Aarti Kumari

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Education

University of Massachusetts Amherst **Expected Graduation: December 2026**
Master of Science in Computer Science ***GPA: 3.91***

- Coursework: Machine Learning, Reinforcement Learning, Trustworthy & Responsible AI, Algorithm for Data Science, Meth Applied Stats, Database Implementation and Design.

West Bengal College of Engineering and Technology, India **August 2012 – May 2016**
Bachelor of Technology in Electronics & Communications ***GPA: 8.7/10.0***

- Relevant Coursework: OOPS, DBMS, Core Java, C, Data Structures, Design Pattern, Satellite Communication

Technical Skills

Programming & Scripting: Java, Python, R, Shell Scripting (Linux/UNIX), OOPS, Data Structures & Algorithms, Design Patterns, Ansible
ML/AI: Machine Learning, Temporal Graph Neural Networks, GraphSAGE, Deep Learning, Neural Network, Reinforcement Learning, Artificial Intelligence, GenAI, NLP, RAG, SLM, LLM.
Frameworks, Tools & Systems: PyTorch, TensorFlow, Scikit-learn, FastAPI/Flask, RestAPI, GraphQL, Spring Boot, Docker, Jenkins, Git, Splunk, Datadog, Multithreading, Concurrency, Distributed Systems, CI/CD, Microservices.
Databases: MySQL, PostgreSQL, Snowflake, MongoDB, Query Optimization, Data Pipelines, Block Nested Loop, Buffer Manager.

Industry Experience

PayPal **Bengaluru, India**
Software Engineer 2 ***September 2022 – August 2024***

- Re-engineered post-payment pipelines using **multi-threaded concurrency**, reduced latency from **10X to 3X**, with improved throughput and fault tolerance for **436M+** active accounts; improved end-to-end integration test coverage to **95%.**
- Led and built the **NFC payment** backend for the wallet domain using (**REST APIs** & **Spring Boot**); facilitated secure **offline transactions** and reinforced payment security, resulting in increased user count and **12%** revenue gains across Europe zone.
- Developed **Top Contacts Recommendation** system using Learning-to-Rank (**LTR**) models, which improved prediction by **86%.**
- Received **formal recognition** from PayPal Director for Send-Money core services optimization; enhanced **27%** system efficiency.
- Inducted**, mentored** and **trained 4 juniors** on Send-Money end to end flows to strengthen PayPal's live support team.

Altimetrik **Bengaluru, India**
Senior Software Engineer ***June 2021 – August 2022***

- Implemented **six post-payment modules** with improved fault tolerance, throughput and performance by **60%.**
- Delivered Collections and Risk APIs and integrated ML models, including a **Delinquency Prediction Model** by using **Spring Boot** and **REST APIs** to flag high-risk accounts and enable early interventions with **96% accuracy**.

Dell EMC **Bengaluru, India**
Software Developer ***May 2017 – June 2021***

- Engineered **Voyager** platform provisioning using Python, Ansible, and iDRAC APIs with a **92% reduction** in configuration time, enabling faster customer on-boarding, and earned the **2020 Spot Award** for delivering the Voyager fast-configuration backend.
- Developed **VPLEX** UI integrations with **REST** v2 handlers using **Java and Angular JS**, which enriched user interface functionality.
- Validated SRM solution packs (MS-SQL, Oracle-SQL, MySQL, Hypervisor) via **Dockerized Jenkins CI/CD** pipelines cutting manual QA effort by **75%** and allow continuous nightly builds.

Research & Projects

Research Assistant, UMass Amherst (Prof. Marco Serafini) GitHub **June 2025 – Present**

- Implemented **Relational DB** to **Temporal Graph** pipelines on Rel-Bench dataset (Rel-Amazon **24M+** rows) with efficient sampling for faster retrieval and predictions and converted into graph with timestamps.
- Developed dynamic graph updates and **memory-efficient GNN training**, benchmarked **GraphSAGE vs TGNNs** with **15–17% accuracy gain**.

UAI Dream AI Hackathon – Finalist (Cambridge, June 2025) GitHub

- Led and designed an **AI-powered matchmaking platform** using Java REST APIs (Spring Boot), React and **Flask Microservices**.
- Developed **OCR (Tesseract)** for KYC, **CNN** embeddings (**92% accuracy**) for face validation and **Transformer NLP + Jaccard similarity** for compatibility scoring.
- Enhanced platform **security** with GPS validation, Maps API, and Twilio-based real-time alerts; awarded **Top 10 finalist** recognition among 100+ teams.