Sanika Sandeep

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EDUCATION

University of Illinois at Urbana-Champaign **GPA: 3.82/4.0**

BS, Physics, minors in Mathematics and Computer Science *Expected: May 2026*

Honors & Awards:

- **University of Illinois at Urbana-Champaign:** Dean's List (Spring 2024)
- **University of Illinois at Urbana-Champaign:** Ralph O. Simmons Undergraduate Research Scholarship (2024)
- **University of Illinois at Urbana-Champaign:** Lorella M. Jones Summer Research Award (2023)

Relevant Coursework:

- Algorithms and Models of Computation
- Discrete Structures
- Data Structures
- Applied Complex Variables
- Intro to Quantum Information and Computing
- Introduction to Modern Computational Physics
- Linear Algebra
- Statistics and Probability I

PROFESSIONAL EXPERIENCE

MyEdMaster **Remote**

Software Engineering Intern *July 2024 – Present*

- Built an AI-powered chatbot using Flask and Langchain, aimed at teaching middle/high school students math.
- Employed NLP techniques, crafting effective prompt templates and integrated LangChain's memory module to maintain conversation context across multiple interactions.
- Contributed to a larger study comparing the effectiveness of AI-based tutoring versus traditional online lectures in math education.

University of Illinois at Urbana-Champaign, Physics Department **Urbana, Illinois**

Undergraduate Research Assistant *January 2023 – Present*

- Automated the analysis of laser-retrieved data by developing a plotting and data fitting system.
- Utilized Python, LabVIEW, and MATLAB to streamline data processing.
- Currently building and testing a time-to-digital converter using FPGAs, geared towards optimizing single-photon counting accuracy. Created custom C++ functionality to retrieve data more efficiently, bypassing the LabVIEW interface and improving data acquisition speed.
- Concurrently working on a laser-stabilization project, employing skills such as optical alignment, mode-matching, and laser spectroscopy.

PROGRAMS & LEADERSHIP

Headstarter **Remote**

Software Engineering Fellowship *July 2024 – Present*

- Built and deployed 5 AI projects in 5 weeks using React JS, Next.js, Firebase, Clerk, and Vercel, following agile methodologies with weekly sprints and incorporated CI/CD practices for iterative deployment.
- Participated in weekly sessions with engineers from Google, Y Combinator, Stanford, Amazon and venture-backed startups.

Girls Who Code **Urbana, Illinois**

Facilitator *August 2022 – January 2023*

- Led weekly workshops where I mentored a group of middle school and high school girls in designing and implementing algorithms for popular board games
- Demonstrated practical applications of algorithms, highlighting their relevance in software development and real-world problem-solving.

Women in Engineering **Urbana, Illinois**

Mentor *August 2023*

- Mentored 20+ first-year physics students, providing advice and answering questions, enabling a seamless transition into the physics department at UIUC. Demonstrated leadership by facilitating orientation activities and coordinating logistics

PROJECTS

- **Mosaics:** Implemented a photomosaic generator using k-d trees and their search algorithm to match the average tile color to each pixel in the source image.
- **15-Puzzle Solver:** Developed a puzzle solver for 15-puzzle using BFS and A* Algorithms.

ADDITIONAL INFORMATION

Programming Languages: Java, Python, C++, R, MATLAB, HTML, CSS, Node.js

Skills: Object Oriented Programming, Docker, Electronics, Soldering, Version Control, Command Line Interface, Flask, Unit Testing, Data Automation, Vercel, Android Studio, KiCad, SaaS