

TANISH YELGOE

• Machine Learning/Deep Learning • Python • Web Development

Sophomore at IITGN | BTech in AI

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EDUCATION

Indian Institute of Technology Gandhinagar (IITGN)

B.Tech in Artificial Intelligence CPI 9.20

Gandhinagar, India

2023-2027

EXPERIENCES

Sleep Apnea detection using DeepLearning

IIT Gandhinagar, India

Role: ML Researcher Github Repo

Jan'2025-Ongoing

- Developed an end-to-end model using a 1D-CNN BiLSTM network to classify sleep stages for Apnea-Hypopnea Index calculation. Processed nasal and thoracic signals from thermal cameras using Savitzky-Golay filters and addressed class imbalance with SMOTE. Trained on polysomnography (PSG) data from 25 patients.

OPEN SOURCE CONTRIBUTIONS

Merged PRs

Implemented DTW with Global Invariance PR Added a new distance measure, DTW GI i.e. Dynamic Time Warping using Global Invariances

Adds support for unequal length time series in itakura parallelogram PR Expanded the implementation to incorporate unequal length time series as well, in accordance with the original paper which described the algorithm.

Added uv support to build system PR Added support for the uv build system in SciCookie, updating configuration files, dependency management, and CI workflows to ensure compatibility. Also extended smoke tests to validate the integration.

PROJECTS

Next k-Word Prediction Using self-supervised MLPs Code and Demo Link

- Designed and implemented a self-supervised MLP model trained on a dataset of approximately 1 million high school math problem statements. Leveraged tokenization and embedding techniques for input preprocessing and trained the model to predict the next k words. During inference, the model generated contextually accurate and logical completions tailored math problems which were completely new.

Image SuperResolution using linear regression with Random Fourier Features Code

- Implemented an image super-resolution model using linear regression with Random Fourier Features (RFF). Preprocessed images with MinMax scaling, extracted spatial features, and approximated high-dimensional kernels with RFF for efficient learning. Trained a lightweight neural network on transformed coordinates to reconstruct high-resolution images, improving detail preservation while maintaining computational efficiency.

Sign Language to Language Demo Video Link Paper Link

- Developed a sign language to English translation system utilizing flex sensors to capture various gesture combinations. The flex sensors were custom-made using Velostat. Hosted a server on Arduino to process sensor data, and implemented WebSocket-based communication to display real-time readings on a linked mobile application.

Sleep Apnea detection using DeepLearning Github Repo

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AWARDS AND ACHIEVEMENTS

- Active Opensource Contributor, 15 PRs merged in 3 different organizations Merged Pull Requests 2025
- Secured 1st place in the Text-Based Game Development competition held at IIT Gandhinagar for creating an interactive adventure game. 2024
- Codeforces rating of 1279 2024
- Successfully organized a Speed Cubing Competition of over 150 people. 2024
- Achieved the Dean's List recognition for academic excellence and secured a branch change to Artificial Intelligence at IIT Gandhinagar (one of only four students to do so). 2023

SKILLS

Languages and Libraries:

Python

Machine Learning

Deep Learning

Numpy

Pandas

Matplotlib

Soft Skills:

Effective communication

Good at Problem Solving

RELEVANT COURSES

Ongoing Institute Courses: CS 301: *Theory of Computation*, CS 328: *Introduction to Data Science*, CS 303: *Mathematical Foundations for AI*, CS 203: *Software Tools and Techniques for AI*, ES 204: *Digital Systems*
Completed Institute Courses: ES 112: *Computing*, ES 114: *Probability, Statistics, and Data Visualization*, MA 103: *Linear Algebra and Calculus of Single Variable*, ES 335: *Machine Learning*
Online Courses: CS 229 *Machine Learning* (Stanford), CS 230 *Deep Learning* (Stanford), *Deep Learning Specialization* (Coursera)

POSITIONS OF RESPONSIBILITY

- Sponsorship Executive, Amalthea** IITGN
Amalthea is IIT Gandhinagar’s annual technical summit. As a Sponsorship team member, I contributed to securing funding for the summit. Sept’23-Jan’24
- Design Team, Blithchron** IITGN
Blithchron is IIT Gandhinagar’s annual cultural fest. As a Design team member, I helped make several posts for the event using softwares like Adobe Photoshop, Premier Pro, etc. Oct’23-Mar’24