Sai Yerramreddy

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Education

- **University of Maryland** — College Park, USA
  PhD in Computer Science; Advisor: Dr. Adam Porter — *Jan 2022 - Current*
- **University of Maryland** — College Park, USA
  Master of Science in Computer Science; GPA: 3.89 — *Aug 2019 - Dec 2021*
- **Sardar Patel Institute of Technology** — Mumbai, India
  Bachelor of Engineering in Computer Engineering; GPA: 9.37/10 — *July 2015 - May 2019*

Publications

- **An Empirical Assessment of Machine Learning Approaches for Triaging Reports of Static Analysis Tools**: S. Yerramreddy*, A. Mordahl*, U. Koc, S. Wei, J. Foster, M. Carpuat, A. Porter; *Empirical Software Engineering*
- **Demonstration of VegaPlus: Optimizing Declarative Visualization Languages**: J. Yang, H.K. Joo, S. Yerramreddy, S. Li, D. Moritz, L. Battle; *SIGMOD 2022 Demo*
- **Metamorphic Adversarial Detection Pipeline for Face Recognition Systems**: R.R. Mekala, S. Yerramreddy, A. Porter; AAAI AdvML Workshop 2022
- **Automated Facial Recognition Attendance System Leveraging IoT Cameras**: R. Dmello, S. Yerremreddy, S. Basu, T. Bhitle, Y. Kokate, P. Gharpure; *Confluence 2019*
- **Genetic Algorithm for Optimal Feature Vector Selection in Facial Recognition**: S. Yerremreddy, KTV Talele, Y. Kokate; *I2CT 2019*
- **Harmonic oscillator: A classical fundamental building block**: R.R. Sawant, M. Chauhan, S. Yerramreddy, Y.S. Rao; *National Power Electronics Conference 2017*

Experience

- **National Institute of Standards and Technology** — Gaithersburg, USA
  PREP Researcher — *Jan 2023 - Current*
  - **Interpretability Research**: Working on developing a pipeline for classifying and interpreting physics inspired vision data.
- **University of Maryland (Fraunhofer USA CMA)** — College Park, USA
  Graduate Research Assistant (Grants: Northrop Grumman, National Science Foundation) — *Feb 2020 - Current*
  - **FLORIDA**: Developed a metamorphic adversarial detection pipeline for face recognition systems.
  - **Independent Research with Dr. Shiyi Wei**: Conducted an empirical study of machine learning algorithms (Bag of Words, LSTM, and GNN) to detect false positive reports being generated by static analysis tools.
  - **STAR**: Developing an automated tool for systematic testing of computer vision systems.
  - **SeqScreen & Metacompass**: Working on a testing suite and data generation framework for AI based metagenomics software.
- **Ugam Solutions Pvt. Ltd.** — Bangalore, India
  Consultant Intern — *May 2018 - Jul 2018*
  - **Smart Retail Annotation Tool**: Built a smart retail algorithm to detect SKUs on grocery aisles. Also developed an automated annotation tool using Flask and Angular.js for generating brief analytical reports based on the detection.

Technical Skills

- **Libraries & Tools**: PyTorch, TensorFlow, OpenCV, Scikit, Keras, Django, Flask, NodeJS, Hadoop, D3.js
- **Libraries & Tools**: Docker, Conda, Git, Android, Tableau, CI/CD (Github Action), Firebase, Power BI, Linux
- **Programming Languages**: Python, C, JavaScript/TypeScript, Java, MATLAB, Kotlin, SQL

Projects

- **VegaPlus**: Developing a system to optimize visualization execution plans made from declarative specifications by offloading computational-intensive operations to a separate database management system. Advised by Dr. Battle and Dr. Moritz
- **ForeCache**: Developed an algorithm to use user navigation path prediction for data prefetching in visualization systems. Advised by Dr. Battle
- **PhonemeLive & VoidNet**: Developed 2 Human liveness detection systems utilizing frequency-dependent spectral power characteristics, phoneme feature extraction and doppler shift effect caused by mouth movements of a live user.
- **One Perturbation to Attack Them All**: Performed a study to understand how creating adversarial examples for input images based on a single task would affect other independent tasks with the same input images.
- **Undergraduate Final Year Thesis**: Developed a multi-stage single modal systems to recognize primary emotions, secondary emotions & sarcasm

Position of Responsibility

- **Head Teaching Assistant for CMSC436: Programming Handheld Systems (Class of 150) at UMD**: Developed labs and testing suites. Organized schedule for other TAs. Proctored and graded midterms and finals. *(Fall 19, Spring 22, Fall 22)*
- **Technical Advisor for the BigTh!nk AI club at UMD**: Advised the club on weekly activities, assisted the club with technical projects. *(Fall 20 , Spring 21)*
- **Teaching Assistant for Programming Methodology & Data Structures at S.P.I.T**: Conducted lectures, lab sessions and also helped students with their academic projects and coding activities. *(Fall 18 , Spring 19)*