

# Ryan Lundell

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## Education

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### BS in Aerospace Engineering

December 2023

Minor in Robotics

Embry Riddle Aeronautical University | Prescott, AZ

## Projects

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### Coastal Search and Rescue UAV | Chief Engineer

- Prototyped, designed, and built a twin-engine UAV to reduce first response to coastal mayday signals by 60%.
- Led a four-man team to design a rapid-deployment modular structure that fits in a 0550-pelican case.
- Designed manufacturing methods for lifting surfaces using precision cut rigid foam, carbon fiber, and vacuum bagging methods that reduced build time by 35% when compared to the traditional wrapped spar and ribs method.
- Implemented tests that proved the ability to fly with one engine and survive crash landings with minimal damage.

### Large Format Printer

- Built a 3d printer with a build volume 7.5x larger than average printers while increasing print speed by 85%.
- Programmed a Raspberry Pi to act as a server to achieve the ability to control and monitor the system off-site.
- Built a temperature-controlled case for the printer to increase quality of ABS, PTEG, and Nylon Prints.
- Tuned stepper motor drivers to achieve a 45db operational noise level.

### Stall Control Ports

- Designed airfoils with various leading-edge port configurations that send airflow from the bottom to the top of the airfoil in high angles of attack situations.
- Built a test apparatus and tested airfoils in a wind tunnel to collect data on the effects the ports have on the coefficient of lift, and the coefficient of drag in low Reynolds number at a wide range of angles of attack.
- Extrapolated data to find the stall point of each leading-edge port configuration to compare to the control test.

### SCARA Robot Simulator

- Programmed a simulation of a SCARA robot using MATLAB Simulink to test code for errors.
- Derived the equations of motions of each joint using the Lagrangian Method.
- Designed a simplified SCARA robot animation to show the movement of each joint when code is being tested.

## Work Experience

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### Maintenance Technician | MTG inc. | Kearney, NE

January 2024 – Current

- Led the replacement and retro fit of a new heat pump style HVAC system in one of the company's properties.
- Diagnosed and repaired electrical systems in commercial ovens, warmers, and toasters.
- Maintain and organize company property.

### Power Sports Technician | Outdoor Sports | Prescott Valley, AZ

March 2021 – June 2021

- Inspected and diagnosed power-sports units (boats, ATVs, UTVs, Motorcycles) and submitted repair estimates.
- Repaired units and confirmed smooth operation through multiple testing operations.
- Trained new employees to unpack and assemble ATVs and motorcycles for the showroom floor.

### Boat Technician | Choice Marine | Kearney, NE

April 2018 – August 2019

- Inspected, diagnosed, repaired, and did recurring maintenance to incoming boats and personal watercraft.
- Built custom jigs and stands to increase the efficiency of common repairs.
- Removed and replaced engines, trolling motors, and fish finders.

## Skills

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**Design Software:** Catia V5, SolidWorks, Autodesk Inventor, Fusion 360, Onshape

**Programming Languages:** MATLAB

**Technical:** MiG Welding, TIG Welding, Lathe, Milling, Soldering, Composites Fabrication