SAI ANUROOP KESANAPALLI

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Education

Master of Science, Computer Science August 2022 - May 2024
University of Southern California CGPA: 3.85/4.00

Bachelor of Technology, Computer Science and Engineering August 2017 - June 2021
Indian Institute of Technology Dharwad CPI: 8.86/10.00

Experience

Performance Analysis Engineer - Core Engineering (SWE 2) September 2024 - Present
NetApp Inc., Durham, NC 27709, USA

- Applying several benchmarking techniques that span various workloads targeting system IO performance and failover performance.
- Root causing failover performance issues using various ONTAP metrics and profiling tools.
- Writing new software/tools to support and improve performance measurements and analysis.

Machine Learning Software Intern May 2023 - August 2023
DeGirum Corp., Santa Clara, CA 95050, USA

- Designed an ONNX OCR pipeline with pre/post-processor modules compatible with edge-hardware.
- Created a NumPy-only implementation of forward pass of some vision-based PyTorch operators such as Conv2D, MaxPool, among others, and published as a PyPI package (beaverpy).

Research

Volunteer / Course Producer / Research Assistant April 2023 - September 2024
University of Southern California, Los Angeles, CA 90089, USA

- Worked on a C++ implementation of a random forest based anomaly detection algorithm called PIDForest.
- Course Producer for CSCI 699: Theory of Machine Learning, and CSCI 567: Machine Learning.
- Added new functionality for Orthogonalized ALS to Tensor Toolbox, an open source project on tensor decomposition methods for MATLAB.

Project Associate - I, DREAM:Lab, Department of Computational and Data Sciences August 2021 - July 2022
Indian Institute of Science, Bengaluru, KA, 560012, India

- Co-authored a research project on optimizing performance of deep learning workloads on edge-GPUs [1,3,4], and a review of systems research into training deep learning models on edge hardware [2].
- Developed a comprehensive instrumentation harness that profiled various system and workload parameters such as CPU, GPU and RAM utilization, average and instantaneous power.
- Implemented and automated large-scale training runs of several deep learning models such as ResNet-18, MobileNetV3, and LeNet-5, across 3 classes of Nvidia Jetson devices - AGX, NX, and Nano. The project made significant progress and led to several publications at top venues in less than a year. Received NSF Travel Grant to present [1] at SIGMETRICS @ ACM FCRC 2023 (core A*) at Orlando, FL.

Undergraduate Researcher, LIaN Lab, Department of Electrical Engineering August 2020 - June 2021
Indian Institute of Technology Dharwad, KA 580011, India

- Worked on Federated Algorithms with Bayesian [5] and Exponential Weighted Average approaches.

Honors & Awards

- (2024) **Gift Award** and **Travel Grant** worth INR 600,000 and INR 50,000 respectively, by **Tata Education and Development Trust** for studies abroad.
- (2023) **J N Tata Endowment Scholarship** worth INR 900,000 for master's.
- (2023) **NSF Travel Grant** worth USD 1200 for attending SIGMETRICS co-located with ACM FCRC 2023.
- (2020) **AP grade** twice for exceptional performance during B. Tech. at IIT Dharwad.
- (2017) IIT JEE (Advanced) **All India Rank 8682** among ~171,000 candidates.
- (2015) **State Rank 1** among ~700,000 candidates in first year TSBIE Intermediate Public Examination.
- (2014) **Certificate of Merit** from CBSE Delhi for outstanding performance and for obtaining Grade **A1** in all five subjects in Secondary School Examination.

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: SIGMETRICS '23. Orlando, Florida, United States: Association for Computing Machinery, 2023, pp. 37–38. doi: 10.1145/3578338.3593530
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, 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 (2022). doi: 10.1145/3570604.
4. 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].
5. 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.