

# ADITYA KUNIYIL KATTIL

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## EDUCATION

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### Purdue University

West Lafayette, IN

*BS in Computer Science (Machine Intelligence, Security), Minor: Economics*

May 2027

- Relevant Coursework: Data Structures and Algorithms, Systems Programming, Data Mining, Machine Learning, Computer Architecture, Databases, Artificial Intelligence, Discrete Math, Linear Algebra, Programming in C

## EXPERIENCE

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### Solsten.in | *Python, Vertex AI, DSPy, pytest*

Bengaluru, KA

*Software Engineering Intern*

Jul-Aug 2025

- Developed an automated **medical receipt/invoice parsing pipeline** to extract structured **billing and inventory fields** from handwritten and printed hospital documents.
- Implemented **regex-based extraction** and post-processing with **Gemini-2.5-Flash** fallback for missing/low-confidence fields, improving robustness across edge-case receipts while reducing **inference costs** by  $\approx 65\%$ .
- Iteratively refined **regex rule sets** using **DSPy** to evaluate prompt variants and analyze LLM outputs, improving field-level accuracy to  $\approx 98.2\%$ .
- Partnered with QA to build a validation and unit testing suite using **pytest**, reducing manual correction workload by  $\approx 80\%$  and improving extraction reliability.

### MOI Labs x BoilerBlockchain | *React.js, Coco, Google A2A Protocol*

West Lafayette, IN

*Software Engineer / Project Lead*

Sep-Dec 2025

- Built an **Agent-to-Agent (A2A) compliance platform** enabling **verifiable agent identity**, interaction history tracking, and **trust auditing** on top of Google's A2A protocol.
- Designed an **agent discovery + marketplace layer** allowing users to search and evaluate agents based on **cross-agent behavioral reputation**.
- Implemented an **explorer-style interaction ledger** (blockchain-explorer inspired) to audit agent communications and improve reliability in **decentralized agent ecosystems**.

### Kong Labs | *React Native, Python, PyTorch, Whisper, Docker*

West Lafayette, IN

*Undergraduate Research Assistant*

Feb-Aug 2025

- Developed an end-to-end **clinical speech ML pipeline** for scalable preprocessing and federated training across distributed hospital datasets.
- Built a **low-latency speech feature extraction pipeline** using **Whisper** and **Librosa**, preprocessing **200+** clinical audio samples for downstream modeling.
- Engineered scalable **ingestion + preprocessing infrastructure** using **batch processing** and **Dockerized instances**, increasing dataset throughput by  $1.5\times$  while maintaining consistent I/O performance.
- Designed **federated ML training workflows** across heterogeneous local datasets, improving classification accuracy by **15%** under real-world distribution shift.

## PROJECTS

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### Memora | *Next.js, TypeScript, Node.js, Hedera HCS, EVM, IPFS, Supabase*

Spring 2026

- Built a **distributed system for verifiable agent execution**, enabling autonomous agents to execute tasks and log **replayable, tamper-resistant workflows** using Hedera HCS for ordered commits and IPFS for storage.
- Designed and implemented **event-driven backend APIs** (task dispatch, runtime ingestion, mission replay) supporting asynchronous execution pipelines and lineage-aware memory tracking.
- Developed a **task marketplace for autonomous agents** with bidding, scoring, and execution flows, integrating secure memory storage (**AES-256-GCM**) and on-chain permission checks via a Hedera EVM registry.
- Engineered a **full-stack interface in Next.js** for task input, agent discovery, and cinematic mission replay, enabling users to inspect execution steps and verify outputs in real time.

### Mano | *Next.js, TypeScript, Supabase, OpenAI*

Fall 2025

- Building an **AI-native real estate operations platform** with **Next.js 14** and **Supabase**, unifying MLS search and transaction workflows.
- Implemented **semantic MLS search** using **vector embeddings** and similarity ranking for natural-language property retrieval and recommendations.
- Designed a multi-tenant backend with **Supabase Postgres + RLS** and typed **TypeScript APIs**, while developing a **RAG pipeline** for an AI legal agent to draft contracts grounded in templates, compliance rules, and transaction context.

## TECHNICAL SKILLS

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**Languages:** Python, TypeScript, JavaScript, Java, C, C++, SQL, Solidity, HTML/CSS

**Frameworks:** React.js, Node.js, PyTorch, Pandas, NumPy, scikit-learn, Hardhat, Foundry

**Tools:** Linux, Git, Google Cloud, HuggingFace, MCP, RAG, Firebase, Supabase, Vercel, WordPress, ClaudeCode, Github Copilot, Codex, Cursor, Microsoft Office Suite