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

COLING?2025 **Crisis Observatory: Extracting Credible Signals During a Crisis in the Age of LLMs,**
Kuan-Chieh Lo*, Pranav Maneriker*, **Sriram Sai Ganesh**, Dominik Winecki, Kelly Garrett, Ayaz Hyder, Arnab Nandi, Valerie Shalin, Shannon Bowen, Amit Sheth, Srinivasan Parthasarathy.
International Conference on Computational Linguistics (COLING), 2025 <TODO – finalize after Nov 29>

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 design budget to 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 hosting coding & web design workshops of varying levels.

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.

Spring 2024 **Distributed Causal Fairness**

- *Mentor*: Prof. Srinivasan Parthasarathy
- *Domains*: Data Mining, Fairness
- *Work*: Developed `Causal FairSum`: Fairness Summarization through Distributed Causal Explanations. Obtain actionable insights about distributed data by mining frequent grouping patterns, promising treatment patterns, and solving an ILP. Achieved improved explainability scores on two datasets, and linear improvement in runtime.

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

Languages Python3, C++, C, Java

ML Tools PyTorch, Scikit-Learn, OpenCV, HuggingFace `transformers`, Numpy, Pandas

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