Utkarsh Tiwari

Email | GitHub | Website

EDUCATION

Birla Institute of Technology and Science, Pilani — Rajasthan, India
Bachelor of Engineering - Computer Science; GPA: 8.95 — *October 2022 - July 2026 (Expected)*
Courses: *Data Structures and Algorithms, Object Oriented Programming, Database Systems, Discrete Structures*
Teaching Assistant: *Discrete Math, Logic in Computer Science, Computer Systems and Performance*
Summer School for advanced undergraduates and grad students: *Approximation Algorithms, IISc Bangalore*

EXPERIENCE

- **Microsoft Research, India** — *Research Intern* — August 2025 – January 2026
  - **Systems for ML and GPU Optimisation**: Worked in Prof. Manik Varma's group on novel systems optimizations, distributed training setups for massive-scale pretraining, and custom kernels.
- **STARS Group, INRIA Université Côte d'Azur** — *Research Intern* — July 2024 – August 2024
  - **Weakly Supervised Traffic Anomaly Detection**: Curated datasets to match weakly supervised conditions. Benchmarked state-of-the-art (SoTA) models, and improved their performance via a novel feature transformation block. Resulted in a workshop paper **accepted at ECCV 2024 (Oral)**. arXiv link
- **Digital Government Research Center** — *Summer Intern* — June 2024 – July 2024
  - **Software Development and Optimisation**: Collaborated with the Health Department, Government of Bihar, on the ASHWIN Bihar project to streamline activity monitoring of healthcare workers.
- **Kiran Bhat Computer Graphics & Computer Vision Lab** — *Student Researcher* — January 2024 – May 2024
  - **Neural Radiance Fields for 3D Reconstruction**: Developed and optimised pipelines to reconstruct 3D scenes of laboratory equipment using NeRF and Gaussian Splatting models.
- **Pavo AI** — *Machine Learning Intern* — November 2023 – January 2024
  - **Agentic Dataset Creation**: One of the first five employees at the startup. Built an agentic framework for retrieving and summarizing research papers to enable automated dataset creation.

PUBLICATIONS AND RESEARCH

- **Utkarsh Tiwari**, Aviral Gupta, and Michael Hahn. Emergent stack representations in modeling counter languages using transformers, 2025 . arXiv link **World Models Workshop, ICLR 2025**
- **Utkarsh Tiwari**, Aryan Seth, Adi Mukherjee, Kaavya Mer, Kavish, Dhruv Kumar. DebateBench: A Challenging Long Context Reasoning Benchmark For Large Language Models languages using transformers, 2025. **Student Research Workshop, NAACL 2025**
- **Utkarsh Tiwari**, Snehashis Majhi, Michal Balazia, and François Brémond. What matters in autonomous driving anomaly detection: A weakly supervised horizon. *Springer*, 2024. arXiv link **Oral at ROAM, ECCV 2024**

Reviewer- World Models: Understanding, Modelling and Scaling at ICLR 2025

PERSONAL AND ACADEMIC PROJECTS

- Triton Kernels for Computer Graphics : Blog Post
- Ray Tracer in C++ : Blog Post, Code
- Solving Leetcode in Lambda Calculus : Blog Post, Code
- Code Art : Multiple projects dealing with ways to algorithmically generating interesting and visually appealing "art"
  - Circling a Square and Randomised Parameters : Code
  - Cellular Automata : Code
  - RGB to ASCII Convertor : Code
  - CNN Feature Maps : Code
  - Convolutional Kernels as Image Filters : Code

AWARDS AND DISTINCTIONS

- 100% Merit Scholarship on College Tuition for 1st Semester 2022-23
- Scored 360/390 in BITSAT 2022, top 80 All India Rank

EXTRACURRICULAR

- **Debating**: Active member of the BITS Pilani Debating Society, with 5+ open breaks in national tournaments
- **Amateur Radio Hosting**: Began Radio Yapcast, a college radio with music and talk show segments
- **Technical Blogging**: Maintain a technical blog with regular posts on math, computer science, and ML research
- **BITS Queer Society (Anchor)**: Helped organize pride parades and fundrisers for charity for at-risk queer youth

RESEARCH INTERESTS

Interpretability, Machine Learning Theory, Optimisation