Kyle Spink

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Education

University of California, Irvine — Expected June 2027
Bachelor of Science in Aerospace Engineering — Irvine, CA
Bachelor of Science in Applied & Computational Mathematics

- **Relevant Coursework:** Fluid Dynamics II · Mechanics of Structures · Partial Differential Equations · Dynamical Systems & Perturbation Theory (graduate) · Programming for Engineers
- **Organizations:** American Institute of Aeronautics and Astronautics · UCI Math Community Educational Outreach · UCI Undergraduate Math Committee

Other Relevant Coursework

- **University of California, Berkeley:** Linear Algebra & Differential Equations — June 2023 – Aug. 2023
- **University of California, Santa Barbara:** Real Analysis · Complex Analysis — Dec. 2021 – June 2022
- **Santa Barbara City College:** Statics & Strength of Materials · Discrete Math — June 2020 – Aug. 2022

Experience

Undergraduate Research Assistant — Mar. 2024 – Present
Aeronautics, Dynamics, & Control Laboratory — Irvine, CA

- Integrating a physics-informed neural network (PINN) with the Principle of Minimum Pressure Gradient (PMPG) to perform computationally inexpensive fluid dynamics simulations (PyTorch)
- Coauthor of *Predicting Magnus Force with Gauss-Constrained PINNs* (presented in 2025 AIAA SciTech Forum)

Engineering Intern — June 2023 – Sept. 2023
Heliospace Inc. — Berkeley, CA

- Programmed script to determine the time of deployment of a spacecraft boom given multiple input parameters (MATLAB)
- Modified the design of ground support equipment (GSE) in CAD and 3D printed the parts for more efficient stowing. (SolidWorks, Onshape, PrusaSlicer)
- Oversaw thermal vacuum deployment testing of multiple aerospace mechanism assemblies (LabVIEW)
- Performed quality inspection of various machined flight hardware parts (Excel)

Mechanical Design Intern — June 2022 – Sept. 2022
Enerpro Inc. — Santa Barbara, CA

- Member of Research & Development Team
- Designed multiple mechanical prototypes of an AC-DC power converter used on locomotives (SolidWorks)
- Simulated electromagnetic noise to create an external cover that mitigates interference with electronic control circuits (SolidWorks Simulation Package)
- Completed trade study to assess complexity, cost, and ease of assembly of multiple prototypes and presented to colleagues at IRAD design review summary

Projects

Dos Pueblos Engineering Academy (DPEA) Capstone Project | *SolidWorks, SW Simulation Package, Excel, PrusaSlicer* — Aug. 2022 – June 2023

- Project lead of a three-axis robotic gantry
- Allocated tasks, oversaw budgeting and scheduling
- Designed and manufactured parts for the multi-staged linear actuator sub-assembly
- Simulated loads on critical parts to minimize mass while maintaining structural integrity

DPEA Kinetic Sculpture | *SolidWorks, C++* — Aug. 2021 – June 2022

- Designed the moire disks and created full assembly in CAD with BOM and part drawings
- Soldered electrical components onto a PCB
- Programmed various sequences for the LEDs and motor using an Arduino

Technical Skills

Certified SolidWorks Associate in Mechanical Design · SolidWorks Finite Element Analysis/Simulation Package · Onshape · MATLAB · Python · LabVIEW · LaTeX