Zhicheng Jiang

Email: jzc_2007@mit.edu
Phone: +1 (857)-639-0768
Website: https://jzc-2007.github.io/

Education

- **MIT** Cambridge, MA
  Undergraduate, Computer Science and Mathematics(Double Major) *Sep 2024 – Present*
  Selected Coursework: Discrete Probability and Stochastic Processes; Deep Generative Models; Quantitative Methods for NLP; Representation, Inference and Reasoning in AI; GPA:5.0/5.0

- **Tsinghua University** Beijing, China
  Preparatory Program, Institute of Interdisciplinary Information Science(IIIS, Yao Class) *Sep 2023 – Jun 2024.*
  Selected Coursework: Advanced Calculus; Linear Algebra; Abstract Algebra; Algorithm Design; Introduction to Computer Systems; Introduction to LLM Applications; Deep Learning; Exploration to Scientfic Research of Lab; GPA:4.00/4.00

Skills

- **Programming: Python(Jax/Pytorch for Deep Learning Models), C, C++**
- **Language: English(proficient), Chinese(native)**

Experience

- **Undergraduate Reasearch in Deep Generative Models** MIT
  Supervised by Kaiming He *Sep 2024 -Present*

  Research on deep generative models in computer vision, especially diffusion models and flow matching models, and investigate the underlying principles of denoising-based models, and develop new models on TPU machines using jax. Developed a paper *Is Noise Conditioning Necessary in Denoising Generative Models?*. (Joint first author)

- **Undergraduate Research in Technical Computer Science** Tsinghua University
  Supervised by William Kuszmaul *Feb 2024 -Present*

  Research on the theoretical analysis of randomized data structures. Developed a new time complexity bound and design an algorithm for a general framework of a randomized problem. Developed a paper to be submitted to PODS/ITCS. (Joint first author)

Awards

- **Gold Medal** 2023
  64th International Mathematics Olympiad(IMO)

- **First Prize** 2021
  National Olympiad in Informatics in Provinces(NOIP)

Projects

- **Video Style Transfer(Deep Learning Course Project)** Feb 2024 - June 2024
  Python, Deep Learning

  An automatic pipeline to do image style transfer by user-specified prompts using ControlNet and frame interpolation.

- **Speeding Up Diffusion Models with One-step Generators** Sep 2024 - Dec 2024
  Python, Deep Learning, Generative Models, Diffusion Models, VAE

  In the project, we proposed a new method to speed up the training of diffusion models by using one-step generators. On toy experiments, this reduces NFE by half while maintaining the sample quality. We also wrote a blog post, explaining the motivation of the experiment from a higher perspective.

- **Knowledge Database** Feb 2024 - June 2024
  Python, LLM, Bash, Makefile

  In the project, we apply LLMs to answer user questions given a folder containing documents as the context. We developed a tagging system, which make the search efficient even when the number of documents is large. We also support semantic search for multimodal documents, such as images and videos.