

Addison Kopplin

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SUMMARY

Mechanical engineer on the integration and test team for Starlink satellite bus and payload sub-assemblies at SpaceX. Earlier work includes wire harness design for utility-scale solar projects, PCB design, embedded control, and Simulink modeling. Led a team that designed and built a high-power rocket with active roll control.

EXPERIENCE

SpaceX (Starlink)

Integration & Test Specialist, Bus & Payload Sub-Assemblies

Redmond, WA

- Production support, test-failure triage, and process improvement for Starlink satellite bus and payload sub-assemblies.

Premier PV

Design Engineer I

- Designed wire harness systems for utility-scale solar projects from customer electrical drawings and CAD models.
- Built internal engineering tools: Excel automation, design templates, and work instructions.
- Coordinated UL standards compliance testing with external laboratories.
- Produced BOMs, engineering drawings, and design submittals for manufacturing and installation.
- Worked with procurement, production, and business teams to resolve supply chain issues, design changes, and manufacturing constraints.

Milwaukee School of Engineering

Undergraduate Research Assistant

- Designed, assembled, and soldered a PCB to replace a breadboard prototype.
- Tuned Simulink models and validated controller performance against measured accelerometer and encoder data.
- Built Simulink environments for control, simulation, and system monitoring.
- Implemented a pick-and-place task that uses a webcam to detect objects and sort them by color.

ASME Design Competition

Controls & Electronics Engineer

- Designed and built the complete electronics system for a solar-powered robot on a five-person team.
- Designed power and switching circuits (voltage regulation, capacitor bank, MOSFETs, relays) to drive the motors and actuators.
- Programmed an Arduino Nano with a Bluetooth module for remote control.
- Integrated and controlled an electromagnet for payload handling.
- Hand-assembled and soldered all electronics on a prototyping board. Supported system debugging and testing.

AirPro Fan and Blower Company

Mechanical Engineer Intern

- Developed a bearing selection tool that helps engineers find bearings faster.
- Measured air speed in a duct to verify blower performance.
- Corrected SOLIDWORKS models and rebuilt assemblies for product models and drawings.

Rocket Design Competition

Team Lead

- Led design and fabrication of a high-power rocket for the Wisconsin Space Grant Consortium competition.
- Designed an active roll control system using a reaction wheel and a PID controller.
- Simulated flight dynamics and analyzed flight data to guide design decisions.
- Wrote technical documentation and engineering reports.

PUBLICATIONS

System Modeling and Control of a Five-Bar Mechanism with Variable Topology for Control Systems Education

L. A. Rodriguez, **A. Kopplin**, B. J. Slaboch, T. Vaculik. *Proceedings of the American Control Conference*, pp. 2181–2188.

PROJECTS

String art generator

github.com/addisonkopplin/string_art

Python, NumPy

- Converts a photo into string art: one thread wound between nails spaced evenly around a circle.
- At each step, the program picks the straight line between two nails that crosses the darkest part of the image. It then lightens those pixels so that later lines cover other areas.
- The output is the order in which to wind the thread around the nails.
- Example output: a portrait of Albert Einstein made from 5,000 lines on 288 nails.

Fractal tree

github.com/addisonkopplin/fractal_tree

Python, NumPy, Matplotlib

- Draws a tree in which every branch splits into two smaller branches.
- Each new branch turns 30° left or right and is 0.67 times the length of the branch before it. The tree has 10 levels.

EDUCATION

Milwaukee School of Engineering

Bachelor of Science in Mechanical Engineering

SKILLS

Software: SolidWorks, AutoCAD, Inventor, MATLAB, Simulink, Python, C++ (Arduino), Linux

Hardware: Multimeter, soldering, assembly, sensors and data acquisition, 3D printing, PDM/ERP

Practice: Troubleshooting, data processing, cross-functional coordination, creating and interpreting engineering documentation