

# Debankur Saha

## Senior Machine Learning Engineer

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Machine Learning Engineer with 11 years of experience designing and deploying production ML systems across fintech and enterprise SaaS. Specialized in ML system architecture, model deployment strategies under real-world latency, cost, and reliability constraints. Strong background in Kubernetes-based ML platforms, cloud-native architectures, and end-to-end ML lifecycle ownership.

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### Work Experience

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#### Senior Software Engineer II - Machine Learning

Feb 2023 – Present

*Bottomline Technologies*

- Designed and owned the end-to-end ML deployment architecture, balancing security, latency, and cost constraints across multi-tenant Kubernetes environments.
- Leading a 3-person team building an ML-based vendor deduplication and search system for Bottomline's flagship B2B payments network (600,000+ verified businesses), improving match accuracy and reducing duplicate vendor entries.
- Built a provider-agnostic AI Gateway (AWS Bedrock, OpenAI-compatible APIs) with dual auth support (Keycloak/JWT and static API keys), rate-limiting, and observability.
- Defined standard ML system design patterns (training, inference, monitoring, CI/CD) adopted across teams to reduce deployment time and operational incidents.
- Modernised org-wide Python CI/CD pipeline to support uv and pyproject.toml while maintaining full backward compatibility with legacy setup.cfg-based repositories across the organisation.

#### Machine Learning Engineer

Sep 2021 – Jan 2023

*TDCX*

- Owned ML components for the Digital Lab, identifying architectural gaps and introducing MLOps best practices across projects
- Designed containerized inference architectures for ML services using Docker and REST APIs
- Led cost-optimization initiatives by replacing paid AI services with open-source alternatives.
- Built in-house translation and facial feature recognition services using open-source models and libraries
- Implemented Devops best practices in non-ML projects to optimise server usage

#### Data Scientist / Computer Vision Engineer

Jun 2020 – Sep 2021

*Axis Bank*

- Designed an automated PAN validation system combining OCR, NLP validation logic, and human-in-the-loop fallback, achieving 85–90% accuracy while reducing manual review load.
- Automated image-to-video validation for KYC verification during customer onboarding.
- Built verbal KYC authentication solution using Azure Speech to Text with regional language support
- Co-Created dispute resolution solution in the FASTag operations using OCR to extract and parse toll receipts and validate duplicated payments.

#### Developer / Data Scientist

Sep 2015 – May 2020

*Tata Consultancy Services*

- Built a Gesture-based rating system using transfer learning on MobileNetV2, fine-tuned for custom gesture recognition and deployed as Flask APIs on Azure App Service.
- Built TensorFlow-based email classifier for service ticket triage; introduced Dockerization to eliminate deployment dependency conflicts
- Built voice-integrated chatbot using Dialogflow, Twilio, Azure Cloud Functions, Cosmos DB, and Node.js/Express

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## Skills

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### Machine Learning Systems

- Model lifecycle design
- Training & inference pipelines
- Model monitoring & drift detection
- Feature engineering & evaluation

### Cloud Platforms

- Google Cloud Platform (GCP)
- Amazon Web Services (AWS)
- Microsoft Azure

### Programming Languages

- Python
- JavaScript (NodeJS)

### ML & AI

- Deep Learning (CV, GenAI, LLMs)
- TensorFlow, PyTorch, Scikit-Learn, Huggingface Transformers

### Platform & Infrastructure

- Kubernetes, Docker, Helm
- ArgoCD
- Hashicorp Vault
- CI/CD (GitLab)
- MLFlow
- CUDA
- Snowflake

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## Open-Source Contribution

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### PyTorch Contributor

- Restored functionality of the official PyTorch CUDA 12.8 devcontainer by hotfixing the cuda-keyring dependency architecture and standardizing apt package naming conventions.
- Resolved critical repository linting blocks by debugging and patching internal validation rules within the project's build infrastructure (.spin/cmds.py).
- Collaborated with core maintainers to navigate CI/CD pipeline irregularities and successfully merge infrastructure fixes.

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## Certificates

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- **AWS Certified AI Practitioner** (Amazon Web Services / AWS)
- **Machine Learning Basic Nanodegree** (Udacity)
- **Deep Learning Nanodegree** (Udacity)
- **Computer Vision Nanodegree** (Udacity)
- **Deep Reinforcement Learning for Enterprise** (Udacity)
- **Machine Learning in the Enterprise** (Coursera)
- **Production Machine Learning Systems** (Coursera)

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## Awards

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### Scholarships Awarded

- Udacity Pytorch Scholarship from FacebookAI
- Udacity Secure and Private AI Scholarship from FacebookAI

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## Education

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### Bachelor of Technology in Electronics and Communication Engineering

*Netaji Subhash Engineering College*

2011 – 2015 | Kolkata, India

### West Bengal Council of Higher Secondary Education

*Calcutta Airport English High School*

2009 – 2011 | Kolkata, India

### West Bengal Board of Secondary Education

*Calcutta Airport English High School*

1999 – 2009 | Kolkata, India