Edward Silva

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Experience

Software Engineering Intern, Kratos Defense – Colorado Springs, CO June – August 2025

- Optimized legacy DSP algorithms in C++ through code refactoring and performance analysis, achieving 1.6x execution speedup and reducing computational overhead for real-time signal processing applications.
- Developed and implemented SIMD-optimized mathematical algorithms using vectorized operations, enabling parallel data processing and improving system throughput for multi-channel signal analysis.
- Designed and deployed a comprehensive logging framework with configurable severity levels and error tracking, reducing debugging time and improving system maintainability for development teams.
- Contributed to agile development practices using Jira for sprint planning, task tracking, and project management, enhancing team collaboration and delivery efficiency.

Co-op Intern, Electrical Design, Jordan and Skala Engineers – Denver, CO January – June 2025

- Supported electrical design for 20+ multi-unit residential developments, taking responsibility for full-cycle project activities from initial takeoffs and unit/corridor layout creation to riser diagrams, NEC code verification, and final quality control.
- Developed proficiency in Autodesk Revit and MEP AutoCAD, strategically placing electrical receptacles, lighting, and circuits to ensure NEC compliance and practical, user-centered functionality.
- Performed circuit loading and voltage drop calculations, balancing panel schedules and selecting appropriate breakers to ensure safety, reliability, and adherence to regulatory standards.
- Utilized existing automation between Revit/CAD layouts and Excel tracking sheets to streamline design documentation processes and reduce manual errors.
- Collaborated closely with supervisors and cross-disciplinary teams (Mechanical, Plumbing), documenting client interactions and team meetings to improve project coordination and team efficiency.

Teaching Experience

Mathematics Assistant, Colorado School of Mines – Golden, CO January – December 2024

- Independently graded assignments and exams for MATH 225 (Differential Equations) and MATH 112 (Calculus II) using Gradescope.
- Provided detailed written feedback to help students improve conceptual understanding and problem-solving accuracy.

Substitute Teacher, Fairfax County Public Schools – Fairfax, VA September 2023 – June 2024

- Delivered classroom instruction for high school students across various subjects in the absence of regular teachers.
- Maintained classroom order and engagement while ensuring continuity of learning through pre-planned lesson materials.
- Adapted quickly to schedule changes, including same-day coverage for additional classes as needed.

Peer Mentor, Colorado School of Mines – Golden, CO August – December 2023

- Co-led a semester-long, 1-credit course designed to help first-year students transition to the academic and social rigors of Mines, following a structured curriculum with limited creative input.
- Collaborated weekly with a mentor team to develop and deliver lessons on mental health, emotional resilience, and academic success strategies, reinforcing student support networks and retention.
- Served as a group leader during Oredigger Camp and Fall Kickoff, guiding and supporting a cohort of new students through orientation activities and discussions.

Lead Counselor & Coding Instructor, Code Ninjas – Fairfax, VA March 2022 – August 2023

- Provided in-class tutoring and on-demand support to students aged 6–14 in JavaScript and C#, reinforcing foundational programming concepts in weekly classes and summer camps.
- Led STEM-focused summer camps for up to 100 students, delivering hands-on instruction in 3D modeling/printing, circuits, robotics, and introductory Python and C# programming.
- Implemented and managed a multi-printer OctoPi server setup to streamline 3D print job management, enabling mass production of student-designed projects across three machines.
- Recognized as Instructor of the Month (June 2022 & July 2023) based on positive student outcomes, feedback, and teaching effectiveness.

Research Experience

Undergraduate Researcher, ePower Hubs Research Lab – Golden, CO June 2024 – January 2025

- Independently conducted literature reviews on sensor systems and wind farm-level control strategies, focusing on offshore integration with variable voltage, power, and frequency constraints.
- Synthesized findings into multiple internal reports using LaTeX, contributing to cost-reduction strategies in wind farm grid maintenance, design, and power grid integration.
- Provided insights that influenced the direction of ongoing research led by a faculty advisor, shaping the lab's approach to offshore wind system modeling.

Undergraduate Research Assistant, Explosives Research Lab – Golden, CO August 2022 – January 2023

- Optimized 3D printer settings to improve the dimensional accuracy of explosive housing components, supporting downstream testing reliability.
- Observed controlled explosive tests in varied environments, contributing to data tracking accuracy through detailed field documentation.
- Maintained lab cleanliness and equipment readiness to ensure a safe and organized research environment for high-risk experimental work.

Projects

Dual-Axis Solar Tracker Robot, Arduino, Raspberry Pi, C++, Github August – October 2024

- Designed and built a dual-axis solar tracking prototype using Arduino-controlled servos and photoresistor-based voltage divider circuits to maximize solar exposure.
- Wrote a custom tracking algorithm from scratch to identify the brightest point in the sky through light intensity sampling, enabling precise pitch and yaw adjustments.
- Utilized a Raspberry Pi as the system's central controller, handling logic flow and interfacing with the Arduino to execute real-time motor positioning.
- Conducted iterative indoor testing to calibrate sensitivity and response thresholds under varying lighting conditions, improving tracking accuracy and stability.

Clue Game, Java, Swing, Eclipse, Git August – December 2023

- Collaborated in a 3-person team to develop a fully functional desktop version of the board game Clue using Java and Swing, applying classroom-adapted SCRUM and Test-Driven Development methodologies.
- Shared responsibilities across the project lifecycle, contributing to backend game logic, UI design, and test coverage using JUnit.
- Leveraged GitHub for version control and coordinated weekly code reviews to maintain code quality and feature integration.
- Built a dynamic graphical interface with Java Swing, including an interactive game board and real-time player status updates.

Hydraulic Ram Pump, SolidWorks, Mechanical Design August – December 2022

- Recognized as a Subject Matter Expert (Top 4 of 40 teams) for in-depth understanding and presentation of technical concepts in a semester-long engineering design competition.
- Collaborated in a team of six to develop a cost-effective hydraulic ram pump system to address acid mine drainage challenges using passive filtration methods.
- Researched and implemented a pH balancing strategy by incorporating sandstone media to neutralize acidic runoff, enhancing water treatment viability.
- Led documentation efforts, contributing to a 90-page technical report and directly interfaced with project stakeholders during client reviews and check-ins.
- Supported prototyping efforts using PVC piping to construct a fully functional system under a $100 materials budget.

Education

Colorado School of Mines – Golden, CO Expected May 2026
Bachelor of Science in Electrical Engineering – Controls & Signal Processing
Minor, Computer Science – Software and Algorithm Design
GPA: 3.435
Honors: Dean's List (2 semesters), Honor Roll (2 semesters)
Scholarships: Provost Scholarship ($9,000/year), C-MAPP Scholar ($1,000/year), American Bureau of Shipping Scholar ($4,000)

Certifications

MATLAB Certifications: Machine Learning Techniques
Microsoft Certifications: Technical Associate (MTA) - Java Programming, Python Programming

Relevant Courses

Engineering:
Fundamentals of Electric Machinery (EENG 389),
Engineering Electromagnetics (EENG 386),
Embedded Systems (EENG 383),
Feedback Control Systems (EENG 307),
Signals and Systems (EENG 310),
Electrical Circuits (EENG 282),
Digital Logic (EENG 284)

Computer Science:
Software Engineering (CSCI 306),
Computer Organization (CSCI 341),
Foundational Programming Concepts (CSCI 200),
Data Structures and Algorithms (CSCI 220),
Intro Linux OS (CSCI 274)

Skills

Programming: Java, Python, C/C++, C#, RISC-V Assembly, Bash, MATLAB, VBA, Verilog, JavaScript, HTML, CSS
Hardware: Arduino, Raspberry Pi, Digital Circuits, Embedded Systems, Microcontrollers, Circuit Design, PCB Design
Software & Tools: SolidWorks, VS Code, Git/GitHub, Linux, Virtualization, Autodesk Revit, MEP AutoCAD, Fusion 360, Eclipse, SSH, Excel, Google Sheets, LaTeX