

Saarthak Gupta

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Education

University of Virginia, Charlottesville, VA

August 2021 – May 2025

School of Engineering, BS, Computer Science (Cumulative GPA: 3.99 | Major GPA: 4.00)

Data Science Minor

Awards: Dean's Research Fellowship, Dean's List

Relevant Coursework: Cloud, AI/ML, Distributed Systems, Big Data Systems, Databases, OS, Advanced Algorithms, Data Structures, Advanced Software Development, Web Programming, Cybersecurity, Computer Architecture, Linear Algebra, Probability, Statistics, Calculus

Technical Skills

Programming Languages: JavaScript, TypeScript, Python, R, Dart, Java, C/C++, Go, Swift, HTML, LESS/SCSS/SASS/CSS, PHP, SQL

Frameworks: React, Node.js, Flask, Django, React Native, Flutter, Bootstrap 5, MUI, jQuery, NumPy, Pandas, Dask, TensorFlow, Scikit-learn

Technologies: AWS (IAM, EC2, S3, Lambda, RDS), Spark, PostgreSQL, MongoDB, MySQL, Git, Heroku, REST, Agile, CI/CD, Figma, Postman

Experience

UVA Engineering, Charlottesville, VA

August 2022 - Present

Lead Computer Science Teaching Assistant

- Guided 200+ students on x86-64, C/C++, Linux, and hardware for operating systems and computer architecture focused classes
- Led labs and review sessions, held office hours, graded and proctored exams, resolved questions on Piazza, and graded assignments

Biocomplexity Institute, Charlottesville, VA

June 2022 - Present

Research Intern- Network Systems Science and Advanced Computing Division

- Developed optimized algorithms for constructing and analyzing 1 million+ node networks, reducing computation time by over 32,000x
- Used machine learning (linear regression, gradient boosting, random forest, SVC, XGBoost) to predict hospital-acquired infection spread
- Developed Python tools for data cleaning, visualization, data mining, and spatio-temporal analysis on 1 billion+ insurance claims
- Automated analysis and created pipelines for job deployment on a high-performance computing cluster using Slurm and bash scripting
- Collaborated with researchers at Johns Hopkins University and the Center for Disease Dynamics, Economics & Policy (CDDEP)

Publicis Sapient, India (Remote)

May 2022 - July 2022

Software Engineer Intern (Database Team)

- Integrated MySQL databases with a backend Java application using JDBC API to streamline data injection and reduce API calls by 5-10%
- Developed ETL packages that efficiently processed the data of 2000+ clients from flat files for an internal information management tool
- Designed 12 packages in SQL Server Integration Services (SSIS) for data transformation and event handling on MS SQL Server databases
- Collaborated on projects with a team of 7 people including interns, staff software engineers, a senior engineer, and a manager
- Presented a Power BI dashboard and SSIS packages to managers for use in future business intelligence solutions and data warehousing

Carolina Engineering, Turning, and Steel, New Delhi, India

May 2019 - May 2020

Engineering Intern

- Developed, tested, and deployed an Arduino device for regulating HVAC systems using sensor data and relays to lower power use
- Created a proprietary algorithm and software in C for Arduino that reduced power use by 20% and greenhouse emissions by 35%

Selected Projects

Haiku Cam | AWS (Lambda, S3, SQS), Raspberry Pi, Python, C, SQLite 3 | [GitHub](#)

December 2023 - Present

- An AI-powered, Raspberry Pi-based IoT device that writes poems about captured images with a cloud-native backend for processing

Predicting Traffic Collision Risk In Virginia | TensorFlow, Scikit-learn, Pandas, NumPy | [GitHub](#)

August 2023 – December 2023

- Managed a team of 3 to build ML models that predict fatality risk with 85% accuracy, cluster accidents, and forecast accident time series

Flick Picks App | PHP, JavaScript, jQuery, AJAX, PostgreSQL, HTML, SCSS/LESS | [GitHub](#) | [Website](#)

September 2023 – December 2023

- Led the development of a social cataloging service with 1M+ movies, enabling users to curate shared collections and interact with blogs

Caldera: Roguelike Video Game | JavaScript, Algorithms, Design patterns | [GitHub](#) | [Website](#)

August 2023 - September 2023

- A 2D, top-down, turn-based, strategy dungeon crawler with procedurally generated enemies, loot, and infinite levels using BSP trees

Task.it Platform | React, Flask, Flutter, Firebase, PostgreSQL, Material UI | [GitHub](#) | [Website](#)

July 2023 - August 2023

- A scalable task management platform with advanced collaboration and data visualization features to keep project teams organized

Image Factory Mobile App | React Native, Node.js, Express.js, MongoDB | [GitHub](#) | [Demo](#)

June 2023 - July 2023

- An iOS/Android social media application for creating and sharing AI generated images with prompts, comments, likes, and captions

Tutor Me Web App | Django, Bootstrap 5, PostgreSQL, Heroku, JavaScript | [GitHub](#) | [Website](#)

February 2023 - May 2023

- Managed a team of 5 as Scrum master for Agile development of an MVC application to match students with tutors on college campuses

Leadership & Volunteering

Pure Hearts NGO, Gurgaon, India

April 2018 - December 2021

Head of Initiatives

- Set up an online school for 60+ students, raised \$3,000 for supplies, and organized waste reduction drives for low-income communities

International Journal of Research and Analytical Reviews | [Publication](#)

November 2020 - April 2021

Co-Author

- Published "Big Tech Stock Predictions Using Recurrent Neural Networks" with Dr. (Prof.) Sarvjeet Herald and coached other students
- Led research on Multi-EMD2FNN, RNN/LSTM, Motif Extraction and CNN, SVM-RBF, and Random Forest algorithms for stock prediction

Other Skills & Interests

- Languages: English (Native), Hindi (Native)
- Professional: Creative problem-solving, Effective communication, Leadership, Abstract thinking, Slack, Microsoft Office
- Interests: Photography, Astronomy, Guitar, Creative Writing, Trekking