Satvik Malneedi

US Citizen | smalneedi6@gatech.edu | (518) 368-6149 | linkedin.com/in/satvikmalneedi/

Education

Georgia Institute of Technology | Atlanta, GA *August 2024 – Present*
Bachelor of Science in Computer Engineering | GPA: 4.0 | Junior Standing Expected Graduation, May 2027

- **Concentrations:** Distributed Systems, Software Design, Computing Hardware
- **Relevant Coursework:** Digital System Design, Object-Oriented Programming, Discrete Mathematics, Circuit Analysis, Computer Systems Programming (C++, RISC-V Assembly), Statistics & Applications

Experience

DeAP Learning Labs | Remote *May – August 2023*
Internship

- Implemented AI models as part of a student-led company focused on AI-powered tutoring for AP classwork, using data from leading educators to provide personalized learning experiences
- Utilized PyTorch (Albumentations) and scikit-learn (GridSearchCV) to apply data augmentation and hyperparameter tuning, achieving a 10–15% reduction in training time and improved model performance
- Collaborated and developed the front-end for the company website using React and Tailwind CSS, resulting in a modern, responsive user interface and seamless user experience

SUNY Albany | Albany, NY *June 2021 – September 2022*
Paid Internship

- Utilized Python libraries (Pandas, Matplotlib) to analyze real-world cybersecurity data from the VERIS Event Recording and Incident Sharing database to identify key security incident patterns
- Investigated patterns in the dataset related to incident types and their impact, and created threat landscapes for various institutions (banks, retail, insurance)

Projects

RISC-V Emulator *August 2024*
Creator and Developer

- Designed and implemented a Python-based RISC-V emulator with support for assembling .s files, .data and .text segments, directives, and xN register naming, with an interactive debugger and CLI tools for assembling, running, and inspecting programs
- Leveraged bitwise operations and RISC-V ISA specifications such as register file design and instruction encoding/decoding to reduced assembly and runtime of programs by up to 94.95%, or about 20x faster, compared to competing library, riscemu
- Published as reusable library for integration into external workflows and automation scripts (https://pypi.org/project/riscv-emulator/)

Personal Portfolio Website *June 2024*
Developer

- Developed a responsive, user-friendly web application using React, Tailwind CSS, Framer Motion, Lenis, and Motion for animations, as well as Three JS, React Fiber, and drei for 3D Graphics
- Optimized performance around 20% by lazy-loading components, reducing bundle size, and implementing efficient rendering for complex 3D scenes

Leadership and Activities

Silicon Jackets | Physical Design Team *September 2024 – Present*

- Verified RTL designs using Verilog, for 50-member team architecting SoCs from design to tape out, optimized for various tasks (e.g. Computer Vision), ensuring functional correctness and compliance with architectural specifications
- Utilized Cadence tools like Genus for synthesis and Innovus for layout to meet performance, area, and power targets
- Automated design flow tasks with TCL scripting, streamlining processes and ensuring proper timing and power optimization

Skills

Programming Languages: Java, Python, Web Development (JavaScript, HTML, CSS), RISC-V Assembly, C++, Tcl/Tk, Makefile, Verilog/HDL
Platforms / Tools: Linux (Ubuntu, Arch), Git/GitHub, OpenCV, Jupyter Notebook, Docker, Windows, macOS
Hardware: Raspberry Pi, Arduino, FPGAs, ESP32, Oscilloscope