

Sudarshan Vemarapu

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MACHINE LEARNING ENGINEER

Generative AI Engineer | Data Scientist | Data Analyst

Professional with hands-on experience in Machine Learning, Generative AI, and Data Science, skilled in Python, PyTorch, TensorFlow, SQL, and data analysis. Experienced in building ML models, fine-tuning LLMs, and developing AI-driven applications, with a strong focus on adaptability, problem-solving, and delivering impactful, data-centric solutions.

WORK EXPERIENCE

Supaboard - Bengaluru, India

Jan 2025 – March 2025

MACHINE LEARNING ENGINEER - Intern

- Designed and developed an advanced multi-class sentiment analysis model capable of predicting over 28 distinct emotions, extending beyond traditional polarity-based sentiment (positive, negative, neutral).
- Built a large-scale, balanced dataset consisting of 111,866 labeled training samples, 11,198 validation samples, and 5,598 test samples, drawn from reviews (Amazon, Flipkart, ProductHunt) and social media feeds (Twitter), with additional augmentation via synthetic data generation and AI-assisted labeling.
- Conducted model experimentation beginning with baseline methods such as FastText and exploratory use of LLMs for zero/few-shot classification to establish benchmarks.
- Advanced to transformer-based architectures, fine-tuning both BERT-base and RoBERTa-base models using Low-Rank Adaptation (LoRA) and custom classification layers to optimize contextual emotion detection.
- Explored alternative modeling strategies such as masked language modeling for emotion inference, where blanks are left within text, where model supposed to predicted the right emotion tokens. This approach showed promise on training data but underperformed on validation and test sets compared to direct classification.
- Achieved classification accuracy exceeding 85% on held-out test sets, demonstrating strong generalization and outperforming traditional models by a significant margin.

Unified Mentor - Remote

June 2024 – July 2024

DATA SCIENCE - Intern

- a data science internship focused on performing descriptive analysis and deriving actionable insights from multiple structured datasets.
- Worked with three distinct datasets and developed interactive dashboards using the Plotly library in Python, providing clear visualization of key findings.

- Conducted a bird strike analysis, uncovering patterns related to strike occurrences during takeoff, landing, and in-flight conditions, and examined correlations with flight altitude and atmospheric factors.
- Performed a heart disease dataset analysis, identifying major health-related features correlated with heart disease and quantifying relationships between patient attributes and disease occurrence.
- Delivered an employee attrition analysis, analyzing workforce data to detect correlations between job-related factors (salary, work-life balance, tenure) and attrition rates.
- Designed and deployed all three dashboards to Heroku, enabling interactive access to insights and facilitating decision-making through visualization-driven storytelling.

Fyipen Pvt. Ltd. - Remote

March 2023 – May 2023

FULL STACK DEVELOPER - Intern

- A full-stack development internship, contributed to three major projects: a tourism portfolio platform, an ed-tech application, and an e-commerce platform.
- Utilized a diverse technology stack including Python, JavaScript, TypeScript, React.js, Next.js, React Query, Tailwind CSS, Express.js, Nest.js, and FastAPI, with MongoDB as the primary database.
- In the tourism portfolio project, resolved critical hydration errors in the Next.js frontend and conducted API testing to ensure functionality and stability.
- In the ed - tech project, implemented frontend wireframes, developed reusable React components, integrated React Query for API communication, and built backend logic in Nest.js, including controllers, database connections, and API routes.
- In the e- commerce project, worked extensively on the backend with FastAPI, implementing optimized API routes, ensuring efficient database interactions, and integrating caching mechanisms to minimize response times.
- Applied best practices in logging, performance optimization, and scalability, ensuring APIs were production - ready, efficient, and maintainable.

PROJECTS

Unpaired Image to Image Translation

- An Image style transfer project for performing style transfer from monet to photo and vice-versa.
- Implemented using Cyclic Generative Adversarial Networks
- Got FiD score of 63 at around 30 epochs of training.
- Built model from scratch in PyTorch and trained on T4 GPU.

Github: <https://github.com/bheemisme/unpaired-img-to-img-translation>

EDUCATION

University of Madras - Chennai, India

M.Sc. Computer Science, May 2025

MIT World Peace University - Pune, India

B.Sc. Computer Science, May 2023 – 9.6 GPA

PROFESSIONAL SKILLS

- Languages: Python, Javascript/Typescript
- Machine Learning: TensorFlow, PyTorch, Scikit-learn, OpenCV, NLTK
- Databases: MySQL, MongoDB, DynamoDB
- Cloud: AWS EC2, AWS Lambda, GCP Vertex AI, GCP Cloud Run, GCP App Engine
- Data Analysis: Pandas, NumPy, Matplotlib, Seaborn, Plotly