YAGNIK POSHIYA

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WORK EXPERIENCE

- **Tvisi** — Full-time, On-site
  Co-Founder — Feb 2024 - Mar 2025
  - Registered as Tvisi Innovations Private Limited (CIN: **U47912GJ2024PTC157410**).
  - Built an **online B2B marketplace** that directly connects Indian farmers and institutional buyers.
  - Led **market research**, **business development**, **product testing**, **user acquisition**, and **fundraising**.
  - Couldn't find a Product-Market Fit (PMF), so operations have been shut down.

- **Neurowork Research Labs (NRL)** — Part-time, Remote
  Founder — Apr 2024 - Jul 2024
  - Operated as a solo researcher, conducting research on **brain tumor segmentation**.
  - Utilized the **BraTS2020** dataset, published by University of Pennsylvania, USA.
  - Designed and implemented **8** various segmentation models based on **UNet** and **MobileNet** architectures.
  - Delivered research findings to the client before closing NRL.

- **Divine Lab, IIT Delhi** — Full-time, On-site
  Research Intern — Dec 2023 - Feb 2024
  - Project title: **Real-Time Emotion Assessment Using Eye-Tracking and EEG**.
  - Leveraged the SJTU Emotion EEG Dataset (**SEED-IV**), **COLET**, and a **custom Eye-Tracking** dataset.
  - Conducted experiments on **eeglib - A Python Module for EEG Feature Extraction.**

- **Charotar University of Science and Technology** — Full-time, Remote
  Deep Learning Research Intern — May 2023 - Jul 2023
  - Project title: **Brain Thoughts Visualization.**
  - Generated visuals representing what a person imagines while observing the outer world, from fMRI data.
  - Utilized the **BOLD5000 & GOD** datasets, published by Carnegie Mellon University, USA & Kamitani Lab, Japan.
  - Conducted experiments on **Masked Auto-Encoder, ViT, & Double Conditioned Stable Diffusion Model.**

- **Bhaskaracharya National Institute for Space Applications and Geo-informatics** — Full-time, Remote
  Machine Learning Research Intern — May 2022 - Jul 2022
  - Project title: **Secure Fingerprint Authentication Using Deep Learning and Minutiae Verification**.
  - Leveraged the **LivDet2015** dataset, provided by University of Cagliari, Italy & Clarkson University, USA.
  - Conducted experiments on **Convolutional Neural Network**, **Deep Belief Network**, **Support Vector Machine.**

PATENT

- **AssistiveStick: Intelligent Vision Aid for the Visually Impaired** — [Prototype Video](#)
  Python, Shell Scripting, PyTorch, Computer Vision, Jetson Nano
  - Application No.: 202321071599 (Published).
  - Received **INR 200K** grant from Student Startup and Innovation Policy (SSIP), Government of Gujarat.
  - Funding Identification: **CHA/ADM/2021/03/331**.
  - Includes an Object Detection System (**ODS**) capable of detecting within a **12-meter** perimeter.
  - Integrated an ODS with an **Audio Recommendation System** that delivers quick audio responses within **2 to 5 seconds** for diverse scenarios captured within a **90–120°** field of view from the assistive stick.

PUBLICATIONS

- **Cross-lingual Dictionary Generation Tool for Transliteration from Gujarati to Hindi** — [Springer](#)
  Python, IndicNLP
  - Designed and implemented a data preprocessing pipeline for word list extraction from a Gujarati & Hindi corpus.
  - Developed a custom **dictionary-based stemmer** for both Gujarati & Hindi languages to enhance linguistic quality.

- **Brain Tumor Image Segmentation using Box-Unet Architecture** — [IEEE Xplore](#)
  Python, TensorFlow, Neuroimaging
  - Leveraged the **BrasTS2020** dataset, which comprised MRI scans in NIFTI format.
  - Developed a neural network architecture named **Box-Unet**, a variant of the traditional U-Net architecture.

- **Survey and Current Research Challenges for Breast Cancer Detection** — [AIP Publishing](#)
  Research, Machine Learning
  - Reviewed over **30+ research articles** on breast cancer detection methodologies.
  - Analyzed the performance of machine learning classification algorithms for breast cancer detection.

Projects

- **Agricount - Counts the number of agricultural grains in an image** [GitHub]
  Python, PyTorch, Neural Network, Computer Vision
    - In the agritech startup Tvisi, **grains are manually counted and segregated** based on their physical appearance, making the grain **quality testing process time-consuming**.
    - Designed and implemented **DNASegment**, a segmentation model based on the Vision Transformer architecture.
    - DNASegment is **capable of counting** the total **number of grains in an image** and **classifying them** based on their physical appearance.
    - Utilized a **custom peanut image** dataset available on Kaggle.

- **Histopathology Image Classification** [GitHub]
  Python, PyTorch, Neural Network
    - Utilized the **Chaoyang dataset**, published in IEEE Transactions on Medical Imaging.
    - Implemented **Liquid Neural Network** with **Convolutional Neural Network** & various **ResNet architectures**.
    - Aimed to test the performance of Liquid Neural Network compared to Deep Neural Networks.

- **CREDP-Assistant - An automated attendance tracking bot** [GitHub]
  Python, Asynchronous Programming
    - CREDP has been providing free education to **100+** students from rural regions, who are in grades **1 to 11**.
    - The higher authority of CREDP **faced challenges with** manual, **paper-based attendance tracking** each day.
    - Built a **Python-based** attendance portal integrated with a Discord server for automated attendance tracking.
    - Selected Discord server **members can request** attendance **reports or data** from the bot within the server chat by sending a message in a specified format.
    - A bot can also **automatically send** students' and volunteers' **attendance reports** on a Discord server at a specified time each day.

Skills and Interests

- **Technical Skills**   Research, Deep Learning, Machine Learning, Computer Vision, Neuroimaging
- **Languages**   Python, C++, C, Shell Scripting
- **Frameworks**   PyTorch, TensorFlow
- **Tools**   Docker, Enroot, Git, Slurm, Wandb, VGG-IA, Linux/Ubuntu, Jetson Nano, Jetson Orin Nano
- **Soft Skills**   Teaching, Writing
- **Interests**   Neural Networks, Brain-Computer Interface, Cognitive Science, Building Startups, Poetry

Conducted Workshops

Conducted a workshop on the basics of OpenCV & IoT devices for **20** B.Tech **students**	Mar 2024
Taught deep learning to **35** pre-final year B.Tech **students (a series of 8 workshops)**	Jul 2023 - Sep 2023
Led a workshop for **20+ students** on model deployment on HuggingFace Spaces	Sep 2023
Conducted a training session on MLOps concepts for **15+ faculty** members	Mar 2023
Delivered a session on the basics of Convolutional Neural Network to **30+ faculty** members	Mar 2023
Taught introductory machine learning concepts to **40+** B.Tech **students**	Sep 2022

Achievements

Selected among the **top 12 teams** globally for the NSM Open Hackathon	Oct 2023
Obtained an **INR 50K** grant for "GrassTerminator: Revolutionizing Weed Control using AI"	Sep 2023
Secured an **INR 50K** in funding for "Crop Health Clustering using Drone"	Sep 2023
Invited as one of the **top 80 teams** from India to the MumbaiHacks Hackathon 2023	Jun 2023
Shortlisted among the **top 50 teams** from India for the RNS Hack-Overflow Hackathon 2023	May 2023
Selected in the **regional round** of Azadi Ka Amrit Mahotsav Hackathon 2022	Oct 2022

Education

- **Charotar University of Science and Technology**   Gujarat, India
  Bachelor of Technology - Computer Engineering, CGPA - 8.38/10   Nov 2020 - Apr 2024