

# Medini Chopra

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## EDUCATION

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### Northwestern University

Master of Science in Computer Science

Evanston, IL

September 2024 – December 2025

- CGPA: 3.97/4.0, Coursework: Seminar on LLMs, Design, Technology & Research, Scalable Software Architecture

### Ashoka University

Bachelor of Science (Hons.) & P.G. Diploma in Computer Science

Sonapat, India

September 2020 – May 2024

- CGPA: 3.89/4.0, Coursework: Natural Language Processing, Machine Learning, Probability & Statistics, AI Ethics

## WORK EXPERIENCE

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### Research Engineer

Northwestern Institute on Complex Systems

January 2026 – Present

Evanston, IL

- Surveying fine-tuning approaches to align language models with institutional financial reasoning and proprietary data
- Designed a full-stack experiment platform (Flask/JavaScript/Lyria API) to evaluate AI-generated interventions
- Constructed a **multi-modal scoring pipeline** extracting audio features & text embeddings to measure creative output

### AI Engineer Intern

Chicago Public Media

September 2025 – December 2025

Chicago, IL

- Engineered an **AI-powered newsroom tool** for journalists using OpenAI & OCR to extract data from press releases
- Deployed a serverless pipeline (**AWS Lambda, EventBridge, CDK v2, Gmail API**), from email ingestion to publishing
- Built an editorial interface with **Alpine.js & REST APIs** for inline editing, archiving & date-based event management

### AI Analyst Intern

Cboe Global Markets, AI Center of Excellence

June 2025 – August 2025

Chicago, IL

- Developed an agent evaluation suite with **LLM-as-a-judge & hallucination detection**, reducing test time by 95%
- Extended the tool-calling in a **RAG-based agent (FastAPI/Pydantic)** & implemented memory improvements
- Presented agentic solution to 1600+ stakeholders, winning 2nd place as **most innovative productivity enhancement**

## PROJECTS

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### Reasoning & Role-playing in LLMs | *Paper*

March 2025 – June 2025

- Conducted an experiment evaluating adversarial vs. helpful personas across **GPT-4.1 mini & nano models** on GSM8K
- Discovered one-line reasoning > Chain-of-Thought (**83% vs 77%**), suggesting constraints improve reasoning accuracy
- Demonstrated reasoning outweighs persona, "**clumsy teacher**" + CoT (**91%**) **outperformed "helpful teacher" (49%)**

### Persuasion Classification for Safety | *GitHub*

January 2025 – March 2025

- Curated a balanced 9K-sample dataset using Anthropic and OpenBookQA with **50:50 class distribution**
- Achieved a **0.84 F1-score** with custom classifiers (BERT/Roberta/DistilBERT), outperforming baseline by 12%
- Identified an optimization bottleneck via loss-accuracy divergence analysis, found **label noise as primary limitation**

### Resonance | *Paper*

January 2024 – May 2024

- Created an emotion classification system with **Word2Vec lyric embeddings & 279 mood tags** using Random Forest
- Attained a 78% accuracy on 20K songs through audio feature integration, **improving baseline performance by 44%**
- Architected a contextual recommendation pipeline with **Spotify & Genius APIs** for personalized playlist generation

## SKILLS

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**Technical:** Python, R, SQL, JavaScript, PyTorch, TensorFlow, Hugging Face, LangChain, Scikit-learn, Pydantic, Pandas

**Infrastructure:** AWS (CDK, Lambda, S3, API Gateway), GCP, node.js, React.js, Flask, Docker, Snowflake, MongoDB, Git

## PUBLICATIONS

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**Chopra et al.** Deciphering psycho-social effects of Eating Disorder: Analysis of Reddit Posts using Large Language Model(LLM)s and Topic Modeling. *NLP4DH 2024, Miami.*

## HOBBIES & INTERESTS

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Indian classical dance, playlist curation, philosophy of language, mixed media art, specialty coffee, cycling, and running