

# Pranjal Chalise

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## EXPERIENCE

### Abnormal AI

Incoming Software Engineer — Threat Narrative Team

San Francisco, CA

Starting July 2026

### Microsoft

AI/ML Software Engineering Intern — CoreAI

Redmond, WA

Jun 2025 – Aug 2025

- Architected an edge-ready multimodal video segmentation and inference pipeline using 4 SLMs (Gemma-3, Phi-4, Qwen-VL, Mistral-Pixtral) via Hugging Face Transformers, CUDA-optimized on A100 GPUs.
- Fine-tuned SLM variants using PEFT (QLoRA) and quantization, boosting **precision 42%→62%** and **recall 37%→42%** under edge constraints.
- Delivered an SLM inference system for edge devices with asynchronous processing and multimodal transcript fusion, plus evaluation scripts, model comparisons, and a client adoption roadmap.

### Microsoft

Software Engineering Intern — AI Platforms (AIP)

Redmond, WA

May 2024 – Aug 2024

- Developed a cross-platform multimodal AI application in .NET MAUI with real-time LLM processing and prompt engineering, integrating the OpenAI API for computer-vision and accessibility workflows.
- Architected IoT connectivity and scalable mobile integration for **Brilliant** and **Meta Frames** within **Seeing AI**, running 100+ latency-profiling experiments to **deliver sub-5s multimodal AI assistance** for **100,000+ visually impaired users**.

### e-Educators Nepal

Founder

Kathmandu, Nepal

Aug 2021 – Aug 2023

- Founded and scaled a non-profit EdTech startup building apps for academic resource sharing among Nepalese high schoolers, managing a cross-functional team of 8 developers.
- Shipped 2 production Flutter apps on the Google Play Store, serving **20,000+ active high school users** at 4.8+ stars.

## EDUCATION

### Amherst College

Bachelor of Arts in Computer Science & Mathematics (Double Major)

Amherst, MA

2026 Graduate

- GPA:** 3.70 / 4.00
- Relevant Coursework:** Machine Learning, Artificial Intelligence, NLP, Computer Systems, Algorithms, Probability & Computing, Abstract Algebra, Real Analysis, Differential Geometry, Combinatorics, Graph Theory, Evolutionary Computing

### MIT Schwarzman College of Computing

Machine Learning Fellow — Final Grade: 94%

Cambridge, MA

Summer 2024

### AIT Budapest

Semester Abroad in Advanced Computer Science

Budapest, Hungary

Jan 2025 – May 2025

- Coursework:** NVIDIA Deep Learning, Data Science, Cryptography, Android Development

## PROJECTS

### Research Studio (Deep Research Agent) | LangGraph, Python, Tavily, OpenAI

- Built an end-to-end agentic research system (planner → retrieval → ingestion → synthesis → reflection) that produces evidence-grounded reports with **inline citations**.
- Developed an evaluation harness and regression suite benchmarking groundedness and reliability (citation coverage, claim-level verification, confidence calibration); cut average runtime from **150s to 54s (64% faster)** via a parallel multi-agent design.

### Kisan App | Flutter, Flask, PostgreSQL, ETL

- Architected a distributed ETL pipeline scraping 10+ Nepali government and news sources via Flask APIs and PostgreSQL for real-time agricultural intelligence.
- Built a scalable Flutter frontend consuming RESTful services with optimized async data fetching and caching, serving **500+ farmers** in low-connectivity rural environments and integrating government Ministry APIs.

## RESEARCH

### Score-Based Diffusion Models on Riemannian Surfaces

Feb 2025 – May 2025

Differential Geometry, Generative Modeling — Department of Mathematics, Amherst College

- Built a geometric formulation of diffusion models on curved manifolds, replacing Euclidean Gaussian noise and additive updates with **Brownian motion, heat-kernel scores, and geodesic random walks**.
- Generalized Riemannian diffusion from the sphere to the Klein bottle, analyzing how non-orientability affects score fields and neural parameterization.

## SKILLS & INTERESTS

**Languages:** Python, Java, C#, Go, Dart, SQL, HTML, CSS

**Frameworks & Tools:** PyTorch, Hugging Face, PEFT/QLoRA, CUDA, LangGraph, Flask, .NET MAUI, Flutter, PostgreSQL, Git

**Focus Areas:** Applied AI/ML, LLMs & SLMs, Multimodal Infrastructure, Agentic Systems, Distributed & Backend Systems, Full-Stack Development, Edge Computing, Model Fine-Tuning & Evaluation

**Interests:** Guitar, Soccer, Scuba Diving (SSI Certified), Backpacking, Trekking, Digital Music Production (Ableton)