Sahil Makim

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Objective

Eager Computer Engineering student specializing in embedded systems, FPGA design, and IoT prototyping. Experienced in low-level firmware, real-time control, and digital design. Seeking a Summer 2026 internship to apply hardware-software co-design skills.

Education

Georgia Institute of Technology | Atlanta, GA   December 2026
Bachelor of Science in Computer Engineering (BS/MS), GPA 3.95

Skills

Programming: C, C++, Verilog, Python, Java, Bash, ARM, RISC-V, MIPS, Git, MATLAB
Hardware: FPGAs, Arm Mbed microcontroller, computer architecture, VHDL, circuit debugging, oscilloscope, logic analyzer
Software: KiCad, Altera Quartus II, SolidWorks, GitHub, SystemVerilog, Linux, Visual Studio Code, Docker, Microsoft Office
Communication: Design proposals, review papers, technical reports, instruction manuals, presentations

Projects

Nintendo DSi Homebrew Application | Undergraduate Research   *Fall 2025*
Lead Developer
Developed a homebrew Nintendo DSi game as part of undergraduate research. Team-based project.
- Directed a 4-member team to produce a functional Pong game with music, adjustable speeds, and full DS hardware integration.
- Engineered touchscreen, button, and wireless I/O using DevkitPro SDK and DS-specific libraries.
- Orchestrated architecture design, low-level debugging, and performance validation to ensure reliable operation.

Embedded System Info Center | Personal Project   *Summer 2025*
Built a modular embedded monitoring system to collect and display environmental sensor data. Individual project.
- Programmed Arduino Uno (C/C++) to interface with 25 sensors/modules, streamlining data collection and responsiveness.
- Devised a dynamic LCD interface that visualized real-time temperature and light changes.
- Assembled and wired all components, assigning I/O pins and synchronizing sensor outputs for accurate display results.

MBED Wordle Game Design | Programming for Hardware/Software Systems   *Fall 2024*
Replicated the Wordle gameplay experience on limited Mbed microcontroller hardware. Individual project.
- Assigned user interaction through pushbuttons and navigation switches using Mbed OS for responsive input control.
- Expanded the original game by integrating animations, difficulty modes, and scoring systems to boost replay value.
- Optimized timing and memory performance to maintain smooth gameplay within constrained hardware limits.

Servo Motor Peripheral Design for FPGA | Digital Design Laboratory   *Spring 2025*
Developed a servo motor control peripheral on FPGA hardware integrating Verilog and ARM assembly. Team-based project.
- Constructed PWM-based servo control achieving ±2° precision for positional control and variable-speed operation.
- Integrated separate ARM control code to interface with FPGA hardware through peripheral communication.
- Verified proper signal propagation using oscilloscopes and logic analyzers to ensure precise signal timing.

Laboratory Research Intern: III-Nitride MEMS Resonator Epitaxy | Institute Lafayette   *Spring 2025*
- Conducted mechanical force analysis on AlGaN films during pick-and-place epitaxy onto Silicon wafers, processing 65+ images with ImageJ to optimize transfer forces (11–15 N) for substrate yield.
- Produced quantitative analyses of area transfer and crack propagation using Excel, deriving practical guidelines for flexible substrate MEMS fabrication.

Relevant Coursework

Architecture, Systems and Concurrency: pipelining, cache/memory hierarchy, I/O, OS interaction, RISC-V/ARM concepts.
Design & Analysis of Algorithms: Basic techniques of design and analysis of efficient algorithms for standard computational problems. NP-Completeness.
Digital Design Laboratory: Design and implementation of digital systems, including a team design project. CAD tools, project design methodologies, logic synthesis, and assembly language programming.
Programming for Hardware/Software Systems: Creation of execution and storage mechanisms, based on instruction set architecture, for software design including high-level programming languages and operating systems.
Fundamentals of Digital Design: Boolean algebra, gates, flip-flops, data path, memory, RTL/Verilog.
Data Structs & Algorithms: Computer data structures and algorithms in the context of object-oriented programming. Focus on software development towards applications.