

Yash Bhisikar

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EDUCATION

BITS Pilani, Bachelor of Engineering in Computer Science (Hons), Minor in Data Science

08/2021 – 07/2025

- **CGPA: 9.41 (distinction); Minor GPA: 9.8/10; Coursework:** [Computer Science] Operating Systems, Computer Architecture, Computer Networks, Database Systems, DSA, Distributed Systems. [Data Science] Reinforcement Learning, Machine Learning, Applied Statistical Methods, AI, Linear Algebra. Awarded **Merit Scholarship (top 2% in a batch of 735 students)** for 6 semesters for academic performance

PREPRINTS AND PUBLICATIONS

Learning what to say and how precisely: Efficient Communication via Differentiable Discrete Communication Learning, [Paper Link](#)

Previously submitted to **ICLR'26** - Aditya Kapoor, **Yash Bhisikar**, Benjamin Freed, Jan Peters, Mingfei Sun

STREAM: A Universal State-Space Model for Sparse Geometric Data, NeVi Workshop @ ICCV'25, [Paper Link](#)

Mark Schöne*, **Yash Bhisikar***, Karan Bania*, Khaleelulla Khan Nazeer, Christian Mayr, Anand Subramoney, David Kappel (* - Equal Contribution)

SandDune: Single Antenna Device for Detecting User's Natural Eating Habits, IEEE Percom 2025, [Paper Link](#)

Runner-up for Best Paper in WiP track. Shreyans Jain, **Yash Bhisikar**, Surja Ghosh, Timothy Pierson, Sougata Sen

Does Varying BeeGFS Configuration Affect the I/O Performance of HPC Workloads?, REX-IO Workshop, IEEE Cluster 2023, [Paper Link](#)

Arnav Borkar, Joel Tony, Hari Vamsi K. N, Tushar Barman, **Yash Bhisikar**, Sreenath T. M., Arnab K. Paul

Gradient-Based Optimisers Versus Genetic Algorithms in Deep Learning Architectures: A Case Study on Rainfall Estimation Over Complex Terrain, Abstract - EGU General Assembly 2024, [Paper Link](#)

Yash Bhisikar*, Nirmal Govindaraj*, Venkatavahan Devaki*, Ritu Anilkumar

CountCLIP - [Re] Teaching CLIP to Count to Ten, Under review at ReScience C (Reproducibility Journal), [Paper Link](#)

Harshvardhan Mestha, Tejas Agarwal, Karan Bania, Shreyas V, **Yash Bhisikar**

EXPERIENCE

e6data, *Performance and Research Engineer*

Present | Bangalore, India

- Implemented **prefix-coded strings** in query engine, optimizing columnar memory layout to reduce **object overhead** and **cache misses**
- Designed a custom serialization protocol for strings, **reduced wire payload size by 40%** and boosted **distributed shuffle throughput by 10x**
- Developed a **query compilation layer** in **Rust** that lowers e6data's custom **Calcite** logical plans into **Apache DataFusion's** physical plans

University of Manchester, *Research Collaborator* | [Code](#)

Remote

- Developed a Multi-Agent RL comms framework allowing backpropagation through discrete, unbounded channels via **stochastic quantization**
- Derived a **differentiable loss function** that minimizes bit-length, enabling agents to learn **adaptive, variable-precision** comms protocols.
- Engineered a **plug-and-play** layer that reduced communication bandwidth by **1-3 orders of magnitude** across 4 SOTA algorithms (IC3Net, TarMAC, GA-Comm, MAGIC) while matching or exceeding task performance (e.g **+467% success** in Google Research Football).

Technische Universität Dresden, DAAD-WISE Fellow & Research Intern | [Code](#)

Dresden, Germany

- Developed a **novel parametrization for Mamba** to encode sparse geometric data from point-clouds, enabling **efficient sequence modelling**
- Modified the **original Mamba C++/CUDA kernels**, **ported PointMamba to JAX**, and **presented our work** at IndoML'24.
- Achieved **SOTA** results on DVS-Gesture, and improved performance by **~2%** over vanilla Mamba-based models on ModelNet40/ScanObjectNN

APP Center for AI Research, Student Researcher | [Code](#)

Goa, India

- **Pruned neural networks** post-training using **Granger Causality** to model relationship of weight fluctuations and loss across epochs.
- Evaluated impact on **feature importances using SHAP**, with a comparative analysis against L0, L1, rank-based, and LC-Algorithm approaches for **model compression efficiency**.

North Eastern Space Applications Centre, Summer Intern | [Report](#)

Meghalaya, India

- Developed spatio-temporal **rainfall prediction models** using **UNets and LSTMs** on the ERA5 Land Reanalysis dataset for hilly terrains
- Investigated **Genetic Algorithms** as an alternative to gradient descent for model optimization. **Abstract** accepted at EGU General Assembly

SELECTED PROJECTS

Grasping Graphomer: Assessing Transformer Performance for Graph

Representation, [Blogpost-Tutorial Track, GRAM Workshop @ ICML 2024](#)

- Co-authored a deep dive of Graphomer architecture, detailing spatial/centrality/edge encoding mechanisms and showing how **transformer attention with learnable bias terms** can subsume GCN/GraphSAGE/GIN as special cases

Dynamic File Striping Configuration for HPC Storage, [Data, Systems and HPC Lab](#) @ BITS Goa

- Implemented a cluster-aware **file-level adaptive striping framework** for parallel file systems at HPC clusters (Lustre, BeeGFS)

- Developed a syscall interceptor & using Darshan logs to **automate file-level striping** based on **access patterns** derived from IOR benchmarks

Indian Sign Language Recognition using Graph Neural Networks, SenseLab @ BITS Goa | [Code](#)

- Replaced heavy CNN encoders with a lightweight **Spatio-Temporal Graph Convolutional Network** to work on resource-constrained devices
- Created a **dockerized** training environment, achieved ~**88% test accuracy** on 263 classes of INCLUDE dataset using lesser trainable params

Relational Sum-Product Networks, Paper Implementation | [Code](#)

- Developed an implementation based on the [RSPN paper](#) that enables tractable probabilistic inference for cardinality estimation and conditional expectation in database query optimizers. Languages used: **C++** and **Java**
- Automated structure learning pipeline using **Randomized Dependence Coefficients (RDC)** and adaptive **K-Means++ clustering**, achieving efficient **decomposition of high-dimensional multivariate distributions** into tractable hierarchical models.

University Rover Team, Software Team Member

- Developed a monocular **visual servoing system** for autonomous navigation using a custom trained **YOLOv3** for object detection
- Implemented a **PID-controlled GPS navigation system**, enabling precise rover traversal between nearby local coordinates

Zero Shot Segmentation on Arbitrary Image-Text Prompts using Clip

- Implemented **text-guided segmentation** for open-vocabulary object recognition using CLIP embeddings with **Featurewise Linear Modulation** for cross-modal conditioning and a **transformer decoder** for binary mask prediction

SKILLS

Programming Languages: Proficient : Python | Comfortable: Rust, Java, C/C++, SQL, Bash, LaTeX | Learning: Go

Softwares/Libraries: PyTorch, JAX, TensorFlow, Keras, Flax, NumPy, Pandas, HuggingFace, Weights and Biases, Slurm, Anaconda, GitHub, GitLab, SciKit-Learn, Docker, CMake, Maven, Gemini, Claude & OpenAI APIs, Jupyter Notebooks

TEACHING EXPERIENCE

- Teaching Assistant for courses: **Computer Architecture** (Fall '24), **Machine Learning** (Fall '24) and **Discrete Math** (Fall '23)
- Conducted tutorial sessions, evaluated and graded assignments, designed labs and guided students through the TA hours

LEADERSHIP POSITIONS

Society for Artificial Intelligence and Deep Learning, [Vice-President](#)

- Presented papers in reading sessions, formulated induction assignments, conducted courses and organized an AI Symposium
- Contributed to an open-source reproducibility project (29 stars on Github), organized an hackathon and started a blogposts initiative

The Literary and Debating Club, [Core Member](#)

- Organized weekly debates, book-clubs, writing sessions and special events during college fests for the student-run club of ~80 members
- Hosted Nagpur regionals of Inverse, a nation-wide slam poetry contest. Participated in parliamentary debate tournaments representing BITS

AWARDS AND ACHIEVEMENTS

DAAD-Wise Fellowship 2024, One of 235 fellows selected from India to carry out fully funded research at TU Dresden, Germany. [Certificate](#)

MITACS Globalink Scholarship 2024, Selected for a fully funded research at Université Laval, among over 30,000 applicants. [Certificate](#)

Google DeepMind Research Symposium, One of the 150 undergrads selected across India for the [conference](#)

Amazon Scholar for the Graduate Forum at IndoML'24, One of the 6 people [selected](#) from BITS Goa

KVPY Fellowship, National Program of Fellowship in Basic Sciences, initiated and funded by the Government of India

Indian Olympiad Qualifier in Chemistry - State Topper, Qualifier exam for the Indian National Chemistry Olympiad

TEST SCORES

JEE Mains

All India Rank 935 among 1.1 million candidates, 99.935 percentile

JEE Advanced

All India Rank 1938 among 100,000 candidates

MHT-CET

99.995 percentile among 400,000 candidates

KVPY-SX

All India Rank 1531 among ~50,000 candidates