

NIKHIL RAJESH NIGAM

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Machine Learning Engineer with 5+ years of experience in AI and Software Engineering, with a proven track record building scalable ML infrastructure, developing innovative models, and optimizing systems for efficiency.

TECHNICAL SKILLS

- **ML Frameworks, Libraries & Tools:** PyTorch, Lightning, FastMCP, LangChain, Milvus, MLflow, Weights & Biases, TensorFlow, Keras
- **Deployment & Cloud:** Flask, Docker, AWS (boto3, EC2, S3, EFS, Cognito), Linux, Git
- **Languages:** Python, SQL

WORK EXPERIENCE

modlee Inc, *Machine Learning Research Engineer*

Sept 2023 - Present

- Orchestrated the E2E development and deployment of a **vector database driven recommendation system**, expanding Modlee's **experiment catalog by 5x**, significantly enhancing model recommendation capabilities.
- Developed a **schema-driven Data Aggregator Agent** that leverages LLMs to transform unstructured text into structured SQL databases, automatically generating and validating SQL queries while maintaining data integrity through comprehensive testing frameworks.
- Led the design of enterprise-focused private Modlee solutions, extending core infrastructure for secure ML experimentation, including **setting up FastMCP servers** for efficient model deployment.
- Devised and implemented a **scalable AI driven data annotation scheme** that accelerated clients ML solution development by 20x without compromising quality.
- Enhanced Modlee's open-source MLOps client package by **improving data abstraction processes across 100s of datasets** and integrating it with MLflow for experiment tracking, and exploring new use cases.

InterDigital Inc, *Emerging Technologies Lab - Deep Learning Research Intern*

May 2022 - Aug 2022

- Developed a compression algorithm for wireless communication signals which **reduced bandwidth consumption by 40%** while compared to SOTA Channel State Information compression models.
- Integrated **Convolutional block Attention** mechanisms to a Fully Convolutional Autoencoder to **improve reconstruction quality by 10%** while maintaining input variability for highly-efficient bandwidth usage.

Vodafone Intelligent Services, *Vodafone PLC - Software Engineer*

Jul 2018 - Jul 2021

- Designated **Subject Matter Expert** of FinX, an in-house tool that automated all expense management and cost benefit analysis in Vodafone Group PLC.
- **Spearheaded E2E Design and Development** of Delegation of Authority API in FinX within the Agile CICD SDLC pipeline, used to automate the approval life-cycle of any financial corporate expense within the company.

EDUCATION

University of Wisconsin - Madison (WI, USA), *M.S in ECE, (Specialization: Machine Learning), GPA: 3.6/4.0*

May 2023

Maharashtra Institute of Technology - Pune (MH, India), *B.Engg. in Electronics & Telecommunication, Grade: A*

May 2018

RESEARCH PROJECTS

Denoising and Intensity Inhomogeneity Correction of MRIs

- Adapted N4 Correction with MONAI based **UNet via stable diffusion** to streamline usage of coils needed for high quality MRIs.
- Developed a 3-stage **unsupervised** set up to denoise MRIs by modifying the noise scheduler within stable diffusion.

German-English Translator using Transformers

- Created a user-friendly API using Flask for **interacting with a mini GPT** model and engaging with the system programmatically.
- Packaged the project into two separate pip packages: one for developer files and another for easy interaction with the API.

Style Agnostic bilingual Digit translation

- Designed a **novel CycleGAN architecture** to perform cross domain translation of unmapped images while maintaining implicit style.
- Successfully transferred explicit and implicit style features from a Hindi Digit to an English Digit using GANs.

CERTIFICATIONS

- **Specialization in Natural Language Processing** (*Advanced Specialization offered by Deep Learning.ai*)
- **Advanced Computer Vision** (*Advanced Specialization offered by Deep Learning.ai*)

Jul 2023

Jul 2023