

# 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*

## EXPERIENCE

- **STARS group, INRIA Université Côte d'Azur** — *Research Intern* July 2024 - August 2024
  - **Weakly Supervised Traffic Anomaly Detection:** Curated datasets to match weakly supervised pre-conditions. Analysed and benchmarked SoTA models on this dataset. Improved performance of these SoTA models through a novel feature transformation block. Workshop paper **accepted at ECCV 2024** with an **Oral**. [arXiv link](#)
  - **Scalable Multimodal Anomaly Detection:** Integrated mamba blocks in place of quadratic-scaling attention layers to achieve competitive performance on UCF-Crime while significantly reducing the required computation. Induced pose modalities to beat SoTA performance.
- **Kiran Bhat Computer Graphics-Computer Vision Lab** — *Student Researcher* January 2024 - May 2024
  - **Neural Radiance Fields for 3D reconstruction:** Developed and optimised pipelines to construction 3D scenes of lab equipments using NeRF and Gaussian Splat models.
- **Digital Government Research Center** — *Summer Intern* June 2024 - July 2024
  - **Software Development and Optimisation:** Worked with the Health Department, Govt. of Bihar on the ASHWIN Bihar project to streamline activity monitoring of healthcare workers. Reduced downtime by 10% via SQL optimization for processing form submissions and incentive claims for over 90,000 healthcare workers

## PUBLICATIONS

- **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 Balazsia, 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

- Ray Tracer in C++ : [Blog Post](#), [Code](#)
- Using Lambda Calculus to Solve Leetcode Questions : [Blog Post](#), [Code](#)
- Event Auto-Scheduler : An algorithmic approach for optimally matching multiple events to multiple possible venues, built for college fest event scheduling : [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 among 100+ teams
- **Amateur Radio Hosting:** Began Radio Yapcast, a college radio with music and talk show segments, averaging over 50 unique listeners
- **Technical Blogging:** Maintain a technical blog with regular posts on math, computer science, and the latest ML research

## RESEARCH INTERESTS

Interpretability, Machine Learning Theory, Optimisation