Sriram Sai Ganesh

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Education

2021–2025 **B.S. CSE**, *The Ohio State University*, *GPA: 3.8/4.*
Graduating with Honors Research Distinction in CSE.
- *Graduate Coursework:* Machine Learning, Computer Vision, Natural Language Processing (NLP), Adv. Topics in NLP, High-Performance Deep Learning, Fairness in ML, Network Science, Parallel Computing, Algorithms.

Publications

Submitted: **Crisis Observatory: Extracting Credible Signals During a Crisis in the Age of LLMs,**
COLING '25 Kuan-Chieh Lo*, Pranav Maneriker*, **Sriram Sai Ganesh**, Dominik Winecki, Kelly Garrett, Ayaz Hyder, Arnab Nandi, Valerie Shalin, Shannon Bowen, Amit Sheth, Srinivasan Parthasarathy.
Submitted to the International Conference on Computational Linguistics (COLING), 2025

NSF UROP **Optimizing Transformer Models for Image Segmentation on the Edge,**
Sriram Sai Ganesh, Srinivasan Parthasarathy.
Poster presented the 2024 Summer Research Symposium at The Ohio State University.

Research Experience

2024-2025 **Vision Foundation Models on the Edge**
- *Mentor*: Prof. Srinivasan Parthasarathy
- *Domains*: Computer Vision, Tiny Machine Learning, Crisis Informatics
- *Work*: Distilling performance from SAM 2 to build a high-throughput low-resource semantic image segmentation model for inference on the edge. Applications in disaster response scenarios; ongoing Honors Thesis.

2024-2025 **Code Debugging with LLMs**
- *Mentor*: Prof. Sachin Kumar
- *Domains*: Natural Language Processing
- *Work*: Optimizing `Llama-3.1-8B` for JavaScript (JS) code debugging performance. Final step in a JS *code deobfuscation* pipeline consisting of RL fine-tuned open-source LLMs. Implemented a Generated Knowledge Prompting system for chain-of-thought in-context learning to achieve ___ improvement on success rate.

Fall 2024 **Resource-Aware Knowledge Gap Identification**
- *Mentor*: Prof. Srinivasan Parthasarathy
- *Domains*: Computer Vision, Tiny Machine Learning
- *Work*: Detecting and classifying limitations (Knowledge Gaps) in Visual Question Answering systems for inference in resource-constrained environments. TinyML optimizations enable ___% speedup with 98% accuracy.

Summer 2024 **TinyML for Transformer Models**, *SLURM, Git*
- *Mentor*: Prof. Srinivasan Parthasarathy
- *Domains*: Computer Vision, Tiny Machine Learning
- *Work*: Optimized Meta's Segment Anything Model (SAM) for inference on the edge. Applied Flash Attention and Post-training Dynamic Quantization to achieve a 50%+ gain in image throughput for all three model sizes. Meta's SAM 2 was announced shortly after, adapting both optimizations we made in the core release.

2023-2024 **LLM-assisted Information Grounding**
- *Mentor*: Prof. Srinivasan Parthasarathy
- *Domains*: Natural Language Processing, Information Retrieval
- *Work*: Built an interactive demo to showcase an RAG-assisted analytics system for social media data streams. In the wake of a crisis, allows for disaster response teams to assimilate data from citizen-sensed viewpoints to filter for credible, actionable and localized geographic insights. Submitted to COLING 2025.

Awards

2021-2024 **Maximus Scholarship**
Merit scholarship awarded to incoming undergraduates in the College of Engineering.

2021-2024 **Undergraduate Research Scholarship**
Merit scholarship awarded based on Honors Thesis proposal.

2023 **First Place, Hack AI @ Ohio State**
`AirPoint` – multi-modal tool enabling contact-free control of computers using hand gestures.

2023 **First Place, Buckeye CTF @ Ohio State**
Cybersecurity Capture the Flag hackathon. Team of four solved a series of Cryptography, Web, Binary Exploitation and Reverse Engineering challenges.

Extracurriculars

2021-Present **Competitive Programming (ICPC) Club**

- Represented OSU at the 2024 ICPC North American Championship (NAC) **(top 50 teams in the US)**, team placed 35th nationally.
- **President, 2023-24**: Elected to lead club of 40+ active undergraduates. Host weekly programming practices, give lectures on a variety of topics in Data Structures & Algorithms – Binary Search, Max Flow, DP.
- **Treasurer, 2022-23**: Host OSU's two annual competitive programming competitions, with international attendance. Liaison with corporate sponsors & the College of Engineering; manage $10,000 annual budget.

2021-2024 **Buckeye Space Launch Initiative**

- Member of Ohio State's High-Powered Rocketry team, building an 11-foot O-class Student Researched & Designed (SRAD) rocket to fly to 30,000ft in the annual Intercollegiate Rocket Engineering Competition.
- **Deputy Project Manager, 2023-24**: Co-led interdisciplinary team of 60+ members. Helped manage a $30,000 budget to design, build & extensively validate subsystems of our rocket *Asteria*.
- Implemented software for *Asteria*'s payload: computer vision-assisted 3-DOF sphere stabilization (3 dimensional Stewart platform) to stabilize a biological experiment under 18Gs of acceleration during motor burn & coast.
- **Avionics Engineer, 2021-23**: Member of the Spaceport Avionics team, programming STM32-based flight computer to correctly trigger flight events (ie. main & drogue deployment, active drag system.) SRAD circuit boards (Altium) for radio, power distribution and recovery; inter-board communication over a CAN bus.

Teaching Experience

Undergraduate Teaching Assistant

2023-Present **CSE 2331: Foundations 2 (Data Structures & Algorithms)**

- *Instructor*: Prof. Nickalaus Painter
- *Work*: In-class teaching assistant & grader for CSE 2331. Assist students with work in-class, conduct biweekly office hours, help write coding labs, and host exam review sessions for 140+ students across four sections.

Outreach

2021-2024 **Code for Community (C4C @ OSU)**

- *2023-24* Project Lead: Leading 6 students on one of five C4C project teams, building `pARRot` – a TypeScript game to teach high schoolers how to code by building conditional statements and loops.
- Volunteer with the Columbus Center of Science and Industry (CoSI) to host events, organize workshops at Columbus area middle & high schools. Hosted coding & web design workshops of varying levels.

Work Experience

Summer 2023 **DeepKlarity**, *Remote*

- Successfully adapted open- and closed-source models for text sentiment analysis and video question-answering projects.

Summer 2022 **CGH Technologies**, *Washington D.C.*

- Built a machine learning regression model to analyze FAA Flight Data from Newark International Airport & predict Estimated Off-Block Time (EOBT).
- Employed bootstrapping and hyperparameter tuning for ensemble learning accuracy over 85%.

Projects

2023-2024 **Time Series Analysis Library**

- *Mentor*: Prof. John Paparizzos
- *Domains*: Machine Learning, Time Series Analysis
- *Work*: Building `SignalTS`, a comprehensive & adaptible time series analytics Python library. Implemented and validated time series models from academic papers & existing libraries, including SAX-VSM, BOSSVS and MrSEQL. Updated documentation & standardized version control practices adapted by all 10+ contributors.

Summer 2023 **Stroke Symptom Diagnosis**

- *Mentor*: Prof. Alper Yilmaz
- *Domains*: Computer Vision
- *Work*: Implemented pipeline for automated ischemic stroke symptom diagnosis from video data using Google's MediaPipe pose landmark detection model. Processed keypoint movement with ARIMA, achieved over 70% accuracy in detecting gait anomalies. Collaborators working towards deployment at OSU's medical center.

Technical Skills

ML Tools PyTorch, OpenCV, `transformers`, Numpy, OpenMP, MPI

Misc. Linux, Git, SLURM, Docker, Seaborn, Plotly