C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

Program Endorsement Brief: 0702.00/Computer Information Systems *Artificial Intelligence*

Los Angeles/Orange County Center of Excellence, October 2021

Summary Analysis

Program Endorsement:	Endorsed: All Criteria Met ☐	Endorsed: Some Criteria Met ☒	Not Endorsed ☐

Program Endorsement Criteria		
Supply Gap:	Yes ☑	No ☐
Living Wage: (Entry-Level, 25th)	Yes ☑	No ☐
Education:	Yes ☐	No ☑
Emerging Occupation(s)		
Yes ☑		*No* ☐

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to artificial intelligence. According to Harvard Business Review, artificial intelligence (AI) can support business needs through automating business processes, gaining insight though data analysis and mining, and by engaging with customers and employees.[1] Since this field of technology is relatively new, the Standard Occupational Classification (SOC) system has yet to classify artificial intelligence occupations. Therefore, this report utilizes real-time job posting information from employer job advertisements to approximate demand for artificial intelligence-related jobs.

Based on the available data, there appears to be a supply gap for artificial intelligence workers in the region. While workers may earn high wages (above $70,000), a significant number of employers require at least a bachelor's degree. **Therefore, due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:

- Over the last twelve months, there were **4,889 online job postings** that included the key words "artificial intelligence" anywhere in the job description.
- The highest number job postings were for senior software engineers, software engineers, data scientists, AI principal machine learning scientists, and AI principal engineers.
- Of the 3,399 job postings that listed a minimum education requirement, the majority (3,172) were looking for job candidates with a bachelor's degree. **Only 95 job postings were looking for individuals with an associate degree and 132 listed high school or vocational training.**

[1] Harvard Business Review: https://hbr.org/2018/01/artificial-intelligence-for-the-real-world

- Job postings for AI-related positions offer a strong wage for qualified candidates, with $70,575 being the entry-level salary (25th percentile). The median **real-time salary was nearly $100,000**.

Supply:

- **Seven community colleges** in the region provide training programs that may train for the jobs of interest – conferring an average of **170 awards annually** between 2017 and 2020.

Job Postings: The following sections show how the employer job posting search was conducted using the key words "artificial intelligence." Due to the technical knowledge needed to work in AI, workers in this field typically have at least a bachelor's degree. As a result, very few job openings are immediately accessible to community college graduates. *NOTE: job postings seeking candidates with a master's or doctoral level degree were excluded from this job posting search.*

Over the last twelve months, there were **4,889 online job postings** that included the key words "artificial intelligence" in the job description. The highest number job postings were for senior software engineers, software engineers, data scientists, AI principal machine learning scientists, and AI principal engineers. The top skills were artificial intelligence, machine learning, Python, data science, and SQL. The top employers, by number of job postings, in the region were Deloitte, Anthem Blue Cross, Anduril Industries, Capgemini, and Microsoft Corporation. Of the 3,399 job postings that listed a minimum education requirement, the majority (3,172) were looking for job candidates with a bachelor's degree. **Only 95 job postings were looking for individuals with an associate degree and 132 listed high school or vocational training.** Job postings for AI-related positions offer a strong wage for qualified candidates, with $70,575 being the entry-level salary (25th percentile). The median **real-time salary was nearly $100,000**.

Related Job Postings: A search for job titles frequently associated with artificial intelligence such as data scientist, artificial intelligence consultant, research scientist, artificial intelligence/machine learning engineer, and machine learning developer was also conducted. Over the last twelve months, there were 1,542 online job postings for the associated terms used in job titles mentioned above. Approximately 35% of job postings were for data scientists and 10% for machine learning engineers. The top employers, by number of job postings, in the region were Deloitte, Snap Inc, and Anthem Blue Cross. Of the 1,180 job postings that listed a minimum education requirement, the majority (1,168) were looking for job candidates with a bachelor's degree. **Only 6 job postings were looking for individuals with an associate degree and 6 listed high school or vocational training.** Job postings related to the positions of interest offer a strong wage for qualified candidates, with $89,141 being the entry-level salary (25th percentile). The median **real-time salary was nearly $110,000**.

Educational Supply

Community College Supply — Exhibit 1 shows the annual and three-year average number of awards conferred by community colleges in programs that may provide training for artificial intelligence-related field(s). Based on data below, community colleges with the most regional completions are Mt. San Antonio, and Long Beach. Over the past 12 months, there were three other related program recommendation requests from regional community colleges.

Exhibit 1: Regional community college awards (certificates and degrees), 2017-2020

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Award Average
0701.00	Information Technology, General	East LA	15	23	10	16
		LA Harbor	6	-	-	2
		LA Mission	1	1	3	2
		Long Beach	25	34	64	41
		Mt San Antonio	79	74	90	81
		Santa Monica	-	39	-	13
		West LA	4	4	5	4
		LA Subtotal	**130**	**175**	**172**	**159**
		Subtotal/Average	**130**	**175**	**172**	**159**
0799.00	Other Information Technology	LA Harbor	1	-	-	0
		Mt San Antonio	5	13	15	11
		LA Subtotal	**6**	**13**	**15**	**11**
		Subtotal/Average	**6**	**13**	**15**	**11**
		Total/Average	**136**	**188**	**187**	**170**

Appendix A: Sources

- Labor Insight/Jobs (Burning Glass)
- California Community Colleges Chancellor's Office Management Information Systems (MIS)

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