

Ankit Patel

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WORK EXPERIENCE

Founding Machine Learning Engineer, SigIQ.ai (EdTech startup with \$10M+ raised) Oct'23 – Present

1. PadhAI - Android App for Indian Civil Services exam preparation

- Architected daily news feature with LLM-based relevance filtering and summarization, paired with semantic and keyword-based retrieval of relevant previous year questions, driving **2.5M+ reads and 43% of app usage**
- Trained article relevance scoring model with GPT-labeling of handcrafted features; **3.5x increase in user engagement**
- Developed **mock test analytics** feature identifying subject-wise strengths/weaknesses, driving **10k+ test attempts**

2. Evertutor.ai - Webapp for GRE exam preparation

- Designed **probabilistic user knowledge model** for GRE webapp using MLE estimation for **personalized learning paths**
- Built 82% accurate decision-tree **college recommender system** using user profiles and QS/USnews university ranking features, driving **50% conversion of paying users**
- Led cross-functional collaboration on feature prioritization and tech specs resulting in **160k+ users base across two products**

Machine Learning Engineer, Matterport Mar'22 – Aug'23

- Trained CNN room classifier with ResNet, boosting F-score by 15% across 20+ classes and **reducing inference time by 30%**
- Engineered data pipeline (DeepLake+Pydantic) **ingesting 500k+ images 60% faster**, enabling rapid model development cycles
- Trained **semantic segmentation model (ViT)** to detect floor material, achieving 0.8 mIoU across 8 classes on indoor scenes
- Engineered data annotation pipeline leading to **2x rare object labels** improving performance by **25%** on object detection task

AI Data Scientist, Blue Wave AI Labs Jul'20 – Mar'22

- Trained CNN models to predict neutron multiplication in nuclear reactors, enabling **cost savings of 320k USD** in cycle load design per nuclear reactor cycle
- Utilized **SHAP and GradCAM** for **model explainability**, highlighting key parameters in nuclear reactor operation
- Quantified **prediction uncertainty via MC-dropout**, enabling data-driven optimization of reactor operation
- Led presentations to the nuclear station engineers, informing feature design that **improved model performance by 18%**

TECHNICAL SKILLS

Programming and Utilities Python, Django, SQL, Bash, Git, Docker, AWS, GCP, Postman, Supabase
Libraries Pytorch, Tensorflow, scikit-learn, pandas, llama-index, streamlit

EDUCATION

Purdue University, West Lafayette, IN, USA | MS in Geomatics | GPA: 3.90/4.00 Aug'18 - May'20

Indian Institute of Technology (IIT), Kanpur, India | B.Tech. in Civil Engineering | GPA: 8.3/10.0 Aug'14 - May'18

PROJECTS & PUBLICATIONS

1. Deep Learning based Road Marking Extraction from LiDAR Intensity Images

- Achieved state of art **F-score of 85%** by training **U-net (Keras)** with **soft dice loss** function to segment lane markings
- Fine-tuned the U-net encoder to achieve **F-score of 86%** on a **different LiDAR** sensor dataset with **5x less data**
 - **Patel, A.**, et al. (2020). Intensity Thresholding and Deep Learning Based Lane Marking Extraction and Lane Width Estimation from Mobile Light Detection and Ranging (LiDAR) Point Clouds. Remote Sensing, 12(9), 1379.
 - **Patel, A.**, et al. Transfer Learning for LiDAR-Based Lane Marking Detection and Intensity Profile Generation. Geomatics 2021, 1, 287-309. <https://doi.org/10.3390/geomatics1020016>

2. Discovery of Novel Links in COVID-19 Knowledge Graph using Graph Embedding Techniques

- Utilized HOPE and SDNE embeddings to predict new links in COVID-19 knowledge graph with **F-score of 88%**
- Won **best solution award in advanced category** at Oak Ridge National Lab's 2021 SMC Data Science Challenge
 - **Patel, A.**, et al. Finding Novel Links in COVID-19 Knowledge Graph Using Graph Embedding Techniques. In Smoky Mountains Computational Sciences and Engineering Conference (pp. 430-441). Cham: Springer International Publishing