

Soham Karanjikar
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Education

University of Illinois Urbana-Champaign

Electrical Engineering August 2017 - December 2020

Cumulative GPA: 3.5/4.0

Interests & Skills

- **Hardware:** PCB Design (Allegro/OrCad), Schematics, Simulation (Ansys, Cadence, ADS), Lab Equipment, Testing/Validation
- **Programming:** Python, C/C++/#, System Verilog
- **Communication:** English (Fluent), Hindi (Fluent), Marathi (Fluent), Mandarin (Basic), French (Basic)

Experience

Senior Staff Signal and Power Integrity Engineer, Advanced Packaging Team

Marvell (June 2024 - Present)

- Lead package level SI/PI analysis on Marvell packages. Validate SI/PI on package designs with chip/pcb models taken into consideration.
- Key projects include analysis on Package integrated voltage regulators, HBM, PCIe, LPDDR5, 112G and other high speed interfaces on 2D-3.5D packages (CoWoS-L/R/S, EMIB, Local Glass etc.)
- S-parameter extractions, RLGC extraction, Impedance Tuning, Transient and DCIR PI sims.
- Part of Packaging CAD team: Developed tools and scripts to streamline workflows for package planners, layout engineers, and simulation engineers, significantly improving efficiency.
- Created AI tools (tested multiple models, CNN, Random Forests, Regressions) to utilize data from past to assist in future designs and optimizations, saving engineers hours to days of time.

Hardware Developer

IBM (June 2020 - June 2024)

- Led full PCB designs and systems for testing (ATE) IBM chips (wafers and modules) prior to server and mainframe deployment.
- Analyzed simulation reports for voltage droops at wafer test and optimized capacitor placement for improved power delivery.
- Conducted high-speed signal layout and power delivery verifications using advanced simulation tools.

- Developed a 30kW DC/DC Point-of-Load power supply across 28 DUTs, including firmware and communication scripts for testers.
- Created custom firmware and CLI interface for voltage, current, and power control across 96 channels using an ATMEGA controller.
- Designed a PCB testing setup integrating Python frontend and C++ backend for technician usability.
- Built a signal simulation board to test firmware for power factor correction and DC-DC converter cards.

Embedded Systems Intern

Hennessy Industries (May 2019 - August 2019)

- Reduced sensor costs by 50%, achieving \$500K annual savings by implementing a new sensor for wheel balancing machines.
- Prototyped the first fully touchless wheel balancer with real-time 2D tire profile mapping using ultrasonic sensors and encoders.
- Developed side projects, including speech integration into machinery and a .NET application for real-time assembly line monitoring.

President, Illini Hyperloop

University of Illinois Urbana-Champaign (August 2017 - December 2020)

- Led team meetings, recruitment, and education for new members on Hyperloop concepts.
- Designed and integrated sensor circuits, relays, fuses, power distribution, and microcontrollers into a high-power (80kW) Hyperloop pod.
- Competed in the 2019 Hyperloop SpaceX competition, placing 12th out of 100+ teams globally.

Undergraduate Research Assistant

University of Illinois Urbana-Champaign (August 2020 - December 2020)

- Designed lightweight electronics for the Bat Bot (B2) project, a robot mimicking bat flight.
- Developed an 18-phase motor design and integrated Simulink programming for custom FPGAs under Prof. Banerjee.

Awards & Side Projects

- Built a \$450 drone with capabilities rivaling \$1,000+ models from DJI.
- Designed "Flappy Bird" in System Verilog, programmed on an FPGA, and controlled via a PS/2 keyboard.
- Honored as a top-performing employee at IBM for driving exceptional growth and innovation in hardware design and testing.