Eldridge Surianto

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EDUCATION

Georgia Institute of Technology **May 2024 - Present**
Bachelor of Science in Computer Engineering | GPA: 4.0 **Expected Graduation: May 2027**

TECHNICAL SKILLS

Programming Languages: C/C++, Python, Java, MIPS Assembly Language, SystemVerilog, MATLAB, HTML, CSS, Javascript
Skills: MATLAB, COMSOL Multiphysics, Finite Element Analysis, Quartus Prime, VHDL, Oscilloscope,
Languages: English (fluent), Chinese (fluent), German (intermediate)

PROFESSIONAL EXPERIENCE

Undergraduate Research Assistant | Plasma & Dielectrics Lab | Georgia Tech **August 2024 - Present**

- Developed MATLAB scripting pipelines for modeling zinc oxide voltage-dependent resistor (MOVs) microstructures in COMSOL Multiphysics and assigning semiconductor granular properties, reducing Finite Element Analysis (FEA) setup time by 95%.
- Executed thousands of FEA simulations using the Monte Carlo method to analyze the impact of material inhomogeneity on current distribution, generating statistical insights to optimize MOV design for high-energy handling power electronics.

Engineering Intern | Automation Technology Center PTE LTD | Singapore **February 2023 - June 2023**

- Researched and analyzed virtual machine software to evaluate features and compatibility with the company's requirements
- Redesigned GUI layouts for the human-machine interface of die-bonding machines, enhancing user navigation and reducing setup time. Installed hardware peripherals such as PCB boards, motors and cameras by interpreting electrical diagrams
- Upgraded several die-bonding machines in semiconductor plants internationally, accelerating die-bonding process by over 50%

PROJECTS

VHDL FPGA LED Metronome on DE10-Standard ModelSim-Intel SoC FPGA **January 2025 - May 2025**

- Designed a VHDL-based LED metronome peripheral using Quartus Prime and ModelSim, featuring PWM-controlled LED brightness, clock division for adjustable BPM, and modular SCOMP-based architecture, achieving smooth and accurate timing
- Enabled dynamic tempo and LED control through SCOMP assembly code interfacing with memory-mapped FPGA registers, optimizing system reliability through simulation and timing analysis and strengthening hardware-software integration skills

Wordle Game Embedded Systems Programming on Mbed uLCD kit **August 2024 - December 2024**

- Developed a Wordle-inspired game in C++ for an ARM Cortex-M 32-bit microcontroller, achieving smooth real-time gameplay by optimizing memory usage and code efficiency on a resource-constrained system using GPIO and interrupts.
- Integrated dynamic visuals, audio, and responsive input handling by applying real-time debugging techniques and precise timing control, improving user responsiveness and strengthening hardware-software interaction across all gameplay states.

LEADERSHIP EXPERIENCE

Product Owner | CS2340 Objects and Design | Georgia Tech **August 2024 - December 2024**

- Led team of 5, translating user requirements into actionable tasks and overseeing UI/UX and backend implementation. Applied SCRUM Agile principles to manage member progress and create Full-Stack development Django web applications
- Leveraged APIs like Google Maps API to create a Food Finder application, and Spotify Web API User Data to generate "wraps" visualizing user listening habits in an engaging format, prioritizing features such as saving favorites and history tracking using the SQLite3 database engine, personalized mini-games and AI-powered song recommendations using OpenAI LLM

Chairman, NSF Council | 6th Army Maintenance Base | Singapore **December 2021 - January 2023**

- Managed the council that acted as an intermediary between regular servicemen and over 150 Full-time Servicemen (NSFs) during mandatory military service, addressing requests and feedback to superiors, maintaining high cohesion and cordiality
- Organized unit anniversary and cultural events for 200+ attendees, strengthening event-planning and coordination skills
- Recognized for outstanding conduct accompanied with a personal testimonial from the unit Commanding Officer

RELEVANT COURSEWORK

Programming for Hardware/Software Systems: Explored ISAs, memory management, and I/O systems. Implemented efficient programs in C, C++, and MIPS Assembly. Studied stack/heap organization to optimize resource allocation in embedded systems applications.
Digital Design Laboratory: Built sequential and combinational logic systems on Intel Altera DE10-Standard FPGA using Quartus Prime, VHDL, and assembly. Used oscilloscopes and waveform simulations to debug timing and signal transitions in FSM and datapath designs.
Design and Analysis of Algorithms: Studied algorithm design and complexity analysis techniques, focusing on divide-and-conquer, dynamic programming, and graphs. Optimized real-world solutions while exploring NP-completeness and approximation algorithms.
Data Structures and Algorithms: Examined and implemented fundamental data structures in Java using IntelliJ, including lists, maps, and graphs, alongside algorithms such as sorting and dynamic programming. Analyzed and optimized time and space complexity
Objects and Design: Managed projects using SCRUM Agile methodology. Developed full-stack Django applications with Python, Bootstrap, HTML, CSS and JavaScript, integrating external software APIs to deliver visually appealing user-centric applications.