Aditya Jagadish Bhat

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Education

BITS Pilani, K. K. Birla Goa Campus Oct 2021 – May 2025
B.E Computer Science, Data Science Minor: CGPA: **9.56/10**
Mushtifund Aryaan Higher Secondary School, GBSHSE Class 12: **93%** 2019 – 2021
A. J. De Almeida High School, GBSHSE Class 10: **94.33%** 2019

Research Experience

Research Intern, Research Group CAMMA, University of Strasbourg, CNRS Jul 2024 – Dec 2024
- **Supervisors:** Rupak Bose, Dr. Chinedu Nwoye
- Researched mixed distribution estimation using **denoising diffusion probabilistic models** for text-to-image/video synthesis.
- Proposed a novel **text-image fusion** method with mixed precision in PyTorch.
- Applied **golden angle-based** dimensionality reduction to optimize image-mask generation.
- **Skills:** Variational inference, PyTorch, Mixed precision, Distributed training.

Student Researcher, BITS Pilani & Vrije Universiteit Amsterdam Aug 2023 – Present
- **Supervisors:** Prof. Vinayak Naik, Prof. Balakrishnan Chandrasekaran
- Measured **CDN latency constancy** using RIPE Atlas across global networks.
- Applied **change point detection** (Ranks, Bootstrap, HMM-HDP) to identify stability patterns.
- Proved CDN latencies remain stable, with **change-free regions** 3x longer than prior studies.
- **Skills:** Network Measurement, Change Point Detection.

Research Intern, CSIR-CEERI, Pilani May 2023 – Jul 2023
- Fine-tuned **MobileNet-v2** for **Arduino Nano 33 BLE Sense Lite** deployment.
- Applied **post-training quantization** with TensorFlow Lite Micro, reducing model size by **75%**.
- Enabled real-time inference on microcontrollers for on-device AI decision-making.
- **Skills:** TensorFlow Lite Micro, Post-Training Quantization.

Publications

Controllable Diffusion Model for Simultaneous Image and Mask Generation 2025
R. Bose*, C. Nwoye*, **A. Bhat***, N. Padoy. Prepared for submission to ICCV 2025

SimGen: A Diffusion-Based Framework for Simultaneous Surgical Image and Segmentation Mask Generation 2025
A. Bhat*, R. Bose*, C. Nwoye, N. Padoy. Prepared for submission to IEEE TMI

On the Constancy of Latency at the Internet's Edge 2025
A. Bhat, V. Ganatra, A. Shaha, B. Chandrasekaran, V. Naik. Prepared for submission to ACM CCR

* indicates equal contribution.

Teaching Experience

Teaching Assistant:
- **Machine Learning** (Jan 2025 – Present) – Led tutorials, labs ($\sim$ **50** students).
- **Compiler Construction** (Jan 2025 – Present) – Evaluated assignments ($\sim$ **300** students).
- **Network Programming** (Jan 2024 – May 2024) – Graded socket programming assignments ($\sim$ **90** students).
- **Discrete Structures** (Aug 2023 – Dec 2023) – Led tutorials on set/graph theory ($\sim$ **200** students).
- **Computer Programming** (Feb 2023 – Jul 2023) – Developed autograder, invigilated labs ($\sim$ **1000** students).

Technologies

Languages: Python, C, C++, Java | **Libraries:** NumPy, Pandas, OpenCV, PyTorch | **Miscellaneous:** LaTeX, Git

Relevant Coursework

Electives: Reinforcement Learning, Machine Learning, Deep Learning, Applied Statistical Methods, Foundations of Data Science, Cloud Computing, Network Programming
Core Courses: Computer Architecture, Operating Systems, Computer Networks, Database Systems

Awards

IPCD Partial Travel Grant – BITS Pilani, International Programmes and Collaboration Division
100% Institute Merit Scholarship – Top 1% of class of 800 (CGPA-based) for all semesters at BITS Pilani
KVPY Fellowship – Awarded by the Department of Science and Technology, SX stream, All India Rank **757**