

VANSH NAGPAL

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Education

University of South Carolina -Columbia, Honors College

Spring 2025

BS in Computer Science, BS in Mathematics, Minor in Data Science

GPA: 4.000

Professional Experience

Blue Cross Blue Shield of South Carolina

Summer 2024

Software Engineering Intern

Columbia, SC

- Migrated a critical application, which is used by management to track the hours spent on different efforts, to Vue.js, leading to a 5% increase in speed
- Deployed Storybook applications used by my team as documentation to Github pages to enhance developer experience
- Automated the deployment of storybook docs using Jenkins to reflect latest code changes and reduce manual effort
- Crafted a Node.js GUI for a local developer tool to automatically shift packages between AEM environments, cutting out considerable manual effort

Artificial Intelligence Institute of South Carolina (AI4S Group)

Spring 2024 - Present

Undergraduate Research Assistant

Columbia, SC

- Conducted novel research regarding meal recommendation systems and recipe representation data formats
- Utilized the boosted bandit reinforcement learning algorithm to tailor meal recommendations to users accounting for user dietary preferences and recipe information
- Developed a semi-automated approach using LLMs to convert recipes to R3 representations to increase the size of recipe dataset

SyReX Lab(5G Systems Research on X at USC)

Fall 2022 - Spring 2024

Undergraduate Research Assistant

Columbia, SC

- Explore the applications of 5G/millimeter-wave (mmWave) technology on robust pedestrian and vehicle detection using transmitted signals alongside data transmission/networking.
- Work with an array of IoT devices like mmWave cascade radars, stereo cameras, and lidars to record the environment
- Implement a TensorFlow deep-learning-based approach for the purpose of predicting the real silhouettes and bounding boxes with range information of vehicles/pedestrians from transmitted mmWave data.

Thomas Jefferson National Accelerator Facility

Summer 2022 - Fall 2022

Software Development Research Assistant

Columbia, SC

- Developed software in C++ in to improve UI for nuclear physics simulated event generator for the purpose of simulating nuclear events pertaining to the J/Psi Meson.
- Programmed in an exclusively UNIX/LINUX server environment and wrote shell scripts for the purpose of file manipulation, data processing, and automating routine tasks.

Project Experience

Water Quality Chatbot - Artificial Intelligence Project | *Python (ML), JSON, Git*

- Created a data-driven water potability chatbot to assess water potability (70% acc) with quantitative approach.

Learning Management System - Software Engineering Project | *Java/JUnit, Python, JavaScript, JSON, Scrum, Git*

- Developed a learning management system to provide educators/students a platform to learn JS/Python.

Skills

Languages: Java, Python, C#, C/C++, MySQL, MATLAB, R, HTML/CSS/JavaScript, Prolog/Haskell

Tech./Frameworks: AWS Cloud, Docker, OpenShift, UNIX/Linux, Git, TensorFlow, .NET, Vue.js/Node.js, Rest API

Honors & Awards

- 2023: **1st Place in Fall 2023 ACM Code-A-Thon** (Top Division)
- 2023: **Magellan Scholar Research Grant** - \$3000 to pursue research with SyReX lab
- 2023: **Boeing Scholarship (2x)** - \$1500 awarded for academic studies
- 2023: **Tau Beta Pi Scholarship** - \$2000 for penultimate year of study
- 2023: **Pi Mu Epsilon Initiate** - Prestigious Mathematics Honors Society
- 2022: **Tau Beta Pi Initiate** - Prestigious Engineering Honors Society (Current VP of SC Beta Chapter)
- 2021: **Dr. William C. Alexander Excellence in Research Award** - Given to student excelling in research

Publications

- **Preprint 2024:** Nagpal, Vansh, et al. BEACON: Balancing Convenience and Nutrition in Meals With Long-Term Group Recommendations and Reasoning on Multimodal Recipes, 2024.
- **INFOCOM 2023:** Regmi, H., Nagpal V., and Sur, S. *Towards Robust Pedestrian Detection with Roadside Millimeter-Wave Infrastructure.*
- **SEAPS 2022:** Nagpal, Vansh. *A realistic event generator for studies of Coherent J/psi Photoproduction off Light Nuclei at the EIC.* Bulletin of the American Physical Society (2022).