Jeet Shah

Research Engineer

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Education

Columbia University *Sep 2026 – Expected Dec 2027*
M.S. Computer Science, Network Systems Pathway · New York, NY
Current coursework: Operating Systems I, Computer Networks, Analysis of Algorithms.

FLAME University *Aug 2021 – May 2025*
B.Sc. (Hons.) Computer Science; PG Diploma in Interdisciplinary Studies · Pune, India
GPA: 3.77/4.00 (Scholaro U.S. evaluation; CGPA 8.9/10). Merit scholarships: 25% and 60% of tuition.
Selected completed coursework: Advanced Machine Learning, Applied Multivariate Statistics, Numerical Methods.

Research Experience

Centre for Interdisciplinary AI, FLAME University *Jan 2024 – May 2025*
Research Assistant

- Co-developed ConvGRU, conditional-GAN, and ConvLSTM training pipelines and satellite-data ingestion tooling for precipitation nowcasting.
- Administered a multi-user GPU server with isolated training environments.

Space Applications Centre, ISRO *May 2023 – Aug 2023*
Research Intern

- Developed ConvLSTM precipitation-nowcasting models with INSAT-3D satellite data in an air-gapped high-performance computing environment.

Selected Research Outputs

Weather4Cast, team kaubega: First on the 2024 core-challenge leaderboard; second in the 2025 cumulative-rainfall task.

INSAT-3D Precipitation Nowcasting Thesis & code

- Built satellite-data caching, temporal-window generation, and ConvLSTM training/evaluation pipelines in Python, TensorFlow/Keras, OpenCV, and HDF5.
- Reduced six-hour forecast RMSE by 30.7% against a Lucas–Kanade optical-flow baseline; undergraduate thesis supervised by Kaushik Gopalan (2025).

Preprints and Presentations

- Co-author, Computationally-efficient deep learning models for nowcasting of precipitation (Weather4Cast 2025), arXiv:2511.11197. *Preprint.*
- Co-author, A conditional Generative Adversarial network model for the Weather4Cast 2024 Challenge, arXiv:2412.00451. *Preprint.*
- Presented thesis-based nowcasting work at CVIP 2025, IIT Ropar, and earlier OLR/optical-flow work at the NCVPRIPG 2023 Student Research Symposium, IIT Jodhpur.

Research Software and Applied Engineering

Nilakan Programming Language Documentation & Playground

- Owned codebase design and co-designed the language with Prof. Aamod Sane, collaborating with Prajas Naik.
- Implement the parser, static checks, interpreter, CLI, and browser playground in TypeScript and Chevrotain, primarily with Codex and Claude Code; review generated code and Playwright tests.

Voltek AI *Oct 2024 – Aug 2026*
Software Engineer (Part-time)

- Built a battery-research assistant with internal-document retrieval, web search, citations, streamed responses, and chat history across four model providers.
- Redesigned PostgreSQL process storage; reduced observed material-query latency from 3–20 seconds to under 500 ms with indexed tables, transactional writes, and validated backfills.

Technical Skills

Languages: Python, TypeScript, C++, SQL.
ML and data: TensorFlow/Keras, PyTorch, NumPy, OpenCV, HDF5, ConvLSTM, ConvGRU, conditional GANs, variational autoencoders, retrieval-augmented generation.
Infrastructure: Linux, GPU-server administration, air-gapped HPC, Docker, Git, GitHub Actions.