

# Elvyn Cachapero

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## EDUCATION

**Louisiana State University (LSU), Baton Rouge, LA**

**May 2025**

*Bachelor of Science, Computer Engineering*

**Related Coursework:** Digital Logic, Electronics, Circuits, PLC, C++, MIPS Assembly, ARM Assembly, Verilog, Microprocessors, PSPICE/MATLAB, Signals & Systems, Computer Networking, Operating Systems

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## EXPERIENCE

### Personal Technical Projects

**July 2019 – Present**

*Self-Initiated Projects & Enthusiast Work*

- Developed [SEO Optimizer Web App](#), a browser-based tool for analyzing and improving website SEO, featuring keyword extraction, meta tag auditing, and real-time content suggestions built with Go and React.
- Developed a self-hosted [portfolio website](#) using Go, Git, Docker, and Nginx, showcasing embedded systems, self-hosting infrastructure, and robotics projects.
- Built, maintained and expanded a personal homelab environment using Proxmox and Docker, hosting services such as Pi-hole, WireGuard VPN, Jellyfin, and Samba file shares.
- Configured and deployed various network and system administration tools across virtual environments, including static IP setup, firewall configuration, reverse proxy management, service automation, enforcing network segmentation and security best practices.

### Multi-Terrain Drone Team

**Aug 2024 – May 2025**

*Team Lead – Payload Delivery Drone Project*

- Led a multidisciplinary team in the end-to-end development of a multi-terrain delivery drone platform, including ML integration and autonomous control systems, aligning with sponsor requirements.
- Designed system architecture, selected hardware components, balancing power constraints and compatibility.
- Conducted detailed requirements analysis and system design such as hardware selection, power distribution and requirements, and sensor integration.
- Implemented Python-based autonomous control scripts using MAVLink protocol to manage serial communication with Pixhawk flight controller.
- Developed and executed structured validation tests for flight behavior, object detection, and communication range.
- Designed and implemented a real-time object detection system using a custom-trained YOLO11 model deployed on an OAK-D S2 AI camera for autonomous payload detection and targeting.
- Trained the model on a custom dataset of over 1,000+ annotated images, using Python and Roboflow, and evaluated precision/recall metrics to tune hyperparameters and improve accuracy.
- Diagnosed and resolved power distribution and EMI issues, ensuring stable sensor and peripheral operation across test iterations.
- Managed project documentation, regression testing cycles, and design reviews to meet scheduled milestones.

### Software Technical Support

**May 2020 – Feb 2023**

*Remote Technical Support Specialist – What Bot Industries*

- Provided responsive and professional support to customers via email and Slack, resolving technical issues and user inquiries.
  - Collaborated with developers to report and troubleshoot software bugs, contributing to consistent product improvement.
  - Performed functional testing and feedback loops for new feature rollouts and software patches.
  - Maintained strong working relationships with clients and partners to support long-term satisfaction and product loyalty.
  - Operated independently with minimal supervision, managing workload and prioritizing issues in a remote-first environment.
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## SKILLS & ACTIVITIES

**Programming Languages:** C++, Python, Verilog, MIPS, Arm Assembly, PLC

**Frontend Development:** JavaScript, HTML, CSS, Web Scraping / Parsing

**Tools:** Xilinx Vivado, PSPICE, Matlab, Keil uVision, LogixPro500, Microsoft Office, Git

**Hardware:** Soldering, Oscilloscope use, PCB diagnostics, Circuit analysis, Multimeter

**Activities:** UVSA GC Summit III Family Leader, Repairing/modding personal electronics, Home automation