PARHAM KHODADI
(310) 272-3950 | khodadiparham@gmail.com | linkedin.com/in/parham-khodadi/

EDUCATION

San Diego State University (SDSU)	**B.S. Aerospace Engineering (Minor in Physics)**	**08/2023 – 05/2026**
Santa Monica College (SMC)	**A.A. in General Sciences**	**06/2020 – 07/2023**

EXPERIENCE

Instructional Student Assistant | SDSU College of Engineering **01/2025 – Present**

- Provide academic support for AE320 (Astrodynamics), on topics like two-body orbital mechanics on Keplerian orbits and orbital transfers.
- Provide academic support for AE280 (Differential Equations), reinforcing topics such as Laplace transforms, Fourier series, and linear algebra in engineering contexts through tutoring, preparation, and coordination with faculty.

Avionics and Propulsion Engineer | SDSU Rocket Project **08/2023 – Present**

- Designed and 3D printed custom mounts using SOLIDWORKS for Pressure Transducers, Thermocouples, and Solenoids interfacing with National Instruments DAQ for static fire test data acquisition.
- Assembled Avionics Ground System by soldering and wiring sensors to NI DAQ, developing bulkhead panels for sensor and power interfaces, and integrating with a PC-based Python UI.
- Developed thermal-resistant hardware enclosures for electronics and interface modules using ASA/PLA filaments on Bambu Lab 3D printers.
- Researched optimal inlet-to-throat ratios for ethanol-fed Venturi flow meters in Electric Turbopump testing; drafted Arduino code to measure pressure differentials with T200 series sensors before project shift.

Guidance Navigation & Control Researcher | SDSU SPACE Lab **11/2023 – 08/2024**

- Programmed DJI Tello EDU drones using djitellopy (Python) for autonomous QR code navigation and string-based command execution.
- Applied OpenCV to extract and decode QR codes, then estimated drone-to-code distance with a pixel-scaling method (±0.5 in accuracy).
- Designed QR-coded indoor navigation paths; drone detected, approached, and followed sequences of embedded movement commands.
- Integrated machine learning-based landing pad detection and tested basic object avoidance using monocular SLAM (ORB-SLAM3).
- Adapted lab environment by applying textured surfaces to improve LiDAR-based altitude control in low-feature terrain.

Recreation Aide | City of Beverly Hills **04/2019 – 07/2023**

- Led structured activities for children ages 4–14 in camp programs: sports, educational games, arts and crafts, and academic support.
- Adapted during COVID19 to develop remote programming and assisted with recreation operations, including tennis court management.

PROGRAMS

Mission Concept Academy (NASA L'SPACE) **05/2022 – 09/2022**

- Calculated net heat transfer across rover systems and designed thermally optimized housing for Martian rock samples and electronics.
- Selected materials for passive thermal control and developed a dust-proof thermal dissipation panel based on mission constraints.
- Done modules in Siemens NX, Risk Management, Project Management, Systems Engineering, and Heat Transfer.
- Collaborated with a 12-member interdisciplinary team to design a Mars rover mission targeting lava tube exploration.

NASA Proposal Writing & Evaluation Experience (L'SPACE) **01/2022 – 05/2022**

- Developed a manufacturing and prototyping workflow for 2DPA-1 polymer (MIT-discovered material) in space applications.
- Built a year-long Gantt-style timeline to synchronize engineering, research, and testing phases into a cohesive project schedule.
- Participated in NASA-style proposal evaluation, applying official scoring criteria to competing project submissions.
- Supported proposal design using 2DPA-1 in space applications, submitting to NASA for funding consideration.

NASA AFRC Engineering Design Challenge (NCAS Mission 3) **07/2022**

- Led the Engineering sub-team during a NASA Armstrong center program developing wheelchair-accessible seating for eVTOL systems.
- Designed a fold-flat seating mechanism to enable autonomous docking for wheelchairs, integrating mechanical and automation features.
- Shadowed NASA professionals—including a principal investigator and a Pathways intern—and toured advanced eVTOL research facilities.

COURSEWORK

A E 460A + 460B – Spacecraft Design | SDSU

- Developing the conceptual and preliminary design of a Solar Gravitational Lens spacecraft mission: covering mission definition, payload integration, systems architecture, and community-impact considerations.
- Role: Flight Dynamic Systems Engineer

A E 303 – Experimental Aerodynamics | SDSU

- Conducted subsonic and supersonic wind tunnel experiments, including airfoil testing, full aircraft model measurements, turbulence sphere studies, and Schlieren/PIV flow visualization.
- Applied uncertainty analysis, statistical methods, and MATLAB to process aerodynamic force, moment, and pressure data.
- Wrote technical reports presenting experimental methods, results, and comparisons to theory and computational tools such as XFOIL.

PUBLICATIONS

P. Khodadi, A. Cook, and Dr. X. Liu, *AIAA SDSU Student Branch History*, San Diego State University, 2025. (in-progress, will present at SciTech 2026)

PERSONAL PROJECTS

Atmospheric Magnetoplasmadynamic (MPD) Ion Thruster built using a 1s Lipo battery, DC transformer, nickel strips, and an empty soda can.

YouTube channel "SciPK" where I explain science and engineering topics through video essays.

EXTRACURRICULAR ACTIVITIES

- As **Outreach Officer** of **American Institute of Aeronautics and Astronautics SDSU branch** I organize and lead company tours, speaker panels, and museum events to connect aerospace Engineering students with industry professionals.
- **Membership Officer** of **Persian Student Association** at SDSU.

SKILLS

<u>Software</u>

- C/C++
  - Unreal Engine
  - Arduino
  - STM32 HAL
- Python
  - OpenCV
  - Numpy
  - Matplotlib
  - Threading
- CAD (SOLIDWORKS and NX)
- MATLAB
- JMARS
- Adobe Premiere Pro
- Adobe Photoshop

<u>Hardware</u>

- Data Acquisition (DAQ)
- Soldering
- Wiring
- 3D Printing

<u>Other Technical or Soft-Skills</u>

- Public Speaking
- LaTeX (via Overleaf)
- Proposal Evaluation
- Mission Concept Design
- Control System Design
- Two-body orbital mechanics
- Research - General
- Teamwork
- Bilingual: Persian, English