

Pranav Agarwal

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EDUCATION:

University of California - Irvine | Irvine, California
Master of Science, Data Science

Aug 2023 - Dec 2024

VIT University | Vellore, India
Bachelor of Technology, Computer Science

Jul 2017 - Jun 2021

WORK EXPERIENCE:

Machine Learning Researcher | *UCI AI Center*

Jun 2024 - Present

- Improved breast cancer survival prediction accuracy to 89% by applying diffusion models on patch image and whole slide images with PyTorch. Worked in collaboration with Dr. Jana Lipkova.
- Achieved 81% base model accuracy by applying Principal Component Analysis (PCA) to reduce dimensionality of extracted features from deep learning architectures to train SVMs, Linear Regression and KNN models.

Machine Learning Engineer Intern | *Safran Aerospace*

Jul 2024 – Nov 2024

- Saved \$10,000 per aircraft per month by predicting equipment health using artificial neural networks trained on vibrational, temperature, pressure, and usage cycle data using Python and Pytorch.
- Increased model accuracy to 96% by developing an ensemble model combining LSTMs for temporal data and XGBoost for categorical features to improve bias and variance.

Data Scientist | *Airbus*

Jul 2021 - Aug 2023

- Reduced monthly security alerts by 20% by employing analytical Bayesian methodologies using python to improve precision of alert systems by minimizing false positives and increasing precision.
- Achieved annual cost savings of \$70,000 by integrating a recommendation engine built on python utilizing historical usage patterns to optimize cloud resource menu offerings.
- Engineered a comprehensive dashboard via Amazon QuickSight, synthesizing user data metrics to furnish actionable insights for informed decision-making, project management and strategic planning.

Natural Language Developer Intern | *Novartis*

Jan 2021 - Jun 2021

- Cut yearly expenses by \$1 million by engineering a chatbot on python via natural language processing and intent recognition replacing L1 customer support.
- Reduced customer service response time by 1.7 hours and achieved 33% surge in chatbot usage via a chatbot analyzer using python, NLP and pandas capable of identifying areas of low performance.
- Increased positive feedback by 23% by performing A/B testing on intents via feedback and incorporated them into language model and evaluated significance using t-tests.

PROJECTS:

Lane Detection for Autonomous Driving Using Attention on UNet Transformer | [github](#) | [medium](#)

- Designed and implemented a lane detection model using PyTorch and OpenCV with UNet-based architecture, incorporating residual blocks and attention to enhance lane segmentation accuracy for autonomous vehicles.
- Developed image preprocessing and data augmentation pipelines, including edge detection, noise reduction, and morphological transformations, resulting in improved model performance on challenging lane detection scenarios.

Duplicate Detection in Job Postings Using LLMs | [github](#)

- Implemented Sentence Transformers to generate embeddings from job descriptions, enhancing duplicate detection by capturing semantic similarity, context-aware features. Fine-tuned large language models (LLMs) on job-specific data.
- Configured a Milvus instance, executed vector indexing, and developed a cosine similarity-based search method to identify duplicate job postings and to use RAGs to retrieve the correct job based on resume.

SKILLS:

Python, C++, R, SQL, Pandas, Numpy; OpenCV, Matplotlib, Seaborn, Neo4J, spark, Hadoop, hive, mapreduce, predictive analytics, looker, RAGs, GANs, LLMs, AWS solutions architect, Open-source contributor - Mozilla - [github](#).