Pranav Agarwal

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EDUCATION:

University of California - Irvine | Irvine, California **Aug 2023 - Dec 2024**
Master of Data Science

VIT University | Vellore, India **Jul 2017 - Jun 2021**
Bachelor of Technology, Computer Science

WORK EXPERIENCE:

Machine Learning Engineer Intern **Jul 2024 – Nov 2024**
Safran aerospace

- Saved $10,000 per aircraft per month by predicting equipment health with multiple models trained on vibrational, temperature, pressure, and usage cycle data using Python.
- Increased model accuracy to 96% by developing an ensemble model combining LSTM for temporal data and XGBoost for categorical features to improve accuracy and efficiency.

Machine Learning Researcher **Jun 2024 - Present**
UCI AI Center

- Improved cancer survival prediction accuracy to 89% using transfer learning 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 to train SVMs, Linear Regression and KNN models.

Data Scientist **Jul 2021 - Aug 2023**
Airbus

- 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 recall.
- 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 **Jan 2021 - Jun 2021**
Novartis

- Cut yearly expenses by $1 million by engineering a chatbot on python via natural language processing and Azure 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 | github | medium

- Designed and implemented a custom 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.

Forest Fire Detection Using Classifiers and Transfer Learning | github | IEEE

- Engineered a Machine Learning model using python and **t**ensorflow using capabilities of transfer learning for forest fire detection, mitigating the inefficiencies of traditional hardware devices.
- Applied transfer learning from pre-trained models like Inception, Resnet and VGG19 to extract image features which were incorporated SVMs, KNN, Naïve Bayes for the prediction, enhancing accuracy and response times.

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.