

DHRUV PANCHAL

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EDUCATION

Dhirubhai Ambani University	Jul 2024 – Jul 2026
<i>M.Tech. in Machine Learning Specialization</i>	CGPA: 9.58
Gandhinagar Institute of Technology	Aug 2020 – Jul 2024
<i>B.E. in Information Technology</i>	CGPA: 9.01

SKILLS

Languages: Python, SQL, Bash.
Libraries/Frameworks: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Pandas, NumPy, Flask, LangChain.
Cloud/Tools: Git, GitHub, VS Code, Jupyter, Colab, basic AWS (EC2/S3), Colab, Kaggle, Canva, Figma, OverLeaf.
Concepts: Machine Learning, Deep Learning, Computer Vision, NLP, Transfer Learning, Quantum ML, Model Optimization.

CERTIFICATIONS

DSM–Data Science & Machine Learning- PW Skills	May 2024
Machine Learning Specialization- Coursera (Stanford, DeepLearning.AI)	Mar 2023

EXPERIENCE

Dhirubhai Ambani University	Jan 2025 – Present
<i>Researcher - High-Precision Rooftop Segmentation in Urban Aerial Imagery</i> Link	Gandhinagar, India
• Led the end-to-end development of a novel hybrid pipeline using YOLOs/DETR + SAM improving rooftop segmentation on high-resolution satellite images. Improved performance by 23% IoU and 11% Dice over Baseline Model.	
• Created the first India-specific rooftop segmentation dataset: 5000+ aerial tiles , manually annotating 1300+ images , categorizing them by rooftop density, and applying active learning and augmentation for improved generalization and efficiency.	
Dhirubhai Ambani University	Aug 2024 – Present
<i>Teaching Assistant</i>	Gandhinagar, India
• Supported instruction for 350+ students in DBMS, Signals & Systems, and Fundamentals of ML by conducting labs, tutorials, and assessments, and mentoring students in project development and presentations.	
Kody Technolab Pvt. Ltd.	Jan 2024 – Jun 2024
<i>Python Intern - Intelligent Assistant with Face Recognition</i> Link	Ahmedabad, India
• Designed and deployed a multimodal AI assistant to handle college query automation , reducing manual workload via face authentication, voice input, and intent classification .	
• Built a custom Keras NLP classifier achieving 97% accuracy on 160+ queries across 52 intents .	
• Designed a real-time interface with facial authentication and voice input using OpenCV, Whisper, and Tkinter .	

PROJECTS

Vision-Language Model (PaliGemma) Link	Jan 2025 – Jun 2025
• Designed a custom vision-language model combining SigLIP and Gemma decoder for image-conditioned text generation.	
• Enabled scalable VQA and visual catalog understanding via top-p decoding, KV caching, and multimodal fusion, enabling deployment-readiness for e-commerce and accessibility use cases.	
QuanvolutionNet: Hybrid Quantum-Classical CNNs Link	Jan 2025 – Jun 2025
• Integrated quanvolutional filters into classical CNNs, achieving 81.12% accuracy on CIFAR-10, closely matching the 84.19% baseline .	
• Benchmarked 15+ quantum circuits with varied expressibility; ablation study revealed that task-specific circuit design yields better performance than high-expressibility circuits, highlighting QNNs' potential as robust early learners.	
CortexIQ: Alzheimer's Detection Link	Aug 2024 – Nov 2024
• Developed a scalable deep learning pipeline for Alzheimer's diagnosis on 86,000+ MRI scans using VGG16, ResNet50/101 , and a custom CNN with dropout regularization.	
• Extracted high-level features from pretrained models and trained an XGBoost classifier to improve classification precision.	
• Achieved 89.99% accuracy , outperforming all baseline models by a significant margin.	

ACHIEVEMENTS

Awarded a **gold medal** in **B.E** by Gandhinagar Institute of Technology for academic excellence in 2024.