

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

## 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](https://doi.org/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](https://doi.org/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](https://doi.org/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)**

**University of Southern California**, Los Angeles

Advisor: Prof. Vatsal Sharan

March 2023 - Present

Contributing to an open source project [[Tensor Toolbox](#)] on tensor decomposition methods, and working on a faster C++ implementation of a random forest based anomaly-detection algorithm [[PIDForest](#)].

**PROJECT ASSOCIATE - I (Full-time)**

**Indian Institute of Science**, 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 (B. Tech. Project)**

**Indian Institute of Technology Dharwad**

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

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<b>Languages</b>	Python, C++, Bash, HTML
<b>Libraries</b>	PyTorch, NumPy, Pandas, Matplotlib, CSS
<b>Tools</b>	Git, L <sup>A</sup> T <sub>E</sub> X
<b>OS</b>	Linux, Linux4Tegra, MacOS

## PROJECTS

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beaverpy: An implementation of PyTorch operators using only NumPy	[PyPI]
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]

## ACHIEVEMENTS & AWARDS

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- 2023 Selected for the award of the prestigious **J N Tata Endowment Scholarship** for the higher education of Indians, for the year 2023-24.
- 2023 Awarded **NSF Travel Grant** for attending SIGMETRICS, part of ACM FCRC 2023, Orlando, FL.
- 2017 IIT JEE (Advanced) **All India Rank 8682** among ~160,000 candidates.
- 2016 Telangana **State 1<sup>st</sup> 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.

## STUDENT-OFFICES HELD

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

## NATURAL LANGUAGES

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Telugu	Native
English	Advanced
Hindi	Fluent
Kannada	Beginner

