Varun Madan

🌐 varunrmadan.com | ✉ vmadan@stanford.edu | in linkedin.com/in/varunrmadan | ⚙ github.com/madanva

EDUCATION

Stanford University   Sept. 2022 – Jun. 2026
Bachelor of Science in Computer Science   *GPA: 3.7*

- **Relevant Courses:** Machine Learning, Natural Language Processing with Deep Learning, Spoken Language Processing, Data Structures and Algorithms, Computer Organization and Systems, Design and Analysis of Algorithms, Mathematical Foundations of Computing, Linear Algebra and Multivariable Calculus

EXPERIENCE

Research Assistant   Jan. 2024 – Present
Stanford Trustworthy AI Research Group   *Stanford, CA*

- Showed that transformations in multiple-choice benchmarks degrade the predictability of Large Language Models' downstream capabilities, and that this is due to probability mass fluctuating on incorrect choices with scale.
- This research was recognized with the Outstanding Paper Award at the ICML 2024 TiFA Workshop (preprint).

AI Research Intern   Jun. 2024 – Present
Fano Labs   *Hong Kong*

- Crafted a spoken Cantonese to written Chinese benchmarking dataset for engineers and researchers to build more comprehensive conversational AI systems geared towards Cantonese speakers in Hong Kong and globally.
- Implemented a custom controllable summarization system based on Salesforce Research's CTRLsum paper that processes long-context English and Chinese dialogue effectively for the company's RegTech use cases.

Data Science Intern   Jun. 2023 – Sept. 2023
Altai Capital   *Newport Beach, CA*

- Conducted research and data analysis in R on hundreds of recycling centers and their capacity/materials processed in four prominent Western countries (Germany, Canada, United Kingdom, and France) for the firm's CEO.
- Added existing plastic sortation data in Germany for each recycling center to a web application map that was then used to aid the company's investment in Digimarc's proprietary digital watermark-based sortation technology.

Research & Development Engineering Intern   Jun. 2022 – Aug. 2022
SIMETRI   *Orlando, FL*

- Developed and tested numerous augmented reality simulations with Unity in a modular medical environment to mimic healthcare simulations on the battlefield.
- Led a robust cost-benefit analysis of new scanning technologies by negotiating with manufacturers on behalf of the engineering department, which ultimately helped decrease excess company spending by over $10,000.

PROJECTS

- **ShelterLink**: Partnered with local Bay Area governments and nonprofits to create a full-stack web application that uses machine learning to help homeless people find shelters and affordable housing that is optimized for their needs.
- **BeemunityAI**: Developed a probiotic treatment and a novel machine learning model to optimize honeybee gut immunity against external stressors, resulting in first place at the International Science and Engineering Fair twice.
- **Vintave**: Leveraged computer vision to create an authentication tool for used handbags at local stores, resulting in market penetration (300+ paying Bay Area users) and recognition by Stanford's selective accelerator programs.

LEADERSHIP AND VOLUNTEERING

- **Founder/Lead of Google Developer Student Clubs @ Stanford**: Developer group of over 50 students where people grow their technical knowledge through speakers, workshops, and our club project (see ShelterLink above).
- **Founder/CEO of Everyone Deserves STEM**: Nonprofit providing free scientific education and mentorship to 1,500 children globally through a project-based curriculum that culminates with a science and engineering fair.
- **Teaching Fellow for CS 105, Introduction to Computers**: Stanford course for Title I High Schools nationally that provides an introduction to the Python programming language as well as the fundamentals of web development.

TECHNICAL SKILLS

Languages: Python, JavaScript, C, Rust, C++, SQL, R, Java, HTML, CSS
Frameworks: React.js, React Native, Node.js, Express.js, Flask, PyTorch, CUDA, TensorFlow
Developer Tools: Git, Google Cloud Platform, VS Code, Visual Studio, IntelliJ, Eclipse, Qt Creator
Libraries: NumPy, Matplotlib, Scikit-learn, pandas