

# GUREHMAT CHAHAL

Toronto, ON

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## Education

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### McMaster University

Honours Bachelor of Applied Science, Computer Science (Co-op)

2025 – 2029

Hamilton, ON

## Experience

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### AI Developer

Workplace Edge

2026

Remote

- Delivered an AI coaching chatbot for an enterprise client by building the full stack with **React 18**, **TypeScript**, **Express**, **Prisma**, and **Gemini 2.5 Flash**, deploying frontend on **Vercel** and API on **Railway** with **Turso (libSQL)**.
- Improved response relevance by building an intent detection pipeline that classifies learner requests across 4 categories and injects matching lesson content into Gemini's system prompt.
- Prevented unsafe interactions by adding a content safety layer with PII stripping, keyword-based HR/crisis escalation detection, and input filtering that blocks flagged messages before persistence.

### Founder & CTO

Advancing Future Innovators (AFI)

2024 – 2025

Ontario

- Founded a nonprofit delivering coding workshops to 30+ students per session, managing school partnerships, operations, and volunteer coordination across local schools.

## Projects

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### Meridian – Personal Knowledge Graph | *React 18, TypeScript, Python, FastAPI, MongoDB Atlas*

2026

- Built a full-stack knowledge graph that ingests notes and PDFs, extracts concepts via **Gemini 2.5 Flash**, and generates **384-dimensional embeddings** with **sentence-transformers/all-MiniLM-L6-v2** for cosine similarity search across all prior knowledge using **MongoDB Atlas Vector Search**.
- Implemented contradiction detection and cross-domain connection surfacing: for each new concept, retrieves semantically similar prior concepts via vector search, then prompts Gemini to identify logical conflicts and non-obvious connections across domains.
- Visualized results as an interactive force-directed graph with **react-force-graph-2d**, color-coded by relationship type, with belief shift tracking as concept descriptions evolve across entries.

### The Record – Live AI Debate Referee | *React 18, TypeScript, Zustand, Gemini 2.5 Flash, ElevenLabs TTS*

2026

- Won **Best Use of ElevenLabs** at ConHacks 2026 by building solo a real-time debate referee in 36 hours that scores arguments on logic, evidence, and rhetoric, then delivers spoken rulings via **ElevenLabs TTS**.
- Integrated **Gemini 2.5 Flash** for real-time argument analysis and structured scoring, piping AI-generated rulings into **ElevenLabs** for text-to-speech delivery and managing async state through **Zustand** stores.

### PantryChef – AI-Driven Recipe Engine | *React 19, TypeScript, Gemini API, Zustand, Supabase, Tailwind CSS*

2026

- Enabled ingredient-to-recipe matching from fridge photos by integrating **Google Gemini** Vision API for scanning, recipe generation, and substitution suggestions, routed through **Supabase Edge Functions**.
- Validated with **154 automated tests** (Vitest + RTL), strict **TypeScript**, CI/CD via **GitHub Actions**, Row-Level Security on all Postgres tables, and pre-commit hooks with ESLint + Prettier.

### NASA Space Settlement Design Contest | *Grand Prize Winner (Healthy Living Design)*

2025

- Won the **Grand Prize** out of 9,000+ participants across 12 countries by authoring a 15-page technical proposal for a self-sustaining space settlement orbiting Phobos; presented at the ISDC conference.

## Technical Skills

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**Languages:** C, Python, JavaScript (ES6+), TypeScript, SQL, HTML/CSS, Haskell

**Frameworks & Libraries:** React 18/19, FastAPI, Zustand, Tailwind CSS, Supabase, Node.js, Vite, PostgreSQL

**Tools:** Git, GitHub Actions, Vitest, ESLint, Prettier, Cursor, Linux, VS Code, Docker

**AI / Data:** Gemini API, sentence-transformers, MongoDB Atlas Vector Search, Prompt Engineering, Vector Embeddings, GCP

## Leadership / Extracurricular

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**Activities:** Meridian (GDGHacks 2026), The Record (ConHacks 2026, Best Use of ElevenLabs), SEED (MillHacks 2025, Best UI), C.A.P.T.C.H.A. (Toronto Stupid Ideas Hackathon, solo), MEC Debate (2nd Place), Mac AI Club, Engineers Without Borders, Socratica