Shaurya Kumar

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Education

University of Delaware Newark, DE

Honors Bachelor of Science, Computer Science and Applied Mathematics, ***GPA: 4.0*** *Expected: May 2027*

- Trustee Scholar, 2023 Dean's List
- **Relevant Coursework:** Discrete Maths, Systems Programming, Computer Science II (Object Oriented Programming), Linear Algebra, Calculus III, Data Structures, Machine Organization & Assembly Language, Probability Theory & Simulation
- **Clubs/Activities:** Competitive Programming Club, Association of Computing Machinery, Gujarati Samaj, Honors Adventuring Club, Intramural Soccer

Experience

Undergraduate AI Researcher May 2024 - August 2024

University of Delaware *Newark, DE*

- Engineered a sophisticated medical AI tool designed to transform user-inputted information into accurate patient vignettes, which leverages the **Retrieval Augmented Generation (RAG)** technique to mitigate bias in large language models (LLMs) effectively.
- Implemented advanced evaluation techniques for text summarization performed by Transformers, incorporating **BLEU** and **ROUGE** metrics to assess the correlation between patient context and the generated vignettes.
- Utilized **Pandas, PyTorch, Python, NLTK,** and **BLEUScore** for project development and evaluation.
- Conducted extensive research to identify the most effective LLM evaluation metrics, implementing **GPTScore, G-Eval**, and **ARES** to enhance the evaluation process.
- Presented research findings at the UD Summer Research Symposium, demonstrating significant improvements in the accuracy and reliability of patient vignette generation through bias mitigation in LLMs.

Research and Engineering Intern June 2022 - August 2022

Delaware State University *Dover, DE*

- Published and presented the research at a symposium on the improved accessibility and accuracy of air monitors and demonstrated the prototype's performance.
- Developed a prototype of a low-cost, efficient, and portable air monitoring station that could display accurate real-time particle matter, wind speed, temperature, and humidity profiles through a mapping mechanism.
- Utilized **Python** and a **Raspberry-Pi** to configure an OPC-N3 optical sensor to output PM readings with user-editable features.
- Developed a temperature, wind speed, and humidity gauge in **C++** on an **Arduino Uno** with the use of Rev.P and AM2315 sensors.
- Integrated visualized longitude and latitude data with **MATLAB** and an integrated GPS module.

Projects

RoomieUD | *HTML, CSS, JavaScript, Figma* March 2024

- Won Second Best Hack for Social Good at HenHacks out of 82 teams (DevPost).
- Created a Tinder-inspired app that uses **Euclidean geometry algorithms** and numerical point-based questionnaires to find compatible roommates.

Productivity Website | *Python* September 2023

- Designed and built a **Python**-based website that enables users to take notes, employ a timer, and manage to-do lists.
- Leveraged the custom Python library **"Drafter"** to develop an interactive website interface, enhancing user engagement and experience.

Honors/Awards

HenHacks Second Best Hack March 2024

- First Hackathon, placed 2nd place (out of 82 submissions) in the Social Good category.

Honors College March 2023

- Top 11% of the incoming class at the University of Delaware, merit-based selection.

Technical Skills

Languages: Java, Python, HTML/CSS, JavaScript, TypeScript, C
Frameworks: React, Node.js, Flask
Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, GitHub, Jupyter Notebook, LaTeX, Linux/Unix, Terminal, Vim
Libraries: pandas, NumPy, Matplotlib, ROUGE, BLEU, PyTorch