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.

SKILLS & ACTIVITIES

Programming Languages: C++, Python, Verilog, MIPS, Arm Assembly, PLC
Tools: Xilinx Vivado, PSPICE, Matlab, Keil uVision, LogixPro500, Microsoft Office
Hardware: Soldering, Oscilloscope use, PCB diagnostics, Circuit analysis, Multimeter
Activities: UVSA GC Summit III Family Leader, Repairing/modding personal electronics, Home automation