Elias Nicolas

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Education

University of Redlands — Redlands, CA
B.A. Physics, B.A. Data Science, Minor in Mathematics — *August 2024 – May 2027*

- **GPA:** 3.78/4.00
- **Awards:** Town & Gown Scholar, Jack L. Osborn Memorial Scholarship, Wiens Family Scholarship, SBCPOA Scholarship, HSF Scholar, Dean's List

Washington University in St. Louis — St. Louis, MO
B.S. Mechanical Engineering, M.S. Mechanical Engineering — *August 2027 – May 2030*

Experience

Machine Learning Research Assistant — Oct. 2026 – Present
University of Redlands — *Redlands, CA*

- Developed a RAG workflow to detect missing evidence in NASA technical documents and flag unresolved parts
- Designed targeted retrieval to recover information across unsupported documents within a fixed compute budget

Mechanical Engineering Intern — Jun. 2026 – Present
Howmet Aerospace — *Fontana, CA*

- Designed a hydraulic tool for the plant's press end cap repairs to reduce the floor workers needed from 3 to 2
- Procured a replacement part of my design for the plant's 60 in. Ring Roller through a third-party machine shop
- Reverse-engineered 10 undocumented business assets in Inventor to be used by facilities for future repairs
- Laid out a building relocation for the maintenance team in AutoCAD to maximize a 7000 sq. ft storage space

Makerspace Assistant — Jan. 2026 – Present
University of Redlands Makerspace — *Redlands, CA*

- Optimizes 3D mesh geometry for successful CNC milling and 3D printing fabrication for various requests
- Maintains lab equipment and troubleshoots hardware for 3D Printers, Laser Cutters, and CNC Mills

Club President — Sep. 2025 – Present
Redlands Robotics and Drone Club — *Redlands, CA*

- Led the CAD design of a smart GCP (Ground Control Point) to be utilized by faculty when drone mapping areas
- Raised 5k+ in funding to be utilized for projects including: FPV drones, AI smart cars, and high-powered rockets

Projects

Voice Controlled Robotic Arm | *Solidworks, Onshape, SimScale, C++, Python, Claude Code, 3D Printer*

- Implemented a voice control method through the use of Claude Code that performs precise real-time movements
- Configured custom mechanical components in Onshape and manufactured them in-house to ensure 4 DOF
- Conducted FEA using SimScale to pinpoint concentrated areas of stress, leading to improved redesigns

L1 Certification Rocket | *OpenRocket, Onshape, AirShaper, 3D Printer, Laser Cutter, Soldering Iron*

- Designed an L1 rocket in OpenRocket to ensure an apogee of 1500 ft, with calculations validated in simulations
- Modeled a full CAD Assembly in Onshape and manufactured parts through 3D printing and laser cutting methods

Heart Disease Risk Predictor (UCI Dataset) | *Python, scikit-learn, Pandas, Matplotlib, Streamlit*

- Trained a random forest in scikit-learn on 2,000 synthetic records patterned on the UCI Heart Disease dataset
- Built a Streamlit dashboard with adjustable thresholds, performance review, and a live "Try a patient" predictor

Other Leadership & Activities

Student Ambassador — Maroon and Grey Student Ambassadors — Aug. 2026 – Present
Club President — Students for the Exploration and Development of Space Redlands — Aug. 2024 – Present

Technical Skills

CAD: Solidworks, Inventor, AutoCAD, Onshape, Siemens NX
FEA & CFD: SimScale, Inventor, AirShaper
Programming Languages: Python, C++, SQL, Java
Developer Tools & Platforms: Git, Github, VS Code, Cursor, Jupyter Notebook, Claude Code, Obsidian