HARSH PAL

Data Scientist 2 @ Mastercard, AI Garage Gurgaon, India

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EDUCATION

Indian Institute of Technology Bombay, Mumbai, India

2018-2023 GPA: 8.54/10

M.Tech + B.Tech in Electrical Engineering | Minor Degree in AI and Data Science

Thesis: Towards Novel Domain Adaptation Techniques

PATENTS AND PUBLICATIONS

• SALE-MLP: Structure Aware Latent Embeddings for GNN to graph-free MLP distillation Harsh Pal, Sarthak Mallik, Rajat Patel, Aakarsh Malhotra

IJCAI'25 (paper)

• Domain Adaptive 3D Shape Retrieval from Monocular Images Harsh Pal, Ritwik Khandelwal, Shivam Pande, Biplab Banerjee

WACV'24 (paper)

• Ad-clip: Adapting domains in prompt space using clip Mainak Singha*, Harsh Pal*, Ankit Jha, Biplab Banerjee

ICCV'23 (paper)

• TAG2M- A Task-Agnostic Knowledge Distillation Framework for Distilling GNN to MLP Ram Ganesh V, Ayush Singh, Aditi Rai, Harsh Pal, Deepanshu, Akshay Sethi, Aakarsh Malhotra, Sayan Ranu

KDD'25 (paper)

• Structure-Aware Graph-Free Knowledge Distillation for Efficient Graph Learning

patent-filed

• A Bidirectional Mechanism for Decentralised Consensus in Blockchain

patent-filed

• Systems and Methods for Domain Adaptive Graph Federated Learning

patent-filed

PROFESSIONAL EXPERIENCES

MasterCard, AI Garage (Gurgaon, India)

Data Scientist 2 | Pytorch, PySpark, XGBoost, Impala, SQL, Linux, GNN, Git, Pandas, Polars, SHAP

Jan'25 - Present

- Building credit risk models for new-to-credit and thin-file customers using Graph Intelligence on alternate data
- Built Sub-Merchant Risk Prediction (sMRP) ML model for payment-facilitator clients generating \$100M revenue
- Designed Federated Learning framework for fraud-prediction model across multiple cross-region transactional data
- Published 2 research papers on Graph Knowledge Distillation at A* AI conferences and filed 3 industrial patents

Data Scientist 1 | Python, PySpark, Langchain, LLM, Ollama, vLLM, OLoRA, CrewAI

Jun'23 - Dec'24

- Developed Agentic Chatbot for internal query, automating knowledge retrieval across policy and compliance documents
- Built a RAG tool for automated analysis and insights of financial documents for business decision support
- Developed transformer based next-transaction prediction model to enhance personalization and fraud detection
- Proposed intelligent solution in internal hackathon to boost recurring payment authorization success rates

Amazon, Team Alexa International

Applied Scientist Intern | Python, Pandas, Impala, Pyspark, Linux, Git, AutoML, XGBoost, SHAP

May'22 - Oct'22

- Built a machine learning model to identify Amazon Alexa users who are going to Churn in next month
- Performed Feature Engineering of 5 million+ data points, extracted using Redshift, on AWS Sagemaker
- Boosted F1-Score by 13% of the XGBoost model on test set by Feature Selection using ANOVA F-test
- Received **Letter of Recommendation** from the Mentor for Exemplary performance during the Internship

MAJOR PROJECTS

Graph Learning based Credit Scoring for NTC and Thin-file Merchants - Mastercard

Jan'25 – Present

- Working on low-latency Graph based credit scoring system integrated with a real-time user feedback app
- Leveraging GNN-based algorithm to effectively score NTC and thin-file merchants in the Mastercard payment network

Multi-Domain Chatbot for Marketing and Branding Team - Mastercard

Oct'23 - Jan'24

- Developed multi-domain chatbot by fine-tuning Mistral and Llama LLM integrated with vector databases and RAG
- Leveraged internal and external Mastercard assets for chatbot which was deployed for use by internal employees

3D Shape Retrieval with Domain Adaptation - M. Tech Thesis | Adobe Research, India

Jul'22 - Jun'23

- Working on a Novel problem statement of **Domain adaptation** in single **Image based 3D shape retrieval**
- Implementing Domain Adaptation in 2D and 3D domains by optimizing Smoothness and Adversarial loss
- Leveraging Language models to map feature vectors from 2D and 3D domains by Semantic Alignment

ACHIEVEMENTS ___

 Recipient of KVPY fellowsh 	ip award from Govt.	of India for pr	ursuing res	earch in Science
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2017

• Recipient of Internship offer from Prestigious NITI Aayog, Govt. of India in Data Management & Analysis

2021

• Won Silver Medal in Inter-IIT Tech Meet 11.0 at IIT Kanpur, India

2023

• Won Technical Person of the Year award from Hostel Technical council (IIT Bombay) among 200+ students

2021