Prashank Kadam

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WORK EXPERIENCE

Cerby

Principal Machine Learning Engineer

Boston, MA | Sep 2025 – Present

- Led the design of AI-driven workflow code generation using transformer-based language models and graph machine learning, modeling user interactions, DOM structure, and execution flows as graphs to generate, validate, and evolve CHAOS automations.
- Architected multimodal ML systems leveraging Scout and Replayer data (DOM, rrweb events, screenshots, videos, and failure traces) to power error classification, failure clustering, and drift detection in production workflows.
- Built and owned scalable end-to-end ML infrastructure on AWS, including data pipelines, SageMaker training pipelines, model deployment, and monitoring, enabling reliable iteration toward self-healing automations.

Vesta Corporation

Principal Machine Learning Engineer

Boston, MA | Jan 2025 – Sep 2025

Senior Machine Learning Engineer

Boston, MA | Jan 2022 – Jan 2025

- Led design and deployment of graph-based fraud detection systems using GNNs and custom graph algorithms, including JA-GNN which outperformed state-of-the-art methods on proprietary and public datasets, improving risk attribution by over 20% across multi-block transaction networks.
- Built distributed graph pipelines with PySpark, DGL, Neo4j, and Redis, including a custom in-memory graph library enabling real-time subgraph extraction, similarity scoring, and risk propagation.
- Engineered scalable data pipelines for temporal and graph-based feature generation over billions of transactions, enabling efficient training and inference for large-scale fraud models.
- Delivered end-to-end ML solutions on Azure, containerized with Kubernetes (AKS), integrating graph outputs into downstream risk models and real-time scoring workflows.
- Collaborated with investigators and cross-functional teams to convert user stories into graph-native features and deployed models using open-source ML frameworks like PyTorch and DGL.

Relevant Papers:

Financial Fraud Detection using Jump-Attentive Graph-based Learning (ICMLA 2024) (link)

Graph machine learning paper using Graph Neural Networks with attention-based residual connections to detect fraud in financial transactions. Outperforms state-of-the-art algorithms on benchmark datasets.

Enhancing Financial Fraud Detection with Human-in-the-Loop Feedback and Feedback Propagation (ICMLA 2024) (link)

Analyzes the impact of human-in-the-loop feedback on financial transactions and proposes a novel algorithm that propagates feedback signal further into the graph.

GPT-Guided Monte Carlo Tree Search for Symbolic Regression in Financial Fraud Detection (CIKM 2024 RAGEnt Workshop) (link)

Foundation model trained on Symbolic Regression to generate rule sets for financial fraud detection. Rule sets run 60x faster than other state-of-the-art methods.

Waters Corporation

Machine Learning and Optimization Engineer (Intern)

Boston, MA | Jan 2021 – Jul 2021

- Built and optimized end-to-end ML pipelines to reduce liquid chromatograph equilibration time by 30%, employing advanced signal decomposition on time-series sensor data.
- Integrated AWS Redshift with PySpark-based ETL pipelines and deployed a Streamlit application on EC2, streamlining real-time data ingestion and SME collaboration for model lifecycle management.

Relevant Papers:

Accelerating Neural MCTS Algorithms using Neural Sub-Net Structures (AAMAS 2023) (link)

Step-MCTS: subnet structures within the complete network, each simulating a tree that provides lookahead for exploration. Optimizes training times of state-of-the-art AlphaZero MPV-MCTS.

Maersk Tankers
Data Scientist
India | Mar 2019 – Dec 2019

- Developed HPC-ready genetic optimization models for vessel routing, integrating climatic and onboard sensor data to achieve a 14% improvement in fuel efficiency.
- Implemented a Flask-based web app transitioning vessels from HSFO to VLSFO, containerized and deployed on Kubernetes for real-time, high-performance fuel management.
- Partnered with operations and technology teams to develop distributed, data-driven solutions using PySpark pipelines, optimizing maritime logistics and reducing operational costs.

Accenture Solutions Private Limited
Data Analyst
India | Nov 2016 – Mar 2019

- Built and deployed predictive pricing models using Spark MLlib on high-volume utility data, enabling real-time rate adjustments for electric and gas clients.
- Collaborated with data engineers and domain experts to streamline data pipelines and integrate open-source ML frameworks for more efficient model experimentation.

EDUCATION

University of Chicago Booth School of Business (Chicago, IL)
Master of Business Administration
Concentration: Economics and Strategy

Northeastern University (Boston, MA)
Master of Science, Data Science (Thesis Track) | GPA: 3.90
Thesis: Optimizations over Neural MCTS for Combinatorial Games (Advisor: Karl Lieberherr, Reader: Chris Amato).
Coursework: Algorithms, Supervised/Unsupervised Machine Learning, Information Retrieval, Statistics.

Harvard University (Cambridge, MA)
Cross-Registration from NEU | GPA: 4.00
Coursework: Deep Reinforcement Learning

University of Pune (Pune, India)
Bachelor of Engineering, Electronics | First Class with Distinction
Coursework: Object Oriented Programming, Data Structures, Digital Signal Processing

TECHNICAL SKILLS

- **Languages:** Python, R, SQL, PostgreSQL
- **ML Methods:** Bayesian methods, Tree-based learners (XGBoost, RF), GNN, CNN, RNN, LSTM, GAN, BERT, DRQN, Neural-MCTS
- **Frameworks & Libraries:** PyTorch, Keras, Scikit-learn, Statsmodels, DGL / PyG, Spark MLlib, Pandas / NumPy
- **Cloud & Infrastructure:** AWS (SageMaker, EC2, S3, ElasticSearch, Lambda, Redshift), Azure (ML Studio, Cosmos, AKS), Neo4j, Redis, PostgreSQL
- **Distributed & HPC:** PyTorch Distributed, Horovod, Ray, DeepSpeed, Dask, PySpark, Docker, Kubernetes, Slurm, MPI, MLFlow, Weights & Biases

ACADEMIC PROJECTS

Health Care Entities and Relationship Extraction (Deep Learning, NLP) Jan 2021 - Apr 2021
BioBERT-based models for extracting NERs from EHR data and a market-basket model for Relationship Extraction (RE) between extracted NERs to produce knowledge graphs.

Meta Learning based Training for Deep Reinforcement Learning Agent (Advisor: Prof. Karl Lieberherr)
Implemented ideas from Discovering Reinforcement Learning Algorithms (Oh et al.) using the backward LSTM approach. Tested on Nim, Othello, Connect4.

Data Processing and Modeling Tool (Python, Dash, Heroku, Statsmodels, Plotly) Jan 2020 - Apr 2020
Web application that lets the user upload a dataset and perform analysis or modeling using various machine learning algorithms.

StarGAN for Multi-domain Image Translation (Computer Vision, TensorFlow) Jan 2020 - Feb 2020
Translates human faces across domains (expressions, color, gender, age) using the GAN configuration from StarGAN (Choi et al.).

Integrating MPV-MCTS and Metacontroller with Persephone (Advisor: Prof. Karl Lieberherr)
Multiple policy-value networks combined with the metacontroller from Deepmind's Agent 57 to achieve balanced learning in AlphaZero for combinatorial gaming problems.

TALKS AND TEACHING

- Machine Learning Faculty Development Program, Visiting Lecturer, University of Pune (Feb 2025)
- Introduction to Reinforcement Learning, Visiting Lecturer, University of Pune (Nov 2022)
- First Order Problem Solving using Neural MCTS based Reinforcement Learning, Multidisciplinary Workshop on Stochastic Modelling and Monte Carlo Tree Search, TU Munich (Oct 2022)
- Machine Learning Fundamentals, Visiting Lecturer, University of Pune (Apr 2022)

REVIEWING

- Reviewer - ICML 2026
- PC Member - NeurIPS 2026
- PC Member - SIGKDD 2026 (Feb & Aug cycles)
- PC Member - ACM WebConf 2026
- PC Member - SIGKDD 2025 (Feb & Aug cycles)
- PC Member - SIGKDD 2024 (Feb cycle)
- Reviewer - CIKM 2024

ACHIEVEMENTS AND ACTIVITIES

- Northeastern University Research Fellowship
- Northeastern University Tuition Scholarship
- Teaching Assistant, Northeastern University
- Accenture Celebrates Excellence Award (Sep 2018)
- Accenture Outperformer Award (Feb 2018, Feb 2017)