

Pratyush Agrawal

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Education

Manipal Institute of Technology,
B.Tech in Information Technology – Karnataka, India

2024 – 2028
CGPA: 7.86 / 10

Coursework

Data Structures & Algorithms, Operating Systems, Database Management Systems, Computer Networks, Object-Oriented Programming, Discrete Mathematics, Computer Organization

Projects

DataTalk AI | *React.js, Node.js, Express, Azure Services, Cosmos DB* *GitHub* | *Demo*

- Prompted Azure OpenAI with structured instruction sets to extract JSON (item, quantity, price) from raw unstructured speech, iterating on prompt design to handle noisy, colloquial kirana store input.
- Engineered a multimodal fusion pipeline combining Azure Speech-to-Text and Azure Computer Vision into a shared context window, enabling unified NLP reasoning over simultaneous voice and image input.
- Built a Node.js + Express orchestration layer sequencing Speech → Vision → NLP → Business Logic in a single request cycle, persisting structured outputs to Azure Cosmos DB.
- Built a React.js frontend streaming live mic and IP webcam feeds in real-time with WhatsApp Deep Link integration for instant bill delivery.

TrialMatch AI | *Node.js, Express, Next.js, React, Tailwind CSS*

GitHub | *Live*

- Designed a 5-agent sequential pipeline (Extractor → Fetcher → Parser → Reasoner → Briefer) from scratch, defining each agent's I/O contract and handoff logic.
- Used Llama 4 scout for LLM inference across the Reasoner and Briefer agents, selecting Groq for its low-latency inference speed in a chained multi-agent context.
- Implemented LLM output guardrails including JSON schema validation, missing-criteria backfill, and fallback brief generation to ensure end-to-end pipeline reliability.
- Integrated ClinicalTrials.gov REST API v2 for real-time trial metadata retrieval, with error handling for unavailable or malformed trial responses.

Achievements

Microsoft AI Unlocked Hackathon

2025

- Ranked in the top 50 out of 300+ teams nationwide with DataTalk AI

Skills

Languages: Python, Java, JavaScript, C

Frameworks: Django, Django REST Framework, Node.js, Express.js

Frontend: React.js, Next.js, Tailwind CSS, HTML, CSS, Bootstrap

Tools & Platforms: Git, GitHub, Vercel, Render, Azure

Databases: PostgreSQL, Azure Cosmos DB

Extra Curricular

IEEE Student Branch, Manipal Institute of Technology

2024 – Present

- Managing Committee Member and WebDev Domain POC for TechWeek-IEEE SBM's flagship technical fest
- Co-organized DevRush hackathon with 18 participating teams