

# Chenyang Yang

cyang3@cs.cmu.edu • <https://cs.cmu.edu/~cyang3>

## EDUCATION

**Carnegie Mellon University**, Pittsburgh, Pennsylvania, USA

Ph.D. in Software Engineering, School of Computer Science

Aug 2021 – Present

- Adviser: Prof. Christian Kästner, Prof. Sherry Tongshuang Wu
- Focus: Human-centered AI, AI engineering, AI model testing and evaluation.

**Peking University**, Beijing, China

B.S. (Summa Cum Laude) in Computer Science, Turing Class

Sep 2017 – Jul 2021

- Adviser: Prof. Yingfei Xiong
- Cumulative GPA: 3.83 / 4.00, Ranking: 5 / 230

## PUBLICATIONS

- [1] **Designing Abandabot: When Does Open Source Dependency Abandonment Matter?**  
Courtney Miller, Hao He, Weigen Chen, Elizabeth Lin, Chenyang Yang, Bogdan Vasilescu, and Christian Kästner.  
*International Conference on Software Engineering (ICSE)*, 2026.
- [2] **cAST: Enhancing Code Retrieval-Augmented Generation with Structural Chunking via Abstract Syntax Tree**  
Yilin Zhang, Xinran Zhao, Zora Zhiruo Wang, Chenyang Yang, Jiayi Wei, and Tongshuang Wu.  
*Findings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2025.
- [3] **SPHERE: An Evaluation Card for Human-AI Systems**  
Qianou Ma, Dora Zhao, Xinran Zhao, Chenglei Si, Chenyang Yang, Ryan Louie, Ehud Reiter, Diyi Yang, Tongshuang Wu.  
*Findings of the Association for Computational Linguistics (ACL)*, 2025.
- [4] **What Should We Engineer in Prompts? Training Humans in Requirement-Driven LLM Use**  
Qianou Ma, Weirui Peng, Chenyang Yang, Hua Shen, Kenneth Koedinger, Tongshuang Wu.  
*ACM Transactions on Computer-Human Interaction (TOCHI)*, 2025.
- [5] **Orbit: A Framework for Designing and Evaluating Multi-objective Rankers**  
Chenyang Yang, Tesi Xiao, Michael Shavlovsky, Christian Kästner, Tongshuang Wu.  
*International Conference on Intelligent User Interfaces (IUI)*, 2025.
- [6] **LLMs as Workers in Human-Computational Algorithms? Replicating Crowdsourcing Pipelines with LLMs**  
Tongshuang Wu, Haiyi Zhu, ..., Chenyang Yang.  
*Conference on Human Factors in Computing Systems (CHI Case Study)*, 2025.
- [7] **Differential Performance Fuzzing of Configuration Options**  
Haesue Baik, Chenyang Yang, Vasudev Vikram, Pooyan Jamshidi, Rohan Padhye, Christian Kästner.  
*International Workshop on Search-Based and Fuzz Testing (SBFT)*, 2025.
- [8] **What Is Wrong with My Model? Identifying Systematic Problems with Semantic Data Slicing**  
Chenyang Yang, Yining Hong, Grace Lewis, Tongshuang Wu, Christian Kästner.  
*International Conference on Automated Software Engineering (ASE)*, 2024
- [9] **A Large-Scale Survey on the Usability of AI Programming Assistants: Successes and Challenges**  
Jenny T Liang, Chenyang Yang, and Brad A Myers.  
*International Conference on Software Engineering (ICSE)*, 2024.
- [10] **(Why) Is My Prompt Getting Worse? Rethinking Regression Testing for Evolving LLM APIs**  
Wanqin Ma\*, Chenyang Yang\*, and Christian Kästner.  
*International Conference on AI Engineering (CAIN)*, 2024.
- [11] **Accelerating Patch Validation for Program Repair with Interception-Based Execution Scheduling**  
Yuan-An Xiao, Chenyang Yang, Bo Wang, and Yingfei Xiong.  
*Transactions on Software Engineering (TSE)*, 2024.

- [12] **Beyond Testers' Biases: Guiding Model Testing with Knowledge Bases using LLMs**  
Chenyang Yang, Rishabh Rustogi, Rachel A Brower-Sinning, Grace Lewis, Christian Kästner, and Tongshuang Wu.  
*Findings of Empirical Methods in Natural Language Processing (EMNLP)*, 2023.
- [13] **Capabilities for Better ML Engineering**  
Chenyang Yang, Rachel A Brower-Sinning, Grace Lewis, Christian Kästner, and Tongshuang Wu.  
*AAAI-23 Workshop on Artificial Intelligence Safety (SafeAI)*, 2023.
- [14] **ExpressAPR: Efficient Patch Validation for Java Automated Program Repair Systems**  
Yuan-An Xiao, Chenyang Yang, Bo Wang, Yingfei Xiong.  
*International Conference on Automated Software Engineering (ASE) – Tool Demo Track*, 2023.
- [15] **Data Leakage in Notebooks: Static Detection and Better Processes**  
Chenyang Yang, Rachel A Brower-Sinning, Grace Lewis, and Christian Kästner.  
*International Conference on Automated Software Engineering (ASE)*, 2022.
- [16] **Subtle Bugs Everywhere: Generating Documentation for Data Wrangling Code**  
Chenyang Yang, Shurui Zhou, Jin L.C. Guo, and Christian Kästner.  
*International Conference on Automated Software Engineering (ASE)*, 2021.
- [17] **Accelerating Program Analyses in Datalog by Merging Library Facts**  
Yifan Chen, Chenyang Yang, Xin Zhang, Yingfei Xiong, Hao Tang, Xiaoyin Wang, Lu Zhang.  
*International Static Analysis Symposium (SAS)*, 2021.

## PREPRINTS

- [1] **What Prompts Don't Say: Understanding and Managing Underspecification in LLM Prompts**  
Chenyang Yang, Yike Shi, Qianou Ma, Michael Xieyang Liu, Christian Kästner, Tongshuang Wu.  
*arXiv preprint arXiv:2505.13360*, 2025.
- [2] **Understanding Prompt Programming Tasks and Questions**  
Jenny T Liang, Chenyang Yang, Agnia Sergeyuk, Travis D Breaux, Brad A Myers.  
*arXiv preprint arXiv:2507.17264*, 2025.

## INDUSTRY EXPERIENCE

- Meta**, Software Engineering Intern (Machine Learning Track) May 2025 – Aug 2025
  - Worked on multi-modal LLM post-training to produce quality signals for social media recommendation systems.
  - **Data**: Built a recurring data pipeline to collect millions of training data; worked on human annotation guidelines for gold human eval data; prompted large models to curate synthetic data.
  - **Modeling**: Experimented with various training algorithms (rejection sampling SFT, DPO/IPO, GRPO), data recipe, and loss/reward design on hundreds of GPUs.
  - **Benchmarking**: Reproduced the pipeline for various open-sourced models and benchmarked on open-sourced datasets
- Amazon Search**, Applied Scientist Intern May 2024 – Dec 2024
  - Worked on an interactive system to support ML practitioners design and evaluate multi-objective recommendation systems
  - **Formative Study**: Engaged with practitioners to understand their pain points in building multi-objective recommendation systems (interviews, observational study)
  - **System Building**: Built an interactive system (Svelte + Python) for better design and evaluation of multi-objective recommendation systems with practitioner feedback
  - **User Study**: Evaluated the system on real-world recommendation system debugging tasks with practitioners with controlled experiments

## INVITED TALKS

- Designing and Evaluating Multi-objective Rankers**, Indeed.com Jul 2025
- Guest Lecture: Design and Architecture for ML-enabled systems** Sep 2024  
Machine Learning in Production, Carnegie Mellon University
- Introduction to Human-AI Interaction Research**, Amazon Search Aug 2024
- Capabilities for Better ML Engineering**, Siemens Mar 2023

PROFESSIONAL SERVICE	<ul style="list-style-type: none"> <li>▪ <b>Organizer</b> for Beyond the Model Meeting (2025).</li> <li>▪ <b>Program Committee</b> for Bi-Align Workshop @ ICLR (2025), IUI (2026).</li> <li>▪ <b>Reviewer</b> for EMNLP (2023), ACL ARR (2024), TSE (2024), CHI LBW (2025), TOSEM (2025), HCI+NLP @ EMNLP (2025)</li> <li>▪ <b>Student Volunteer</b> for ASE 2020.</li> </ul>	
	<b>Machine Learning in Production</b> , Carnegie Mellon University Instructor: Christian Kästner, Sherry Tongshuang Wu Led weekly recitations and designed labs on model testing	Aug 2024 – Dec 2024
	<b>Large Language Model Systems</b> , Carnegie Mellon University Instructor: Lei Li Mentored student projects and presentations, and designed homework on distributed model training	Jan 2024 – May 2024
	<b>Introduction to Computer Systems (Seminar)</b> , Peking University Designed and led weekly recitations for a group of 14 students	Sep 2020 – Jan 2021
MENTORING	<b>Cassandra Shi</b> <i>CMU undergraduate student</i> Contributed to the development of the requirements-driven prompting system	Jun 2024 – May 2025
	<b>Yining Hong</b> <i>Tsinghua University undergraduate student (Currently a CMU PhD student)</i> Explored the problem of semantic slicing and contributed to algorithm design for the problem	Jul 2023 – Sep 2023
	<b>Wanqin Ma</b> <i>HKUST undergraduate student (Currently a HKUST PhD student)</i> Explored the problem of LLM regression testing and conducted evaluations	Jun 2023 – Nov 2023
AWARDS & HONORS	<ul style="list-style-type: none"> <li>▪ Award for Research Excellence, Peking University</li> <li>▪ Turing Scholarship, Peking University</li> <li>▪ Award for Academic Excellence, Peking University</li> <li>▪ May 4th Scholarship, Peking University</li> </ul>	Oct 2020 Dec 2019 Nov 2018 Nov 2018
SKILLS	$\LaTeX$ , Python, Pytorch, JavaScript/TypeScript, Svelte, React, C/C++, Java, Datalog.	