Taraka Nithin Vankala

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Education

Bachelor of Technology, Electrical Engineering **Nov 2022 — Jul 2026 (Expected)**
Indian Institute of Engineering Science and Technology, Shibpur (IIEST), CGPA: 7.88/10.00

Skills

Frameworks	PyTorch, TensorFlow, FastAPI, React, Tailwind CSS	**Languages**	Python, C/C++, JavaScript
Libraries	scikit-learn, Pandas, NumPy, Matplotlib, OpenCV	**Soft Skills**	Time Management, Problem Solving

Experience

Summer Research Intern **May 2024 — Jul 2024**
Indian Institute of Technology Roorkee (IITR) Roorkee, Uttarakhand, IN

- Worked on a research project titled, **"Urban Flood Modeling using Generative AI"**, under the guidance of Dr. Sudip Roy in his **CoDA Lab**.
- Developed a **physics-based Conditional Generative Adversarial Network (cGAN-Flood)** to generate flood depth maps using spatial inputs such as DEM, slope, and imperviousness maps for urban flood prediction.
- Used a Pix2Pix model with U-Net architecture to transform spatial input maps into a flood depth map while preserving spatial details.
- Utilized GIS software **HEC-RAS** for collecting, analysing, and visualising digital elevation, slope, flow accumulation, and imperviousness maps.
- Implemented data normalization and augmentation techniques to enhance model performance.
- Achieved a balance between accuracy and computational efficiency, significantly reducing flood prediction time compared to traditional hydrodynamic model simulations, which are resource-intensive.

Projects

Car Bidding Website | React, Tailwind CSS, JavaScript

- Collaborated in a team to develop the frontend of a Car Bidding Website using React and Tailwind CSS.
- Designed and implemented a fully responsive user interface with optimized layouts for mobile and desktop views.
- Ensured seamless user experience by integrating dynamic components and handling state management effectively.

Custom Email Sender | HTML, CSS, JavaScript, FastAPI, NLP

- Built a web-based email sender enabling users to upload CSV files, generate personalized messages using an LLM, and automate email distribution.
- Implemented a FastAPI-powered backend to facilitate smooth processing and efficient email dispatch.
- Integrated free APIs like Groq for AI-driven content generation and SendGrid for reliable email delivery.
- Crafted a user-friendly front-end interface using HTML, CSS, and JavaScript for seamless interaction.

Emotion and Facial Recognition in real time | Deep Learning, Computer Vision

- Created a real-time facial recognition system using Python, leveraging OpenCV for face detection and video stream analysis.
- Utilized VGG-16 for feature extraction and a custom CNN in Keras for precise emotion classification.
- Enhanced performance by incorporating ResNet and accelerating training with PyTorch, improving accuracy and efficiency.
- Delivered an optimized facial recognition and emotion detection solution with significant advancements in precision and real-time processing.

Publications

Angshuman Roy, Anuvab Sen, Soumyajit Gupta, Soham Halder, Subhrajit Deb, Taraka Nithin Vankala and Arkapravo Das. DeepEyeNet: Adaptive Genetic Bayesian Algorithm Based Hybrid ConvNeXtTiny Framework For Multi-Feature Glaucoma Eye Diagnosis. *IEEE Symposium Series on Computational Intelligence*. IEEE SSCI, Trondheim, Norway, 2025.

Achievements

- Recipient of **IASc-INSA-NASI** Summer Research Fellowship, 2024.
- **Won 2nd** place in DataThon, and BrainDead, inter-college hackathons based on machine learning.
- Secured **179th** position among **70k+** teams participated in Amazon ML Challenge, 2024.

Volunteer Experience

Core Member, CodeIIEST **Aug 2023 — Present**

- **Hosted ML workshops** and mentored **over 100 students** in machine learning and deep learning concepts.
- Guided students in **implementing ML and DL models** using the **PyTorch framework**.