# Yuxuan TONG

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## EDUCATION

**Department of Computer Science and Technology (DCST), Tsinghua University (THU)**  2021.09 - 2025.07 (Expected)

*Bachelor's degree in progress*

GPA: 3.8/4.0

## PUBLICATIONS

**Demystifying Long Chain-of-Thought Reasoning in LLMs**

*Preprint, under review*

Edward Yeo*, **Yuxuan Tong**\*, Morry Niu, Graham Neubig, Xiang Yue

**DART-Math: Difficulty-Aware Rejection Tuning for Mathematical Problem-Solving**

*Accepted by NeurIPS 2024*

**Yuxuan Tong**, Xiwen Zhang, Rui Wang, Ruidong Wu, Junxian He

**ImageReward: Learning and Evaluating Human Preferences for Text-to-Image Generation**

*Accepted by NeurIPS 2023*

Jiazheng Xu*, Xiao Liu*, Yuchen Wu, **Yuxuan Tong**, Qinkai Li, Ming Ding, Jie Tang, Yuxiao Dong

(*) denotes co-first authors

## RESEARCH EXPERIENCE

**Language Technologies Institute, Carnegie Mellon University (CMU-LTI)**  2024.09 - Present

*Research intern,* **advised by** *Prof. Graham Neubig* **and** *Dr. Xiang Yue*

Working on **building and understanding models capable of complex reasoning like OpenAI o1**.

**Language Technologies Institute, Carnegie Mellon University (CMU-LTI)**  2024.07 - 2024.08

*Research intern,* **advised by** *Prof. Chenyan Xiong*

Worked on **data for on-line (direct) preference optimization algorithms (e.g. DPO)**.

**NLP Group @ Hong Kong University of Science and Technology (HKUST-NLP)**  2023.07 - 2024.06

*Research intern,* **advised by** *Prof. Junxian He*

Worked on **synthetic data for mathematical reasoning** since 2023.12, before which I worked on **process supervision**, **reward modeling**, **constrained decoding** for **mathematical reasoning** and **model merging**.

**Knowledge Engineer Group @ Tsinghua University (THUKEG)**  2022.11 - 2023.06

*Research intern,* **advised by** *Prof. Jie Tang* **and** *Prof. Yuxiao Dong*

Worked on **reward modeling** and **RLHF** for **text-to-image generation**

## PROJECTS

**Data-Centric Method for Enhancing Mathematical Problem-Solving of LLMs**     2024.04 - 2024.12

Admitted as **B-Level** in *Tsinghua University Initiative Scientific Research Program in 2024*

**End-to-End Evaluation Model for Text-to-Image Generation**     2023.04 - 2023.12

Admitted as **A-Level (top 25%)** in *Tsinghua University Initiative Scientific Research Program in 2023*

**Maintainer of the GitHub Repo.** `THUDM/ImageReward`     2023.03 - Present

In addition to regular contribution and maintainment, I **integrated our ImageReward into Stable Diffusion Web UI**

## AWARDS

- Tsinghua University *Research Scholarship*     2023,2024
- Tsinghua University *Comprehensive Merit Scholarship* **(top 5% undergraduates)**     2022

## ACADEMIC SERVICES

**Conference Review**

NeurIPS 2024, The 4th MATH-AI Workshop @ NeurIPS 2024, ICLR 2025, ICML 2025

## SKILLS

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|---|---|
| **Programming Languages** | Python, C/C++, TypeScript/JavaScript, SpinalHDL, System Verilog etc. |
| **ML Libraries** | PyTorch, DeepSpeed, HuggingFace, vLLM/SGLang, etc. |
| **Tools** | Git, Shell, SLURM, Linux Utilities, LaTeX, etc. |