PRATIK DOSHI

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TECHNICAL SKILLS

- Skills: Machine Learning, Deep Learning, Transformers, CNN, Transfer Learning, Data Analytics, NLP, Computer Vision
- Tech Stack: Python, C, C#, JavaScript, MySQL, MongoDB, NoSQL, Redis
- Libraries/Frameworks: Pytorch, Tensorflow, scikit-learn, statsmodels, matplotlib, seaborn, spacy, RESTful APIs, WebSockets, WebRTC, ASP .NET Web APIs
- Cloud/Tools: Kubernetes, AWS EC2, AWS S3 and Block Storage, Docker, Linux Bash Scripting, Git, Jupyter

PROJECTS

- **Image Captioning using VLMs**: Used multiple end – end deep architectures involving CNN and ViT encoders; and LSTM, GRU and Transformer blocks for text generation. Model training and evaluation on the BLEU metric are in progress.
- **Transformer Models for CV**: Fine-tuned Deep Learning architectures like Vision Transformer and Residual Networks (Resnet) on a custom dataset with 100 classes. Designed a custom training pipeline in Pytorch on Google Cloud and applied ensemble techniques to achieve an accuracy of over 90%.
- **Pretrained a small LM from scratch**: Coded a small GPT-like language model and pretrained it on Personal WhatsApp Conversations on the University's Kubernetes Cluster. The model started recognizing individuals and personal interrelationships.
- **Comparative analysis of ML Algorithms**: Compared and analyzed algorithms like Support Vector Machines, Decision Tree Classifier, Random Forest Classifier, and XGBoost to predict patient diabetes. Used metrics like ROC curve, AUC, Gini Coefficient and lift table to evaluate performance of the models.
- **Email Spam Filter:** Employed machine learning techniques like vectorization to convert natural language into feature vectors, and a Deep Neural Network to achieve over 90% prediction accuracy in spam email classification.
- **Research on Emission with Simulations:** Published a paper on a novel system to estimate emissions related externalities of power plans using the Gaussian Plume Dispersion Model. Successfully factored in the population density of surrounding areas and designed a Java program to run simulations demonstrating the model's performance.

EDUCATION

University of California, Santa Cruz, United States of America **March 2025**
MS Computer Science and Engineering **GPA: 3.92/4.0**
Relevant Courses: Deep Learning for CV, Applied Machine Learning, Artificial Intelligence, Linear Algebra
Teaching Assistant for C Programming, Low-Level System Design and Web Development

Mumbai University, India **June 2023**
Post Graduate Diploma in Data Science and Business Analytics **GPA: 9.41/10.0**
Relevant Courses: Natural Language Processing, Machine Learning, Statistical Methods

NMIMS University, India **May 2021**
BS Finance **GPA: 3.85/4.0**
Relevant Courses: Quantitative Techniques, Operations Research, Econometrics

PROFESSIONAL EXPERIENCE

Rupeeseed Technology Ventures, Mumbai, India
Associate Software Engineer **03 June 2021 – 31 March 2023**

- Devised statistical models using probability distributions to estimate the market risk of complex trading strategies.
- Led a team of 6 software engineers to build a real time risk management system in C#. We developed the product from scratch, shipped it to production and undertook several rounds of client specific customizations.
- Optimized a business-critical analytics engine written in C# by reducing its computational turnaround from 15 minutes to under 2 seconds. Achieved this by implementing efficient Language Integrated Query (LINQ).
- Volunteered to design a data processing pipeline in C# that converted raw text data to high-quality BSON objects in MongoDB. Applied pipeline parallelism to scale the tool and reduce import time by more than 50%.

Independent Technology Consultant, Mumbai, India
Freelancer **01 October 2020 – 02 May 2021**

- Built an end-to-end voice calling app with real-time speech translation using Python, JavaScript and Azure Speech AI.
- Developed a task scheduling server in Java with persistent TCP connections to schedule and fire HTTP Requests.
- Streamlined a Wealth Manager's accounting system by designing and deploying an online portal on AWS Cloud.

POSITIONS OF RESPONSIBILITY

President, The Tech Club of ASMSOC, NMIMS (2020 – 21)

- Grew the technical society from 7 departments and 60 members to 10 departments and over 200 members.
- Led the development of "EventSync", a mobile app that keeps college students updated about on campus activities
- Built an online arcade games platform to engage freshman students joining college remotely due to the pandemic.