

Ignatius Ali Alamsyah Djaynurdin

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Education

Georgia Institute of Technology | Atlanta, GA

Candidate for Bachelor of Science in Computer Engineering, Dean's List

August 2022 – Present

Expected Graduation: May 2025

Bellevue College | Bellevue, WA

Transfer with 62 Credit Hours, Graduated with High Distinction

September 2020 – June 2022

Skills

Programming: Java, Verilog, VHDL, C, C++, CSS, HTML, JavaScript, Python, PHP, R, MIPS Assembly, RISC-V Assembly

Software: KiCad, Cadence, ModelSim, Quartus Pro, STM32, Arduino, Keil Studio, Microsoft 365, Adobe Creative Suite

Communication: Design proposals, presentations, poster design (printed and Instagram feeds), edited company profile video

Languages: English (fluent), Indonesian (native)

Experience

Polytron Indonesia | Kudus, Indonesia

May 2023 – July 2023

Research and Development Embedded Software Engineer Intern

- Developed algorithms for determining the State of Charge (SoC) and State of Health (SoH) of a battery pack.
- Implemented Kalman filter for precise battery performance calculations.
- Modified PCB to enable UART communication for serial monitor interaction to start data acquisition to gather charging and discharging characteristics for creating usable datasets.

Projects

BMS BQ76920 Library for STM32 MCU | Internship

- STM32 MCU library for BMS enabling voltage/current monitoring, protection, and cell balancing for Lithium Batteries.
- Implemented State of Charge (SOC) and State of Health (SOH) estimation using Kalman filters for precise battery status assessment.

Shunt Current Sensor PCB Design | GT Solar Racing

- Designed and prototyped PCB for integrating the Shunt current sensor into the Battery Monitoring System (BMS) and MCU.
- Finished training and received PCB Fabrication certificate from Texas Instruments Maker Space (The Hive) for ProtoLaser and ProtoMat machine.

RPG Game NXP LPC1768 MCU | Embedded Project

- Designed and developed an RPG (Role-Playing Game) utilizing microcontrollers and breadboard.
- Implemented an advanced data structure, Hashmap, and coded the project in the C using Keil Studio.

Connected Components Labelling | Assembly Project

- Implemented Two-Pass Algorithm in C and MIPS Assembly to label connected components in binary images.
- The C version used integers for labels and grouped connected pixels, while the MIPS Assembly version displayed components in different colors.

Relevant Coursework

Digital System Design: Proficient in VHDL and FPGA use, with hands-on experience in breadboarding. Analyzed IC duty cycles, and propagation delays, and worked with peripherals.

Data Structures and Algorithms: Work with advanced data structures used in software development and become familiar with sorting algorithms, pattern matching, and graphs.

Circuit Analysis: Understanding of the concepts of voltage, current, power, and energy, solving DC, AC, and transient circuits, circuit elements including voltage and current sources, resistors, capacitors, inductors, transformers, and ideal op-amps.

Intro to High-Level Language and Assembly Programming: Hardware development for microcontrollers using design principles for sequential and procedural programming in C and MIPS assembly language.

Computer Architecture, Systems, Concurrency, and Energy in Computation: Basic organizational principles of the major components of a processor, memory hierarchy, I/O subsystem, and basic operating system constructs that utilize them.

Organization

Georgia Tech Solar Racing | Batteries and BMS Team Member

September 2022 – May 2023

- Utilized Riedon Shunt current sensor for the battery pack.
- Designed and implemented various system circuit boards for BMS, current sensor, and regulator using KiCad.