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)   *Gandhinagar, India*
B.Tech in Artificial Intelligence **CPI 9.20**   *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.

Implemented a Fullstack React, Nodejs Application to enable multiplayer gameplay for a word game
Pune, India
Role: FullStack Developer Deployed App   *Dec'2024-Ongoing*

- Developed a backend architecture using Node.js to handle real-time multiplayer interactions and integrated a scalable database solution using MongoDB to manage player states, game sessions, and statistics.
- Implemented WebSocket-based communication to ensure low-latency data exchange between players.

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.

OPEN SOURCE CONTRIBUTIONS

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.
Make Fido.search robust against errors from a single client/s PR Enhanced SunPy's Fido.search by making it resilient to individual client failures, ensuring uninterrupted data retrieval. Added test coverage by adding unit tests to validate failure scenarios.
Provide users the ability to combine Fido search results from the same client PR Enabled combining of Fido search results from the same client in SunPy, simplifying data retrieval and enhancing usability. Updated core functionality to support combined responses and modified relevant tests and documentation to reflect this feature, ensuring seamless integration and user flexibility.

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*