one school-age child. Online job postings

revealed that most employers seek workers with a minimum educational attainment of a Bachelor's degree or higher.

Two regional colleges offer instruction in animation programs (TOP 0614.40), conferring an annual average of five (5) awards. Four regional colleges offer instruction in multimedia programs (TOP 0614.10), conferring an annual average of 27 awards.

The COE does not recommend creating or expanding animation programs in the IEDR for two reasons: 1) the low number of projected annual job openings (48 annual job openings) and 2) median hourly wages ($17.43 per hour) below the self-sustainability wage standard. While there are numerous job openings and high-wages in the LA/OC area, students will be competing with animation program completers in these areas and an unknown number of experienced workers seeking the same jobs. Most employers are also seeking workers holding a Bachelor's degree or higher.

Colleges considering this program should partner with four-year colleges to create transfer programs. Colleges should also consult with relevant employers to ensure students have the required knowledge, skills, and abilities to earn a wage that meets or exceeds the self-sustainable hourly wage of $19.94 per hour after completing the program.

Contact

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References

Bureau of Labor Statistics (BLS). March 31, 2020. Occupational Employment Statistics (OES). Retrieved from https://www.bls.gov/oes/home.htm

Burning Glass Technologies. (2020). *Labor Insights/Jobs*. Retrieved from https://www.burning-glass.com/

California Community Colleges Chancellor's Office. LaunchBoard. (2020). *California Community Colleges LaunchBoard*. Retrieved from https://www.calpassplus.org/Launchboard/Home.aspx

California Community Colleges Chancellor's Office. LaunchBoard. (2020a). *Strong Workforce Program Metrics Data Element Dictionary*. Pg. 3. Retrieved from https://www.calpassplus.org/MediaLibrary/calpassplus/launchboard/Documents/SWP-DED.PDF

California Community Colleges Chancellor's Office. (2020). *Chancellor's Office Curriculum Inventory (COCI), version 3.0*. Retrieved from https://coci2.ccctechcenter.org/programs

California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. (2020). *Data Mart*. Retrieved from https://datamart.cccco.edu/datamart.aspx

California Community Colleges Chancellor's Office, Curriculum and Instructional Unit, Academic Affairs Division. (2012). *Taxonomy of Programs, 6th Edition, Corrected Version*. Retrieved from https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Digital-Innovation-and-Infrastructure/Research/Files/TOPmanual6200909corrected12513.ashx?la=en&hash=94C709CA83C0380828415579395A5F536736C7C1

Carnevale, A. P., Jayasundera, T., & Repnikov, D. (n.d.). Understanding Online Job Ads Data. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/11/OCLM.Tech_.Web_.pdf

Economic Modeling Specialists International (EMSI). (2020). *Datarun 2020.3*. Retrieved from https://www.economicmodeling.com/

Labor Market Information Division. Employment Development Department of California. (2020). *Detailed Occupational Guides*. Retrieved from https://www.labormarketinfo.edd.ca.gov/OccGuides/Search.aspx

National Center for O*NET Development. (2020). *O*NET OnLine*. Retrieved from https://www.onetonline.org/

Pearce, D., Manzer, L. Center for Women's Welfare at the University of Washington. (2018). Retrieved from https://insightcced.org/2019-family-needs-calculator/

Shearer, C., Shah, I., Gootman, M. (2019, February). Metropolitan Policy Program at Brookings. Advancing Opportunity in California's Inland Empire. *Defining Opportunity*. (pg. 25). Retrieved from https://www.brookings.edu/wp-content/uploads/2019/02/Full-Report_Opportunity-Industries_Inland-California_Final_Shearer-Shah-Gootman.pdf

Appendix: Program Completion and Outcome Methodology

Exhibits 11 and 12 display the average annual California Community College (CCC) awards conferred during the three academic years between 2016 and 2019, from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variation that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from records provided by California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2020a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2020a).

Job postings data is limited to the information provided by the employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job postings often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job posting or collect resumes for future hiring needs. A closed job posting may not be the result of a hired worker.