

# Shad Humydee

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## Value Proposition

ML-focused Software Engineering Leader with **7+ years** of experience specializing in NLP, Agentic AI, and Recommender Systems. Delivered production ML systems serving **10M+ users** across enterprise and government organizations. Experienced in architecting full-stack ML systems, leading cross-functional teams, and driving measurable business impact through AI innovation.

## Professional Experience

### Senior Data Scientist

*Optimizely*

*Dec 2023 – Present*

*Remote, UK Team*

- Architected and deployed **OPAL Evals**, a production-grade AI evaluation framework scoring conversational agent outputs using multi-model **LLM-as-a-Judge (Gemini, Claude)** across **5 quality dimensions**. Designed a stateless evaluation engine API, CI/CD pipeline integration (**GitHub Actions**) with threshold-based release gating, and an internal experimentation UI — reducing agent debugging time from **2–3 days to under 4 hours** and enabling **5x faster** prompt iteration cycles.
- Architected **Synapse**, a hybrid AI agent memory system for OPAL (**Optimizely's agent orchestration platform**), enabling personalized AI experiences through long-term memory and contextual intelligence. Built async microservices using **FastAPI + Python 3.13** with real-time webhook ingestion, processing **10K+ agent interactions/day**.
- Engineered **CMAB recommendation engine** using contextual multi-armed bandits and XGBoost, handling **5K requests/second** for real-time ML predictions. Secured a major US financial services client with tens of millions of customers, reducing regret by **15%** and boosting conversions by **8%**.
- Built **AI-Backend**, a production-grade multi-tenant API gateway routing requests across **Azure OpenAI, Google Vertex AI/Gemini, and Replicate**. 3-layer architecture with streaming support, token-bucket rate limiting, and GKE deployment (**10 replica pods**, auto-scaling) with **Datadog APM** observability.

### Software Engineer II (AI/ML)

*Infolytx Inc.*

*Jan 2023 – Nov 2023*

*Hybrid, Dhaka*

- Led architecture and delivery of the **Avicenna Healthcare NLP platform** using **spaCy, SciSpacy, AWS Comprehend Medical**, enabling physicians and insurance providers to process **500K+ patient records**, cutting assessment time by **50%**.
- Conducted PoCs and R&D integrating NLP/ML techniques with **AWS (DynamoDB, S3, EC2)** for healthcare applications, improving decision-making speed and accuracy across hospital networks.
- Mentored **2–3 junior engineers**, scaled team capability by **30%**, and established ML delivery best practices and code review standards.

### Software Engineer I (AI/ML)

*Infolytx Inc.*

*Jan 2022 – Dec 2022*

*Hybrid, Dhaka*

- Shipped healthcare ML product from demo to MVP using **scikit-learn, TensorFlow**, reducing development-to-deployment cycle by **60%** and enabling real-time patient risk scoring.
- Built scalable ML/NLP pipelines with **Python, MySQL, AWS SDK (boto3)** processing **100K+ EMR records/day**, improving clinician workflow efficiency.
- Ensured **HIPAA compliance** through security best practices, peer code reviews, and production-ready ML workflow documentation.

### Junior Software Engineer (AI/ML)

*Infolytx Inc.*

*Jul 2021 – Dec 2021*

*Hybrid, Dhaka*

- Built NLP solutions on EMR data using **NLTK, spaCy, NegSpacy**, improving clinical insight extraction accuracy by **25%** and reducing physician manual review workload.
- Enhanced ML model reliability via preprocessing, error handling, and **AWS cloud integration**, reducing pipeline failures by **30%**.

### Machine Learning Engineer

*Apurba Technologies Ltd.*

*Mar 2021 – Jun 2021*

*Remote, Dhaka Team*

- Developed OCR preprocessing pipelines for Bangla language using **OpenCV, Pillow, and Cycle-GAN**, improving image-to-text conversion accuracy by **29%** as part of a national digitization initiative.
- Built predictive ML models using **scikit-learn, pandas, NumPy** processing **10K+ daily data points** for client analytics and decision-making.

## Earlier Experience

### Senior Business Analyst & Business Analyst

Integrated Software and Technologies Ltd.

Aug 2018 – Feb 2021

Dhaka, Bangladesh

- Secured high-ticket contracts including a **\$2.5M** project win, preparing technical proposals for clients including **IOM, UNDP, UNODC, WFP** and government bodies.
- Led technical documentation and stakeholder coordination for complex government and enterprise systems, reducing onboarding time by **35%** and project delays by **20%**.

## Technical Skills

### Agentic Workflows & Orchestration

LangChain, RAG Architectures, LLM-as-Judge, Prompt Engineering, Tool Calling, Multi-step Reasoning

### LLM APIs

OpenAI (GPT-4o, Embeddings, DALL-E), Google Gemini, Anthropic (via Vertex AI)

### Machine Learning

XGBoost, TensorFlow/Keras, Scikit-Learn, Transformers (BERT, T5), CMAB, Recommender Systems, SHAP/LIME

### Data Science

NumPy, Pandas, spaCy, SciSpacy, NegSpacy, NLTK, TensorBoard, Matplotlib, Seaborn

### ML Ecosystem

MLflow, Weights & Biases

### Languages & Frameworks

Python (FastAPI), TypeScript, Java

### AI-Assisted Engineering

Claude Code, GitHub Copilot, Cursor

### Architecture Patterns

Event-Driven, Microservices, API Gateway

### Cloud & Infrastructure (GCP-Focused)

Vertex AI, GKE, Compute Engine, Pub/Sub, Cloud Spanner, Cloud Run, Scheduler, Storage, BigQuery, Datastore, Docker, Terraform

### Databases & Storage

MySQL, PostgreSQL, Redis, DynamoDB, BigQuery

### CI/CD

GitHub Actions, Bitbucket Pipelines, Jenkins, Groovy

### Logging & Monitoring

Datadog

## Education

### MSc in Computer Science and Engineering

United International University, Bangladesh

Expected 2026

Focus: Machine Learning, Deep Learning, Natural Language Processing

### BSc in Naval Architecture and Marine Engineering

Military Institute of Science and Technology, Bangladesh  
computational methods

Jan 2014 - Dec 2018

Interdisciplinary foundation in engineering, mathematics, and

## Key Honors and Awards

- **Judge**, Bangla LLM Mathematical Reasoning Challenge, BUET CSE Nov 2024  
– Evaluated **15+ teams** building Bangla language models for mathematical reasoning, assessing model architecture, prompt engineering, and benchmark performance.
- **World Finalist**, European Rover Challenge 2016, Poland — Ranked **22nd globally** Sep 2016

## Certifications

- **Diagnosing Application Bugs with Datadog APM**, Datadog Oct 2025
- **Veracode Security Labs Champion Level 1**, Veracode Sep 2025
- **Introduction to PCI DSS for Developers**, Veracode Mar 2025
- **Software Security Awareness - OWASP Top 10 2021**, Veracode Mar 2025

## Languages

- **English** — Native/Bi-Lingual Proficiency (daily collaboration with UK/US teams)
- **Bengali** — Native/Bi-Lingual Proficiency