

# HARDIK SRIVASTAVA

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Portfolio | LinkedIn | LeetCode | ResearchGate | Google Scholar | GitHub

## EDUCATION

**SRM Institute of Science and Technology** Chennai, TN  
*B.Tech in Computer Science Engineering with Specialization in Big Data Analytics* (CGPA 9.56) Jun 2023

## SKILLS

**ML/Research** Semi-Supervised Learning, Graph-ML, Ranking, Transformers, Sequence Modeling, Probabilistic Reasoning  
**NLP** Computational Linguistics, Entity Matching, NER, Multimodal Alignment, Contrastive Learning  
**CS/Tooling** Python, SQL, PyTorch, TensorFlow, Caffe, Sklearn, Spark, Kafka, W&B, HuggingFace, Optuna, LaTeX  
**Infra/MLOps** AWS, Docker, Kubernetes, Flask, MLFlow, Feature Stores, Data Version Control, Jenkins

## EXPERIENCE

**Applied Scientist 2 (Prev. Applied Scientist 1)** Jun 2023 - Present  
JPMorgan Chase & Co. *Hyderabad, India*

- Developed high-recall fraud classifiers using **XGBoost** and **CatBoost**, saving over **\$3B** worth of fraud in 2024. Leveraged **multi-objective optimization** and **monotonic constraints** to preserve feature interpretability.
- Led applied research on **Semi-Supervised Graph Neural Networks** for payment fraud detection across 60M+ transaction nodes. Implemented **topology-aware edge sampling** and **Dynamic Neighborhood Aggregation** in PyTorch Geometric, improving **precision** by **9.2%**.
- Developed and deployed a CLIP-style **Contrastive Pre-Trained Transformer** (ViT encoder & Transformer-based decoder) for end-to-end document OCR; OOT validations showed an improved field-level **text matching rate** by **19%**.
- Built a **Learning-To-Rank** model using **Pairwise Ranking Loss** for entity matching, outperforming the **BM25/TF-IDF baselines** on a 10M+ record dataset. Developed **fairness-aware** re-ranking algos to evaluate bias and audit decisions.
- Developed **Data Engineering** pipelines for high-volume transactions using PySpark. Performed **Feature Selection** using **Decision Trees** on **3x more features** than legacy models. Optimal features boosted **Fraud-Capture Rate** by **14%**.
- Collaborated with **JPM AI Research** on an **internal whitepaper** analyzing **explainability techniques** for gradient-boosted models, including SHAP, monotonicity constraints, and surrogate tree approximators.
- Mentored 2 interns** on projects involving **cross-lingual NER** and Drift Detection in Commercial Card payment streams.

**Research Intern** Jun 2022 - Sept 2022  
McGill University - *Mitacs Scholar* *Montreal, QC*

- Developed a **Vocabulary Expansion** model for **AAC research** using Affinity Propagation and **SWOW** embeddings. Baseline comparisons (**COCA**) revealed a **4.41 unit mAP gain** and a **21% decrease** in OOV words for test cues.
- Delivered a POC on creating **Sentence-based** embeddings trained on RoBERTa to capture word-context in image captions. Achieved **Krippendorff's** alpha reliability score of **0.82** on 514 photos, tuning the existing vocabulary generation system.

**Machine Learning Engineer - Intern** Jan 2022 - Jun 2022  
Samsung Electronics *Bangalore, KN*

- Achieved **FP32 accuracy** for INT8 inference using **Quantization Aware Training** for a Word-Disambiguation model. Led to **2.9% improvement** over baseline F1. Collaborated on Model Serving using **NVIDIA Triton** & **TFLite** in Prod.

## PROJECTS

**Auto-Explainability and Evaluation of LLMs** Developed a framework for Transformer explainability by visualizing prediction attributions using Integrated Gradients in TensorFlow. Integrated with MLFlow Evaluation API for auto-eval.

**No-Code Algo-Trading Engine** Developed a domain-specific language with Mean Reversion strategies to create & execute trades Added a risk-assessment model using Backpropagation, reducing risk by 15.2% compared to open-sourced models.

## PUBLICATIONS

- Srivastava, H.** (2023). Multi-Modal Sentiment Analysis Using Text and Audio for Customer Support Centers
- Srivastava, H.** (2023). Neural Text Style Transfer with Custom Language Styles for Personalized Communication Systems
- Srivastava, H.** (2021). Using NLP Techniques for Enhancing Augmentative and Alternative Communication Applications

## ACCOMPLISHMENTS

- Certifications** — AWS Certified Cloud Practitioner, AWS Certified Machine Learning Specialist
- 1st Position** — JPMC ScaleUp (2024), JPMC AWS DeepRacer Regionals (2023), Smart India Hackathon Nationals (2023)