Aarav Singh

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Education

University of Illinois Urbana Champaign Aug 2021 - May 2025
Bachelor of Science in Computer Engineering *Urbana-Champaign,IL*

- Courses: Computer systems and programming, Data Structures, Analog signal processing, Algorithms and Models of computation, Computer Systems Engineering, AI and Data Sciences.
- Looking for internship opportunities in software/hardware engineering and product/project management.

Technical Skills

Languages: Python, C++, C, MySQL, TensorFlow, PHP, HTML, CSS, Houdini, JavaScript, SystemVerilog.
Frameworks and Tools: VS Code, git, docker, vim/vi, Django, Unity, PowerShell, Max/MSP, Linux.
Soft Skills: Team player, problem solver, organized, great presenter, communicator and analyst.

Experience

Software Engineering and Product Management intern at NCSA May 2023 - Aug 2023
CIP intern with AVL (Advanced Visualization Lab) *Urbana,IL*

- Developed and marketed the AVL website to catalog and display over 10,000 images and videos using Python, MySQL, HTML, and CSS. This website was part of the Data Viz Hub project that I project-managed myself.
- Worked on mapping stars in the observable universe within a certain brightness range using Python scripts, data from the Gaia star catalog, and graphs from FlatHUB.
- Collaborated on an admin project to generate and email a list of package updates in computing systems via a Python script managed as a Cron job.
- Applied Houdini software to create visuals for a project that represented aging dams and their safety across the USA.

Development and Management intern at NCSA Aug 2023 - May 2024
SPIN intern with AVL *Urbana,IL*

- Led the development of the Data Viz Hub product and managed other interns working on it. Marketed it to other Visualization groups in NCSA and other universities.
- Improved the cataloguing website which will help AVL gain licensing deals in the future.
- Assisted the NCSA storage team with hardware management of HPC system Delta and storage system Taiga.
- Developing a project to turn planetarium shows into an immersive VR experience for Apple and Meta devices.
- Launched a program to output real-time visuals based on audio inputs for the Modular Princess music performance at UIUC.
- Contributed to the publication of a paper on how informational labels impact 3-D visuals.

Research Groups

Machine Learning and AI: researching theoretical foundations of deep and reinforcement learning and algorithms for deep neural networks and distributed learning.
IOT: Part of the QA team. Performed system level load testing using JMeter along with debugging of code.

Projects

Social Media Insights Dashboard: Developed a Django powered dashboard for analyzing social media trends and metrics, using Python for data aggregation and insights into engagement and demographics.
Banking and Loan System: Built a Python-MySQL banking system enabling users to create savings/checking accounts, explore loans, and track investments with generated interest.
Covid Vaccine Slot Finder: Developed a vaccine slot finder notifying users of nearby available slots based on pin code and vaccine preference within a 10-mile radius, including center details.
Chess Bot: Built a C++ chess bot that interactively accepted user moves, providing real-time board updates. The bot incorporated alpha-beta pruning for optimal moves, while considering en-passant and promotion to new pieces.

RSOs and History

RSOs: VexU Robotics (competition team head), Product Management at Illinois, Sports Business Council.
History: Arduino Workshop at IIT Delhi, high school NGO team leader, high school president.