DONGKAI CHEN

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EXPERIENCE

Staff Research Engineer, GenAI, Google DeepMind (2024.7 - Present)

- **GenAI Applied: Make Gemini the best model for enterprises and products.**

    - Led a high-performing team of 6+ engineers to architect and deliver production-grade AI solutions for high-value enterprise clients across Audio, Education, Finance and Coding domain, bridging the gap between foundational model capabilities and reliable large-scale deployment.

- **Gemini One-Recipe: Experience covers multimodal post-training, evaluation and recipes development.**

    - **Best Multimodal Model for Education (STEM)**: Drove continuous model hill-climbing by i) developing a robust multi-modal evaluation suite covering complex STEM reasoning and equation/table understanding; ii) conducting fundamental loss pattern analysis to, iii) implement proprietary data/algorithmic recipes guiding SFT/RL stages for peak performance.

    - **More and Better Audio Generation Capabilities**: Led the end-to-end development of Geminis voice cloning capabilities, architecting evaluation frameworks and modeling recipes that scaled from ideation to production; optimized audio generation robustness for multi/cross-lingual environments.

    - **Agentic Capabilities for Real-World Tasks**: Explored the quality of Gemini-powered agentic systems in event and financial forecasting, focusing on architectural workflow design, systematic evaluation, and iterative performance tuning.

Senior Machine Learning Engineer, Search, YouTube (2021.7-2024.7)

- **LLM as Automated Raters** (Tech Lead): Developed an end-to-end framework enabling LLMs to act as automated raters, generating high-quality silver-labeled data for new, unseen query and document understanding tasks with limited ground truth. This approach achieved human-level performance while reducing labeling costs by **1000X** and accelerating development time to just one week.This effort has amplified GenAI's impact as one of the **top three** influencers on YT highlighted by a SVP.

- **YT-LLM**: Collaborated with researchers on the development of **YT-Gemini**, a model trained on YouTube domain data (videos, comments, posts, and queries). Played a key role in shaping the model through involvement in design, pre-training, and supervised fine-tuning phases.

- **Deep Learning Models for Ranking and Retrieval**: Made significant contributions to the enhancement of internal models for ranking and retrieval, actively involved in both modeling and backend development. Achieved a notable improvement of **5%** in search relevance and a **2%** enhancement in user engagement metrics such as CTR and watch time.

Research Assistant at Dartmouth College (09.2019-06.2021)

- Under the guidance of Prof. V.S. Subrahmanian, my primary research has focused on applying machine learning, particularly in the domains of language models and data mining. This effort has culminated in the publication of three papers in leading journals.

Software Engineer Intern at Google (06.2020-09.2020)

- Worked with Google Brain team and Fuzzing team to help libFuzzer increase code coverage of fuzzing targets for industry software products, where we used Reinforcement Learning algorithm

to help libFuzzer to wisely choose which locations to be mutated and which mutation operations to be selected based on feedback from libfuzzer. Finally improved 10% performance compared to libFuzzer within 1K actions.

SELECTED PUBLICATIONS

- Gemini Team and Dongkai Chen. Gemini 2.5: Pushing the frontier with advanced reasoning, multimodality, long context, and next generation agentic capabilities, 2025

- Youzhi Zhang, Dongkai Chen, Sushil Jajodia, Andrea Pugliese, V.S. Subrahmanian, and Yanhai Xiong. Gait: A game-theoretic defense against intellectual property theft. *IEEE Transactions on Dependable and Secure Computing*, pages 1–12, 2023

- Luca Pajola, Dongkai Chen, Mauro Conti, and V.S. Subrahmanian. A novel review helpfulness measure based on the user-review-item paradigm. *ACM Transactions on the Web*, feb 2023

- Almas Abdibayev, Dongkai Chen, Haipeng Chen, Deepti Poluru, and V. S. Subrahmanian. Using word embeddings to deter intellectual property theft through automated generation of fake documents. *ACM Trans. Manage. Inf. Syst.*, 12(2), feb 2021

- Canghong Jin, Haoqiang Liang, Dongkai Chen, Zhiwei Lin, and Minghui Wu. Identifying mobility of drug addicts with multilevel spatial-temporal convolutional neural network. In *PAKDD 2019*

AWARDS AND HONORS

- **2017-2018**   *42th ACM International Collegiate Programming Contest Asia Regional* **Silver**

- **2016-2017**   *China National Scholarship*

EDUCATION

Dartmouth College, USA   *Sep. 2019 - Jun. 2021*
Master of Science, Department of Computer Science   Advisor: Prof. V.S. Subrahmania

Zhejiang University City College, China   *Sep. 2015 - Jun. 2019*
Bachelor of Engineering, Department of Computer Science   GPA: 3.96/4 Rank: 1/67