Sai Anuroop Kesanapalli

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EDUCATION

M.S., University of Southern California — August 2022 - May 2024 (Exp.)
Major: Computer Science — CGPA: 3.75/4
B. Tech., Indian Institute of Technology Dharwad — July 2017 - June 2021
Major: Computer Science and Engineering — CPI: 8.86/10

INTERESTS

Statistical Machine Learning, Deep Learning Theory, Federated Learning, Stochastic Optimization, Embedded Computing and Edge-GPU Performance Characterization.

PUBLICATIONS

1. Prashanthi S. K, **Sai Anuroop Kesanapalli**, and Yogesh Simmhan. "Characterizing the Performance of Accelerated Jetson Edge Devices for Training Deep Learning Models". In: *Proc. ACM Meas. Anal. Comput. Syst. 6, 3, Article 44 (December 2022)*. 2022. DOI: 10.1145/3570604.
2. Prashanthi S. K, Aakash Khochare, **Sai Anuroop Kesanapalli**, Rahul Bhope, and Yogesh Simmhan. "Don't Miss the Train: A Case for Systems Research into Training on the Edge". In: *2022 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*. 2022, pp. 985–986. DOI: 10.1109/IPDPSW55747.2022.00157.
3. Prashanthi S. K, **Sai Anuroop Kesanapalli**, Aakash Khochare, and Yogesh Simmhan. "Characterizing the Performance of Deep Learning Workloads on Accelerated Edge Computing Devices". In: *28th IEEE International Conference on High Performance Computing, Data & Analytics Student Research Symposium (HiPC SRS)*. 2021, [Poster].
4. **Sai Anuroop Kesanapalli** and B. N. Bharath. "Federated Algorithm with Bayesian Approach: Omni-Fedge". In: *ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. 2021, pp. 3075–3079. DOI: 10.1109/ICASSP39728.2021.9413571.

WORK EXPERIENCE

MACHINE LEARNING SOFTWARE INTERN *(Full-time)* — **DeGirum Corp., Santa Clara**
Summer Internship — May 2023 - Present

Training and porting ML models to custom accelerator HW. Benchmarking the accuracy and FPS performance of ML models. Developing applications using the ported models.

RESEARCH ASSISTANT *(Part-time)* — **USC Viterbi, Los Angeles**
Advisor: Prof. Vatsal Sharan — March 2023 - Present

Working on code optimization for open source projects on tensor decomposition methods, and anomaly detection using density-based algorithms.

PROJECT ASSOCIATE - I *(Full-time)* — **IISc, Bangalore**
Advisor: Prof. Yogesh Simmhan — August 2021 - July 2022

Worked on performance characterization of Nvidia Jetson edge-accelerators on deep learning workloads, and also on a Federated Learning project involving dataset condensation as a subroutine [1, 2, 3].

UNDERGRADUATE RESEARCHER *(Academics)* — **IIT Dharwad (B. Tech. Project I & II)**
Advisor: Prof. B. N. Bharath — August 2020 - June 2021

Worked on Federated Algorithms with Bayesian [4] [Code | Slides] and Exponential Weighted Average [Report | Code] approaches.

Skills

Languages	Python, C++, Bash, HTML
Libraries	PyTorch, TensorFlow, NumPy, Pandas, Matplotlib, CSS
Tools	Git, LaTeX
OS	Linux, Linux4Tegra, MacOS

Projects

beaverpy: **An implementation of PyTorch operators using only NumPy**	[Code]
Forward-Forward: Is it time to bid adieu to BackProp?	[Slides | Code]
Presentation on the Implicit Bias of SGD	[Slides]
Notes on Rethinking Classic Learning Theory in Deep Neural Networks	[Notes]
Store Sales - Time Series Forecasting	[Report | Code]
Heterogeneity-Aware Hashing	[Slides | Report | Code]
Credit Card Fraud Detection	[Poster | Report | Code]
Implementation of Immediate Files in Minix OS	[Report | Code]
Buffer Manager for PF Layer of ToyDB	[Report | Code]
Processor Simulator for ToyRISC	[Code]
TCP Congestion Control	[Report | Code]

Student-Offices held

Mentor, Viterbi Graduate Mentorship Program, USC	Spring 2023
Student Coordinator, Institute Innovation Council, IIT Dharwad	2019 - 2021
Student Mentor, Institute Student Mentorship Programme, IIT Dharwad	2019 - 2020
Outreach Team Lead, Parsec: A Paradigm Shift, IIT Dharwad's Annual Tech Fest	2020
Event Coordinator, Development of Industry-Academia Link (DIAL), IIT Dharwad	2018

Achievements & Awards

2023 Awarded **NSF Travel Grant** for attending SIGMETRICS 2023, Orlando, FL.

2017 IIT JEE (Advanced) **All India Rank 8682** among ~160,000 candidates.

2016 Telangana **State 1st Rank** among ~700,000 students in first year and under top ten ranks in second year intermediate examinations conducted by TSBIE.

2014 Received **Certificate of Merit** from CBSE Delhi, for outstanding performance and for obtaining Grade **A1** in all the five subjects in Secondary School Examination.

2014 Recipient of Meritorious Student, School Topper and Star of Stars awards at St. Michael's School, Secunderabad.

Natural Languages

Telugu	Native
English	Advanced
Hindi	Fluent
Kannada	Beginner