

ESHAAN SOOD

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Education

University of Illinois, Urbana-Champaign

August 2023 – May 2027

Bachelor of Science in Computer Engineering

Champaign, IL

Relevant Coursework: Data Structures, Numerical Methods, Computer Systems Engineering (OS), Analog Signal Processing, Interactive Computer Graphics, Linear Algebra, Database Systems, Digital Systems, Engineering Probability

Professional Experience

Software Engineering Intern

June 2026 – Present

Prolaio

Chicago, IL

- Developed and maintained **15+ production software and data pipelines** using **Python, SQL, Dagster, Metaflow, and BigQuery**, processing over **1M records** across connected system components and internal workflows.
- Debugged and resolved **20+ production failures and data-quality defects** through **root-cause analysis, dependency tracing, validation, and testing**, including improvements to **Datadog alerting and workflow execution logic**, reducing recurring processing errors by **35%**.
- Collaborated with a **5-person engineering team** to **design, implement, test, and integrate 10+ software assets** supporting analytics, monitoring, and product workflows within a **GCP-based production environment**.

Software Engineer Intern

September 2024 – September 2025

WaggleNet

Champaign, IL

- Built a real-time **C++ computer vision pipeline** using **OpenCV, LibTorch, and TensorFlow** for bee detection and tracking, improving accuracy by **45%** through model and inference optimization.
- Reduced false-positive detections by **30%** through quantitative error analysis, threshold calibration, and temporal filtering on large-scale field data.
- Integrated **embedded sensing hardware** with real-time **C++ inference workflows**, increasing research reporting throughput by **25%**.

Founder

October 2025 – Present

Myrakal

Chicago, IL

- Architected and built an automated healthcare software platform using **Python, FastAPI, and React**, reducing a multi-hour clinical workflow by **~80%** and processing treatment plans in **<5 minutes**.
- Designed and deployed a modular **AWS backend** across **EC2, Cognito, and S3**, integrating authentication, persistent storage, REST APIs, and application services for secure processing of healthcare data.
- Owned the **end-to-end software development lifecycle**, translating workflow requirements into system architecture, implementing and debugging backend services, integrating client and cloud components, and validating system behavior through iterative testing.

Leadership & Projects

Custom Unix Operating System | C, RISC-V, Assembly, QEMU, GDB

October 2025 – December 2025

- Led a team of 3 to architect and implement a modular Unix-like kernel from scratch, featuring a **VirtIO-based block device** for persistent storage and clear separation of kernel subsystems.
- Implemented **virtual memory** with **Sv39 paging** and **preemptive multitasking** for multi-process support.
- Integrated **filesystem abstractions**, including file and device I/O, user-mode syscalls, process management, and piping for inter-process communication.

MicroBlaze Embedded System | C, Vivado, Vitis, FPGA

Spring 2026

- Designed and programmed a **MicroBlaze-based embedded system** in C using **Vivado and Vitis**, integrating processor, memory, UART, and GPIO peripherals through a hardware-software platform.
- Implemented **memory-mapped I/O** to control FPGA-connected peripherals, configuring device addresses and low-level interfaces for deterministic hardware interaction.
- Debugged and validated embedded software on target hardware, working with **platform initialization, cache configuration, serial communication, and peripheral interfaces**.

National Organization of Business & Engineering | Jira, Confluence

September 2025 – Present

- Led a **12-member** consulting team for a drone-technology startup, delivering **100%** on-time execution and improving strategic decision workflows by **40%**.
- Performed market sizing and competitive benchmarking across **20+** firms, identifying **3** market-entry opportunities projected to increase **TAM capture** by **25%**.

Technical Skills

Languages: Python, C/C++, Java, JavaScript, HTML/CSS, RISC-V Assembly, SQL

Developer Tools: Git, Docker, GDB, QEMU

Libraries: Pandas, NumPy, SciPy, SymPy, Matplotlib, NLTK, BeautifulSoup, PyTorch, OpenCV