Elias Malak

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EDUCATION

Purdue University, Indianapolis, IN Expected Graduation: May 2028
Bachelor of Science in Mechanical Engineering

EXPERIENCE

Code19 Racing, Indianapolis, IN June 2025 – August 2025
Mechanical Engineering Intern

- Built and flight-tested a reconnaissance drone integrating cameras, radios, and RF systems; achieved 3 lb payload capacity with 18-minute flight time
- Engineered 30+ modular 3D-printed mounts and validated them through crash testing, achieving fast part replacement and improved protection of critical electronic hardware
- Developed autonomous mission simulation in Unreal Engine 4.27 using custom Behavior Trees to test AI logic for multi-vehicle coordination

Roseburg Forest Products, Roseburg, OR June 2023 – August 2023
Mechanical Engineering Intern

- Designed full plant waste evaporator system in AutoCAD with design approved for construction with completion planned in 2025
- Made 3D generators in Inventor for stairways and access platforms – outputs 2D drawings, BOM, and load studies
- Converted 18 legacy 2D conveyor belt and stairway drawings into 3D CAD models to modernize documentation

Laser3D LLC, Roseburg, OR March 2021 – June 2022
Founder

- Developed and launched e-commerce website using Java, HTML, and CSS to allow customers to upload custom 3D models
- Tracked business expenses in Excel to optimize spending and achieve a 70% profit margin on average each order

PROJECT WORK

Purdue Undergraduate Rocket Propulsion Lab (PURPL) January 2025 - Present

- Cut, flared, and bent 30+ stainless steel tubing lines for a complete gas generator fluid panel
- Mapped P&ID diagrams and created 6 models of the individual fluid panel components in Siemens NX
- Streamlined part inventory tracking by compiling a 100+ component BOM with associated CAD models

Purdue Vertically Integrated Project (VIP) – Stroke Patient Rehabilitation Tracking August 2024 – May 2025

- Collaborated with medical professionals to develop a 3D-Printed, low-cost wearable armband to measure elbow movement for stroke patient rehabilitation using a spring-loaded encoder
- Modeled parts in Fusion 360 and conducted static stress analysis to balance weight and rigidity

Nexus Aurora – Martian City-State Design Proposal March 2020 - August 2021

- Led Additive Manufacturing team to 1st place out of 175 teams in the Mars Society's City-State Competition
- Taught Civil Engineers on the team about proper modeling practices for 3D-Printing through 12 instructional videos
- Coordinated the creation of 30+ 3D Printed prototypes of Martian buildings for stress testing

SKILLS

- **Design Software:** Siemens NX, Fusion 360, Inventor, AutoCAD
- **Programming Languages:** Python, Java, C, JavaScript, HTML, CSS
- **Microsoft Office:** Word, Excel, PowerPoint
- **Professional Skills:** Project Management, Marketing
- **Spoken Languages:** English, Arabic