

Dhruv Mishra

dhruvmishra.id@gmail.com — (+91) 95993-77944 — linkedin.com/in/dhruv-mishra-id — github.com/Dhruv-Mishra — whoisdhruv.com

Summary

Software Engineer at Microsoft building production **AI-agent workflows**, retrieval-augmented generation (**RAG**) applications, and high-scale backend systems across **C#, TypeScript, React**, and **Python**. Shipped Model Context Protocol (**MCP**)-backed incident-triage workflows with Kusto/service-health tool use, human escalation paths, and measurable workload reduction; also delivered secure enterprise services and cost/performance optimizations for a **7B+ requests/day** Service Fabric platform.

Experience

Software Engineer

Microsoft

Jun. 2024 – Present

Noida, India

- Built Model Context Protocol (**MCP**)-backed LLM incident-triage workflows for Microsoft Shell Platform, exposing Kusto, service-health, and configuration tools through structured tool calls, fallback logic, and human escalation paths; reduced manual low/mid-severity triage workload by **40%**.
- Enabled enterprise PDF encryption across Word, Excel, and PowerPoint by isolating a C++ encryption SDK behind a managed **C# proxy** integrated with Azure Rights Management Service (RMS); removed direct SDK network egress, constrained native-code execution, and reduced buffer-overflow attack surface.
- Reduced annual Azure infrastructure spend by **\$240k (15%)** for a **7B+ requests/day** Service Fabric backend by tuning Geneva log retention, improving Redis cache hit ratio from **31% to 80%**, and retuning autoscaling across **12+ VM Scale Sets**; measured impact with 3 months of Geneva/Kusto telemetry.
- Reduced measured Excel Compose shimmer initialization latency from **180ms to 3ms** by tuning Android Runtime (ART) JIT/baseline-profile warmup, hoisting state, batching XML inflation, and pre-warming the view tree; validated perceived-load improvement through staged rollout telemetry.
- Primary maintainer of Fluent UI for Android, Microsoft's open-source Compose component library; shipped **10 releases** consumed by Copilot, Office, Outlook, OneDrive, and Teams while owning release publishing, security hardening, and compliance readiness.

Machine Learning Engineer

growIndigo

Feb. 2024 – Jun. 2024

Delhi, India

- Replaced manual Google Earth Engine crop-classification workflows with a Python XGBoost + Random Forest pipeline, improving accuracy from **80% to 93%** and moving feature extraction off Earth Engine onto reusable Python infrastructure.

Software Engineering Intern

Microsoft

May 2023 – Jul. 2023

Noida, India

- Architected a **TypeScript** connection-management backend for Microsoft Loop to synchronize Jira, Trello, and GitHub connection state; later reused as the shared backend abstraction for Loop third-party integrations.
- Integrated GitHub and Azure DevOps **REST APIs** into the Microsoft Power Platform Connector, enabling reusable automation workflows; raised related module test coverage to **over 60%**.

Projects

Jarvis – Voice AI Dispatch Agent — jarvis.whoisdhruv.com — *Next.js, TypeScript, Python, MCP, RAG, STT/TTS*

Voice-driven dispatch agent that takes/places calls, navigates the web app, opens maps, submits quotes, and supports rate negotiation through an **MCP tool layer** with an LLM planner, RAG over load/carrier context, streaming tool calls, and per-tool fallbacks.

AI Portfolio — whoisdhruv.com / staging — *Next.js, TypeScript, RAG, multi-cloud, Cloudflare*

Server-rendered portfolio with an LLM-backed chat grounded in a RAG index over writing/projects; deployed to production and staging Ubuntu VMs behind Cloudflare and Nginx reverse proxies, with GitHub Actions for CI and deployments.

Cropio – Multimodal Image Editor — cropio.whoisdhruv.com — *TypeScript, IndexedDB, OpenCV, embeddings, multimodal LLMs*

Browser-based image editor with semantic image search powered by multimodal LLM captions and client-side vector indexing in IndexedDB; uses OpenCV pose detection for local auto-cropping.

Technical Skills

AI & ML: Agentic AI, Model Context Protocol (MCP), LLM tool/function calling, RAG, embeddings, multimodal LLMs, voice agents (STT/TTS), fine-tuning, LoRA/QLoRA, quantization, XGBoost, Random Forest, OpenCV

Languages: C#, TypeScript, Python, C++, Kotlin, Java, JavaScript, SQL

Frontend: React, Next.js, TypeScript web apps, Tailwind CSS, NPM, Jetpack Compose, XML

Backend & Cloud: Kubernetes, Docker, VM Scale Sets, autoscaling, Redis, Cosmos DB, REST APIs, Node.js, Nginx, Linux, Cloudflare, GitHub Actions, Azure DevOps, Azure Service Fabric, Azure RMS, production telemetry, Kusto and Azure Data Explorer (ADX); **Cloud**

Providers: Azure, Google Cloud Platform (GCP), Oracle Cloud Infrastructure (OCI)

Concepts: AI product engineering, distributed systems, system design, REST API integration, performance/cost engineering, observability, applied cryptography (RSA/AES, certificate pinning, IPC sandboxing), CI/CD, SQL and NoSQL databases

Education

Indraprastha Institute of Information Technology (IIIT-Delhi)

Delhi, India

B.Tech, Computer Science and Applied Mathematics (Honors) – CGPA 8.96 / 10.0, Academic Honors

Dec. 2020 – May 2024

- Course Recommendation System: Built a Python ML/NLP similarity-scoring recommender under Prof. Dhruv Kumar to match courses for students and instructors across multiple input parameters.
- Relaxed Concurrent Counting Bloom Filters: Distributed Computing Lab (DCLL) researcher under Prof. Bapi Chatterjee; designed a lock-free C++ Counting Bloom Filter (CBF) with **3x** throughput over a baseline CBF in multithreaded high-contention workloads.

Achievements

Competitive Programming: Codeforces Expert (1703) — CodeChef 5-star (Peak Rating: 2003) — Google Code Jam 2023 Round A #291 — Google Kick Start 2022 Round H #353

Award: Microsoft Hackathon (E+D FHL) 2026 Most Voted Award, “Shell Assistant” – autonomous incident response agent

Award: Microsoft Hackathon (E+D FHL) 2025 Fundamental Category Award, “WXP ActionEase” – Jetpack Compose UI revamp for modernized Office app performance

Publication: *Relaxed Concurrent Counting Bloom Filters.*