Jeremia Silaban

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Education

Rensselaer Polytechnic Institute — Troy, NY
Bachelor of Science, Mechanical Engineering — May 2026

Hudson Valley Community College — Troy, NY
Completed 8 Hour GD&T course offered by HVCC through RPI — Spring 2026

Work Experience

G.S Precision - Engineering Intern — Spring 2025
- Diagnosed and repaired a Stratasys Dimension Elite 3D printer. Authored comprehensive operational documentation for the G.S Precision School to standardize slicing and printing procedures.
- Redesigned existing work-holding fixtures successfully decreasing loading errors by 3% and improving overall manufacturing accuracy.
- Rebuilt an electroplating barrel tumbler by replacing the motor. Increased plating coverage by 30%.
- Engineered accurate 3D CAD models using Geometric Dimension and Tolerancing principles.
- Machined aerospace and defense components from Inconel, Rene, Titanium, and Graphite using various CNC milling machines, consistently holding tolerances up to ±0.0002in.

Freelance Computer Repair / Building — 2015 - Present
- Provided specific hardware and software solutions tailored to each customer. Offered onsite or virtual technical support.
- Diagnosed and repaired hardware / software failures, improving device reliability and longevity.

Course Projects

Boeing Aircraft Robotic Assembly - Capstone — Fall 2025
- Developed a robotic system designed to assist operators in lifting, holding, and orienting components during assembly.
- Engineered a custom cable gripper using a Fractal Vise design to adapt to various cable geometries, enhancing the robot's versatility for lifting and orienting components during assembly.
- Enhanced robot reliability by increasing cable pickup consistency and allowable cable width, improving successful pickup rates from 40% to 90%, and maximum cable width to 2 in.

S.P.H.E.R.E (Solar Panel Heat Exchanger and Recovery of Energy) — Spring 2024
- Developed a prototype energy recovery system utilizing Peltier devices to convert waste heat from solar panels into usable electricity.
- Designed and fabricated a custom aluminum heat exchanger block, reducing solar panel temperature by 8° F and increasing overall power output by 2%.
- Played a pivotal role in team projects by effectively communicating ideas, coordinating tasks, and leveraging individual strengths to achieve successful outcomes.

CAD Projects — Fall 2022
- Developed 3D models of complex components and assemblies using Siemens NX, leveraging tools such as sweep, loft, extrude, and blend.
- Designed and assembled complex components and assemblies based on detailed blueprints and specifications.

Personal Projects

Custom Ender 3 Pro 3D Printer
- Rebuilt and customized a Creality Ender 3 Pro with direct drive, upgraded mainboard, and Klipper on Raspberry Pi for enhanced and optimized print quality, speed, and reliability. Achieved 200mm/s print speed and 20,000 mm/s^2 acceleration on a stock frame.
- Modeled and printed custom tool head mounts and cooling shrouds, iteratively designed and tested for optimal cooling.

Custom Ender 2 Pro 3D Printer ("Ender 2 Pro Max")
- Converted a Creality Ender 2 Pro into a Core-XY motion system by designing a custom aluminum extrusion frame from the ground up, reusing existing parts to minimize costs.
- Boosted print speeds from 60 mm/s to 300 mm/s and acceleration from 500 mm/s^2 acceleration to 30,000 mm/s^2 while drastically improving frame stiffness. Capable of speeds up to 400 mm/s and 40,000 mm/s^2 acceleration while sacrificing print quality.

Custom Mechanical Keyboards
- Designed and 3D printed custom keyboard cases and layouts using Autodesk Fusion 360.

Skills & Interests

Technical: CAD: Solidworks, Autodesk Fusion 360, Siemens NX, GD&T, Excel, Python, Soldering, 3D Printing, Machining.
Interests: Classical Guitar, Club Badminton.