Unmanned Aerial Vehicle (UAV) Pilots

Labor Market Analysis: Imperial County

March 2021

Summary

The San Diego-Imperial Center of Excellence for Labor Market Research (COE) developed this brief to assist community colleges in the region with program development and strategic planning. Based on limited labor market information, including online job postings, *Unmanned Aerial Vehicle (UAV) Pilots* have no potential labor market demand, while average demand for an occupation in Imperial County is 14 annual job openings. No educational institutions in Imperial County supply awards for this occupation. Additionally, as of February 2021, there were no registrants for UAVs in Imperial County. Based on this information, it could be argued that no supply gap exists for *UAV Pilots*. The COE recommends that the colleges do not proceed with developing a ***new*** program for this occupation in Imperial County because there is no potential demand. A labor market brief for UAV Pilots in San Diego County is available, however, if the San Diego and Imperial Counties Community Colleges need more information for the occupation.

Introduction

This report provides labor market information in Imperial County for *Unmanned Aerial Vehicle (UAV) Pilots*. Depending on the company, *UAV Pilots* may have other titles, such as UAV Operators, Unmanned Aircraft Pilots, Unmanned Aircraft Systems Operators, Commercial Drone Pilots/Operators and Remote Pilots/Operators. In this report, these occupations are collectively referred to as *UAV Pilots*.

Unmanned aerial vehicles are remote-controlled airships and include four primary aerial platforms: fixed-wing aircrafts like airplanes; single-rotor helicopters; fixed-wing hybrid aircraft that include a rotor component; and multi-rotor multicopters, like quadcopters or octocopters.[1] In this report, a multicopter will be referred to as a *drone*.[2]

Until recently, UAVs were predominantly used by the defense industry. Now, UAVs have significant commercial and personal use.

Most drones fall under the following categories:

- Toy drone
- Hobby drone
- Professional/commercial drone
- Racing drone
- Military drone
- Photography drone

Unmanned aircraft obstacle detection systems include:[3]

- Vision Sensor
- Ultrasonic
- Infrared
- LiDAR
- Time of Flight (ToF)
- Monocular Visio

This report will review online job postings, including postings for pilots of LiDAR-equipped UAVs. Light Detection and Ranging or LiDAR is a state-of-the-art remote sensing technology that emits a pulsed laser beam to detect surfaces and avoid collisions. LiDAR can also record precise three-dimensional topographical information that has wide applications in fields such as agriculture, construction, autonomous vehicle development, and environmental management.[4]

---

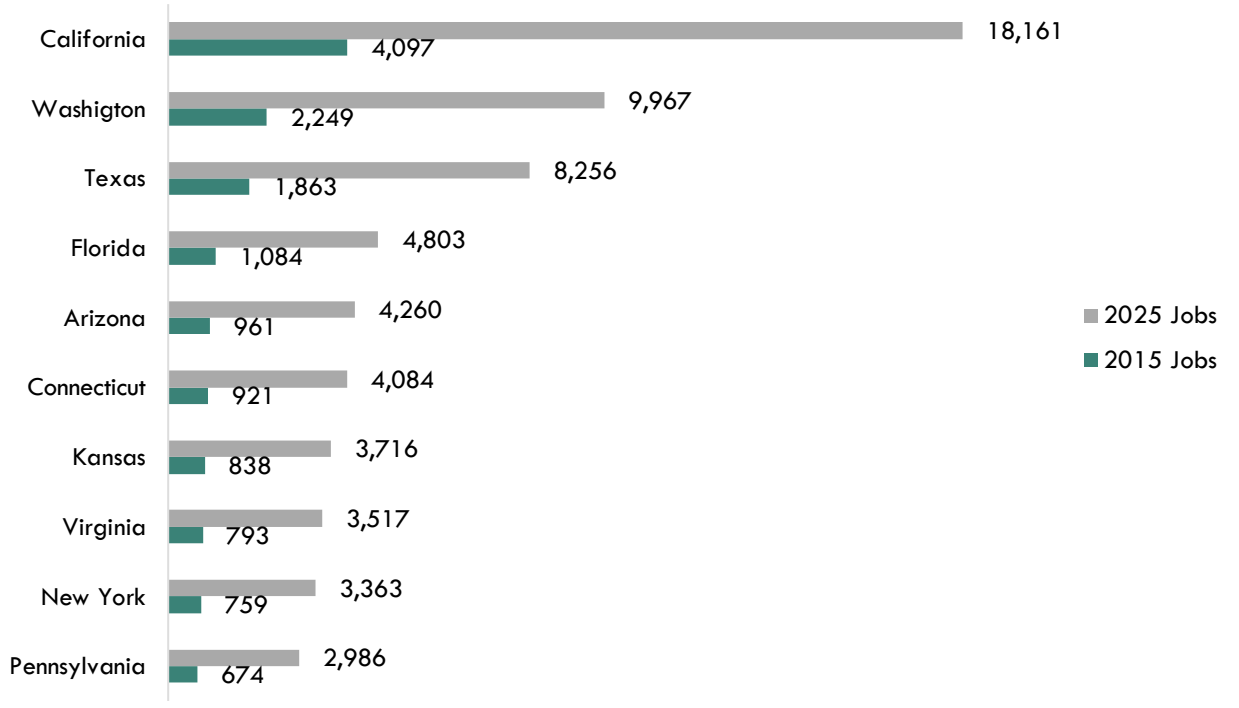
[1] M. Hassanalian and A. Abdelkefi, "Classifications, Applications and Design Challenges of Drones: A Review," *Progress in Aerospace Sciences*, no. 91 (May 2017): 99-131, ResearchGate, accessed March 3, 2021, researchgate.net/publication/316673697.
[2] "Drone Glossary," Air Drone Craze, accessed March 3, 2021, airdronecraze.com/quick-reference-guide-of-drone-terminology.
[3] Fintan Corrigan, "How Do Drones Work And What Is Drone Technology," DroneZon, May 10, 2020, accessed March 3, 2021, dronezon.com/learn-about-drones-quadcopters/what-is-drone-technology-or-how-does-drone-technology-work.
[4] LiDAR uses a laser to scan the environment and measure the reflection time of the signal from the object back to the detector. Leah A. Wasser. "The Basics of LiDAR: Light Detection and Ranging: Remote Sensing," Neon Science, accessed March 3, 2021, neonscience.org/lidar-basics.

Projected Occupational Demand

Typically, labor market demand for an occupation could be projected if the occupation has a code within the federal Standard Occupational Classification (SOC) system. Because there is no SOC code associated with *UAV Pilots*, no projected occupational demand is provided in this report. However, according to the Federal Aviation Administration's General Aviation and Commercial Division, fixed-wing piston aircraft pilots are expected to decline at a one percent rate over the next two decades. Conversely, *UAV Pilot* registrations are expected to increase from 116,027 to 350,000 or 300% in the next five years and could potentially increase further if unmanned aerial systems are used in commercial industries.[5]

According to the Association for Unmanned Vehicle Systems International (AUVSI), California is expected to create 14,064 jobs between 2015 and 2025 that are directly related to unmanned aircraft systems. Related jobs include flying, building, developing, selling, maintaining, and customizing drones, as well as training people to use drones. Exhibit 1 shows the top 10 states projected to have the most direct employment increase in unmanned aircraft systems.

Exhibit 1: Top 10 States with Jobs Directly Related to Unmanned Aircraft Systems by Number of Jobs[6]

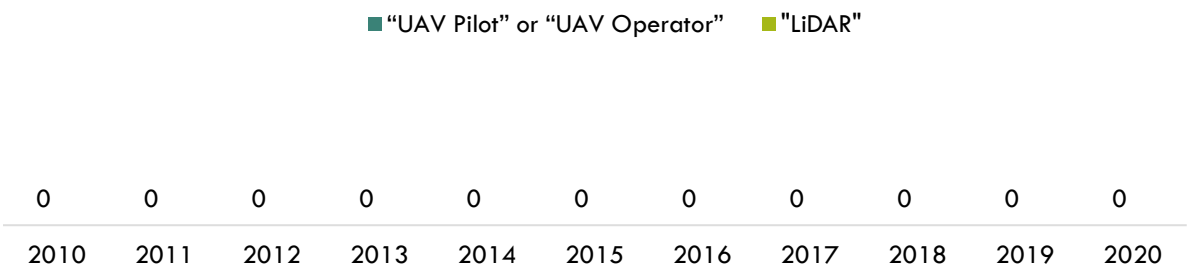


[5] "FAA Aerospace Forecast: Fiscal Years 2019-2039," Federal Aviation Administration, accessed March 3, 2021, faa.gov/data_research/aviation/aerospace_forecasts/media/FY2019-39_FAA_Aerospace_Forecast.pdf.
[6] Darryl Jenkins and Bijan Vasigh, "The Economic Impact of Unmanned Aircraft Systems Integration in the United States," The Association for Unmanned Vehicle Systems International, March 2013, accessed March 3, 2021, auvsi.org/our-impact/economic-report.

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2020, there were no online job postings for jobs with the keywords "UAV Pilot" or "UAV Operator" in Imperial County. In recent conversations with employers, the term "LiDaR" was mentioned as an upcoming, in-demand skill that is necessary for the occupation. To confirm that hypothesis, the COE analyzed online job postings and no postings existed for "LiDAR" (Exhibit 2). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings. Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 2: Number of Online Job Postings with Keyword "UAV Pilot" or "UAV Operator" in Imperial County (2010-2020)[7]



Earnings

There was no data for *UAV Pilots* hourly earnings for the region to determine if the wages met the living wage standard for a household of two adults and two school-age children in Imperial County, which is $13.20 per hour.[8]

[7] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2019.
[8] "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightcced.org/2018-self-sufficiency-standard.

Supply

Educational supply for an occupation can be estimated by analyzing the number of related program completions, graduations, or awards. There are no community colleges in Imperial County that provide training for UAV-related jobs.

Because the Federal Aviation Administration (FAA) requires that drone pilots have licenses and registered drones, this report analyzes data from the FAA registry to estimate the labor supply based on the number of registered unmanned aerial vehicles in Imperial County.

As of February 2020, there were no registered UAVs (up to 55 pounds) in Imperial County.[9]

Demand vs. Supply

A complete labor market demand and supply analysis could not be completed for this report due to a lack of data. However, based on online job postings Imperial County saw no job postings since 2010; therefore, it could be estimated that employers have no labor market demand for *UAV Pilots* per year. Additionally, because the FAA requires that drone or UAV pilots register with the Federal Aviation Administration, it could be estimated that there are no registered individuals to constitute the supply for *UAV Pilots*, it could be argued that there is no supply gap for this occupation.

Top Employers and Work Locations

Due to a lack of job postings this section could not be completed.

Skills, Education, and Certifications

Because there is no SOC code associated with *UAV Pilots*, no national educational attainment data illustrating the typical education obtained by individuals employed in this occupation is provided in this report.[10] Due to a lack of job postings this section could not be completed.

[9] "FAA Registry: State and County Inquiry," Federal Aviation Administration, accessed March 3, 2021, registry.faa.gov/aircraftinquiry/statecounty_inquiry.aspx.
[10] Emsi 2021.01; QCEW, Non-QCEW, Self-Employed.

Prepared by:
Tina Ngo Bartel, Director (tngobartel@miracosta.edu)
John Edwards, Research Analyst (jedwards@miracosta.edu)
Priscilla Fernandez, Research Analyst (pfernandez@miracosta.edu)

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

Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

This workforce demand report uses state and federal job projection data that was 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.