Ishaan Watts

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EDUCATION

Carnegie Mellon University (CMU) – Master of Science — *Aug 2025 - Current*
Major: Machine Learning — Pittsburgh, Pennsylvania, US

Indian Institute of Technology Delhi (IIT-D) – Bachelor of Technology — *July 2019 - May 2023*
Major: Engineering Physics; **Minor:** Computer Science; **CGPA:** 9/10 — New Delhi, India

PUBLICATIONS

C=CONFERENCE, P=PREPRINT

[P.1] **Gemini 2.5: Pushing the Frontier with Advanced Reasoning, Multimodality, Long Context, and Next Generation Agentic Capabilities** 📄 📊 *Gemini Team, Google DeepMind (including Ishaan Watts)* **[Tech Report]**

[C.4] **RTP-LX: Can LLMs Evaluate Toxicity in Multilingual Scenarios?** 📄 🖼 *Adrian de Wynter, Ishaan Watts, et al.* **[AAAI '25]**

[C.3] **PARIKSHA: A Large-Scale Investigation of Human-LLM Evaluator Agreement on Multilingual & Multi-Cultural Data** 📄 🖼 🔗 *Ishaan Watts, Varun Gumma, Aditya Yadavalli, Vivek Seshadri, Swami Manohar, Sunayana Sitaram* **[EMNLP '24]**

[C.2] **MAPLE: Multilingual Evaluation of Parameter Efficient Finetuning of LLMs** 📄 🖼 *Divyanshu Aggarwal*[*], Ashutosh Sathe*[*], Ishaan Watts, and Sunayana Sitaram* **[ACL Findings '24]**

[C.1] **MEGAVERSE: Benchmarking LLMs across languages, modalities, models and tasks** 📄 🖼 *Sanchit Ahuja, Divyanshu Aggarwal, Varun Gumma, Ishaan Watts, ... Kalika Bali, and Sunayana Sitaram* **[NAACL '24]**

EXPERIENCE

**Google DeepMind** | *Pre-Doctoral Researcher* — *July 2024 - July 2025*
Projects: *Gemini 2.5-Pro Contributor [P.1], Multi-Model Composition, Model Stitching vs. Adapters for Continual Learning*

- Explored composition of generalist & specialist LLMs for **continual domain adaptation** & **compositional tasks** (code × i18n).
- Improved CALM architecture & **beat LoRA** under varied budget constraints; presented poster at **Google Research Week '25**.
- Designed a **routing-based composition** with dynamic inference-time expert selection, beating a 4× larger monolithic model.
- Engineered **JAX-based** training, evaluation, and bulk inference pipelines for composed models within the **Gemini codebase**.

Microsoft Research | *Research Intern* — *May 2023 - June 2024*
Projects: *Toxicity Detection Dataset 🔗 [C.4], Indic LLM Evaluation Leaderboard 🏆 [C.3], Multilingual Finetuning [C.2] and Benchmarking of LLMs [C.1], Education Bot 📧 Satya Nadella, Times of India*

- Built culturally-nuanced **evaluation framework** in 10 Indic languages, assessing 30+ LLMs via **120k+** human/LLM judgments.
- Released **38-language toxicity benchmark**, evaluating 10 S/LLMs on 8 harm type, exposing failures in detecting subtle biases.
- Studied **QLoRA finetuning** on 90+ models, analyzing cross-lingual transfer and benchmarked 20 LLMs across **83 languages**.
- Developed & deployed **Shiksha Copilot**, GenAI tool helping teachers create educational content, in **100+ schools** in India.

Torch Investment Management | *Machine Learning Engineer Intern* — *Sept 2022 - Dec 2022*
Project: *Stock Price Modeling via Deep Learning*

- Optimized **LightGBM** model to predict Top 30 US S&P 500 stocks & modeled Saudi market data; scraped Twitter via snscrape.
- Curated feature linking stock price with tweet sentiment by **topic filtering** with BART and **sentiment analysis** using **FinBERT**.

Udaan | *Data Scientist Intern* — *May 2022 - July 2022*
Project: *Holistic User-Embeddings via Graph Neural Networks*

- Generated user-vectors from buyer-seller interaction graphs using multi-relational, multi-entity **hetero-graph autoencoder**.
- Integrated embeddings into **fraud detection** models, reducing Udaan dispute loss by **2.45%** and secured a full-time offer.

SKILLS

- **Languages:** Python, Java, SQL, Bash, C, C++, LaTeX, JAX   • **Tools:** Git, Docker, ROOT, RAG, Autodesk Inventor
- **Libraries:** PyTorch, TensorFlow, Numpy, Pandas, Matplotlib, Scikit-Learn, Snscrape, Streamlit, Langchain, Hugging Face
- **Advanced Coursework:** Advance Machine Learning, Probability & Statistics, Deep Learning Systems, Algorithms, Calculus, Digital Electronics, Social Computing, Computer Networks, Linear Algebra & Differential Equations, Signals & Systems

HONORS & AWARDS

- **Narotam Sekhsaria Fellowship ($40,000)** and **K.C. Mahindra Fellowship ($6,000)** to pursue graduate studies at CMU
- **Peer Bonuses** at Google DeepMind • **1st place** in Microsoft Global Hackathon '24 • **6th place** in Amazon ML Challenge '23
- **3x IIT-D Semester Merit Awards** for being top 3 in department • **KVPY Fellowship** by Government of India, ranking top 2%