ARPAN SWAROOP

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EDUCATION

University of Illinois at Urbana Champaign *Aug 2021 – May 2025*
B.S. in Comptuer Engineering
Overall GPA: 3.52

EXPERIENCE

Avermatix LLC. Jun 2024 – Aug 2024
Web Developer

- Redesigned landing page to include more modern and minimal UI/UX using Figma
- Implemented these changes using HTML/CSS and Javascript on the frontend
- Created a custom form, and connected it to a REST API written in Java using the Spring Boot framework
- Architected the integration of a relational database, designing the schema, and writing custom queries to handle user data for 100s of users
- Wrote a comprehensive business report about the impact of generative AI on low-code app building services
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Advanced Control laboratory Feb 2023 – Aug 2023
Research Assistant

- Implemented path planning algorithms in quad-copters, to allow for autonomous flight
- Developed these algorithms using Euclidean signed distance fields for fast and flexible local planning
- Implemented the rapidly exploring random trees algorithm for efficient path planning
- Utilized ROS to integrate the depth sense cameras used for localization and planning
- Developed on the Nvidia Xavier nx platform

PROJECTS

Speculative Out of Order processor

- Implemented out of order processor utilizing the explicit register renaming architecture.
- Incorporated a multilevel cache scheme utilizing 4-way set associative pipelined caches.
- Implemented components such as: Free list, reservation stations, register alias table retirement register alias table, physical register file, mult/div functional unit, return order buffer, load store queue
- Implemented advanced features such as the TAGE dynamic branch predicter, branch target buffer, stride pre-fetching, return address stack, and a split load store queue
- Were able to achieve 0.5 instructions per cycle on Coremark IM benchmark with a 200 Mhz maximum clock frequency

TECHNICAL STRENGTHS

Computer Languages	C/C++, System-Verilog, Java, Javascript, Python, x86 asm, Golang, Rust, Bash
Protocols & APIs	XML, JSON, SOAP, REST
Databases	MySQL
Tools	Git, Vim