Saarang Srinivasan

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Education

Purdue University GPA: 3.99
Bachelor of Science in Computer Science (Honors) *West Lafayette, Indiana*

Concentrations: Machine Intelligence, Algorithms, Systems Software
Relevant Coursework: Data Structures & Algorithms, Data Mining & Machine Learning, Operating Systems, ML Systems (G), Motion Planning (G), Introduction to AI, Randomized Algorithms (G), Advanced Theory of Algorithms, Systems Programming, Reasoning About Programs (G), Computer Architecture, Object Oriented Programming, Theory of Computation

Experience

Software Engineering Intern May 2024 – Aug 2024
Collins Aerospace / Raytheon Technologies *Cedar Rapids, IA*
- Built and certified flight control software for military Boeing KC-46 Pegasus.
- Designed and implemented new hardware configuration format for KC-46 Pegasus handling reducing file size by 72%.
- Built C/C++ tests to verify correctness of flight software based on composition analysis and MC/DC coverage.
- Automated data parsing and tracking with Python using ML, enhancing speed and accuracy of data handling by 30%.

Algorithmic Game Theory Researcher May 2024 – Present
Dr. Simina Branzei, Purdue Computer Science Department *West Lafayette, IN*
- Researching reinforcement learning strategies applied to repeated fair division and Stackelberg games.
- Investigated strategy convergence and equitable outcomes in the repeated 'cake-cutting' problem for two learning agents.
- Designed and implemented simulations to validate algorithms, achieving observations on strategy outcomes.

Software Engineering Intern May 2023 – June 2023
Hacklab Solutions *Bangalore, India*
- Built containerized AI product with server/client modules using Docker and Kubernetes for rapid deployment.
- Designed master server integrated with front-end dashboard, supporting Postgres/Redis for persistent storage.
- Implemented self-healing nodes, CI/CD, and load balancing with scalability in mind (MLOps/DevOps).
- Boosted deployment speed by 80% and reduced latency by 30% by optimizing memory accesses.

Projects

Pulse - Convert Lectures to TikToks | *Next.js, Flask, PyTorch, OpenCV, Firebase, MongoDB* Jan 2024
- Developed React.js web app to convert lecture videos/slides into TikTok-style clips, summarizing key topics.
- Engineered a robust backend infrastructure with a two-layer DB architecture to increase video generation speed by 80%.
- Integrated with React Native iOS app for viewing generated videos, including deepfake celebrity videos and tweet summaries
- Utilized OpenAI's Whisper API and Modal/PyTorch for video processing and Firebase/MongoDB for data storage.

Real-Time Anomaly Detection for Industrial IoT | *Pandas, TensorFlow, Scikit-learn, Python* Aug 2022 – May 2023
- Engineered IoT and ML solutions to diagnose machine failures through real-time sensor insights with Webee.io
- Built an anomaly detection system that alerted customers to equipment issues.
- Cleaned noisy sensor data with a 93% success rate, using linear regression and GMM clustering.
- Developed an anomaly detection pipeline with One-Class SVM and LSTM, achieving 83% accuracy in outlier detection.

Honors & Awards

Gold Medalist: Indian National Olympiad in Informatics 2022 (Top 10 in India).
ICPC Regionals: Rank 18 representing Purdue in the ACM International Collegiate Programming Contest Regionals 2022/23.
International Olympiad in Informatics Training Camp: Top 30 in India to be selected in 2021 and 2022.

Technical Skills

Languages: Python, C/C++, Java, JavaScript, Bash, R, MATLAB, ARM/x86, HTML/CSS, Rust
Frameworks/Tools: Pandas, Open-CV, Torch, Docker, Kubernetes, SQL, Flask, Firebase, Git, React.js, Node.js, Linux
Certifications: MITx: 6.431x Probability and Uncertainty of Data, Data Structures & Algorithms Certification by CodeChef
Fields: Computer Vision, NLP, Machine Learning, Full Stack Development, Algorithms, System Programming

Activities

Course Development: CS381 Analysis of Algorithms (Fall '24, 400+ students), CS182 Discrete Math (Spring '24, 800+ students)
Teaching Assistant: CS381 (Fall '24), CS182 (Spring '24), CS311 Competitive Programming 2 (Spring '23)
USACO Tutor: Instruct Bay Area students in advanced algorithms for the USA Computing Olympiad with X-Camp Academy
Club Treasurer/Officer: Competitive Programming Union Club 2023-2024