Sonika Tamilarasan

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EDUCATION

University of Illinois at Urbana-Champaign — Dec. 2025
B.S in Computer Science & Economics, Minor in Statistics — GPA: 3.92/4.0

- **Scholars**: James Scholar, Dean's List
- **Relevant Coursework**: Object-oriented programming, Data Structures, Algorithms, Software Design Lab, Computer Systems, Probability & Statistics for Computer Science, Econometrics

SKILLS

Programming Languages: Python, C/C++, Java, R, SQL (Postgres), JavaScript, HTML/CSS, bash
Frameworks: OpenCV, Tensorflow, Pytorch, React Native, Node.js, Flask, Django, Spring Boot, Pandas
Developer Tools: Version Control (Git, GitHub, GitLab), Docker, Cloud Computing (AWS, Azure), Eclipse, Database Management (MySQL, MongoDB), API Development, Scrum

PROJECTS

Automatic Day Trading App | *Cloud Computing, Python, Alpaca* — Present

- Developed an automated trading bot using the Lumibot framework and Alpaca's paper trading API, achieving a 20% increase in simulated portfolio value over 5 days
- Implemented a position sizing algorithm that reduced potential losses by 50% and improved trade execution efficiency
- Conducted backtesting using market data from Yahoo Finance with over 10,000 historical data points, resulting in an 80% accuracy rate in predicting profitable trades

Stock Market Predictor | *Python, LSTM, Pandas, Keras* — May. 2024

- Developed LSTM neural networks to analyze stock prices and predict future movements, improving forecasting accuracy
- Leveraged Python with NumPy, pandas, Keras, and Matplotlib to generate data-driven insights for investment decisions
- Conducted comprehensive backtesting to validate model accuracy and refine predictive capabilities

EXPERIENCE

AI and NLP Undergraduate Researcher — Sep. 2024 – Present
Grainger College of Engineering — Champaign, IL

- Designed an innovative approach using a Seq2Seq NLP framework to enhance tokenization and text classification effectiveness
- Developed and trained PaliGemma AI model to convert 100+ complex mathematical images to LaTeX, improving accessibility to students in advanced math classes
- Reduced image-to-LaTeX conversion time by 60% through iterative model training, testing, and hyperparameter tuning, significantly accelerating the workflow for educators and students

Data Structures Course Assistant — Aug. 2024 – Present
Grainger College of Engineering — Champaign, IL

- Assisted 1000+ students by clarifying concepts, debugging errors, and guiding through data structure problems
- Developed advanced algorithms within student submissions software, increasing detection accuracy of potential academic dishonesty cases by 30%

ML/AI Undergraduate Researcher — Jun. 2024 – Aug. 2024
altREU Lab Portland State University — Remote

- Researched crime occurrence probabilities in Chicago, enhancing predictive models using LSTM and Random Forests with PyTorch and Keras
- Conducted data preprocessing and analysis to improve predictive accuracy by 15%, ensuring robust model outcomes
- Published findings and presented at a symposium, highlighting the impact of AI-driven predictive modeling on crime analysis

Lead Fullstack Software Engineer Intern — May. 2024 – Jul. 2024
A Round Entertainment — Remote

- Developed a dating app with Figma, Firebase, and Node.js, enhancing UI/UX appearance, and reducing bugs
- Streamlined code reviews and optimization, reducing user issues by 50% and improving satisfaction
- Utilized version control tools like Git to manage and merge different repositories effectively
- Led a team of 3 software engineering interns, coordinating tasks and project milestones using sprint board management

CERTIFICATIONS

Akuna Options 101 Course | *Options, Strategy, Risk Management, Simulation* — Jul. 2024

- Mastered key concepts of options trading, including pricing models, hedging strategies, and risk mitigation techniques
- Applied advanced trading simulations to analyze market trends and optimize option strategies for real-world scenarios