

ZORA (ZHIRUO) WANG

 zhiruow@cs.cmu.edu |  zorazrw.github.io |  [Google Scholar](https://scholar.google.com/citations?user=Zorazrw&hl=en) |  [ORCID](https://orcid.org/0000-0002-1348-8372)

EDUCATION

Carnegie Mellon University, Language Technologies Institute PhD of Language Technologies Advisor: Daniel Fried, Graham Neubig	Pittsburgh, PA Aug 2023 - Present
Carnegie Mellon University, Language Technologies Institute Master of Language Technologies (MLT), GPA: 4.02 / 4.3 Advisors: Graham Neubig, Eric Nyberg	Pittsburgh, PA Aug 2021 - Aug 2023
Beijing Normal University, School of Mathematical Sciences B.S. in Mathematics & Applied Mathematics, major GPA: 3.98 / 4.0 o Exchange, Chinese University of Hong Kong, full scholarship o Summer School, The College of William & Mary, full scholarship	Beijing, China Sep 2016 - Jun 2020 Spring 2019 Summer 2017

EXPERIENCE

Stanford University <i>Visiting Student Researcher</i> , Host: Diyi Yang	Palo Alto, CA May 2025 - Aug 2025
o Study the impact of language model supported computer-use agents on the human workforce o Develop a workflow induction toolkit to inspect and analyze human and agent worker activities	
Microsoft, Github Next Team <i>Consultant</i> , Host: Eddie Aftandilian	Remote Aug 2023 - Dec 2023
o Consult on code language model training and robust open-domain evaluation techniques	
Amazon Alexa AI, Conversational Modeling Team <i>Research Intern</i> , Manager: Dilek Hakkani-Tur	Sunnyvale, CA May 2022 - Aug 2022
o Proposed a model self-talk schema for knowledge-guided dialogue generation, further bootstrapping large-scale data for adaptive training, under a special (book) domain and low-resource setting	
Microsoft Research (Asia), Data Knowledge Intelligence Group <i>Research Intern → Assistant Researcher</i> , Manager: Dongmei Zhang	Beijing, China Aug 2020 - Aug 2021
o Designed and pre-trained a structure-aware table foundation model, <i>TUTA</i> , with tree-based masked attention and adaptive position encodings, and shaped it into Microsoft <i>Word</i> and <i>Excel</i> o Built <i>HiTab</i> benchmark, supporting table QA and data analysis for complex-structured tables	

SELECTED PUBLICATIONS

[1] *How Do AI Agents Do Human Work? Comparing AI and Human Workflows Across Diverse Occupations*
Zora Zhiruo Wang, Yijiao Shao, Omar Shaikh, Daniel Fried, Graham Neubig, Diyi Yang
arXiv Preprint

[2] *Inducing Programmatic Skills for Agentic Tasks*
Zora Zhiruo Wang, Apurva Gandhi, Graham Neubig, Daniel Fried
the Conference on Language Modeling (CoLM), 2025

[3] *Agent Workflow Memory*
Zora Zhiruo Wang, Jiayuan Mao, Daniel Fried, Graham Neubig
the International Conference on Machine Learning (ICML), 2025

[4] *TheAgentCompany: Benchmarking LLM Agents on Consequential Real World Tasks*
 Frank F. Xu, ..., **Zora Zhiruo Wang**, ..., Shuyan Zhou, Graham Neubig
Neural Information Processing Systems (NeurIPS), 2025

[5] *Benchmarking Failures in Tool-Augmented Language Models*
 Eduardo Treviño*, Hugo Contant*, James Ngai, Graham Neubig, **Zora Zhiruo Wang^m**
the North American Chapter of the Association for Computational Linguistics (NAACL), 2025

[6] *CowPilot: A Framework for Autonomous and Human-Agent Collaborative Web Navigation*
 Faria Huq, **Zora Zhiruo Wang^m**, Frank Xu, Tianyue Ou, Shuyan Zhou, Jeffrey P. Bigham, Graham Neubig
the North American Chapter of the Association for Computational Linguistics (NAACL), Demo Track, 2025

[7] *AutoPresent: Designing Structured Visuals from Scratch*
 Jiaxin Ge*, **Zora Zhiruo Wang^{*m}**, ..., Alane Suhr, Daniel Fried, Graham Neubig, Trevor Darrell
the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025

[8] *CodeRAG-Bench: Can Retrieval Augment Code Generation?*
Zora Zhiruo Wang, Akari Asai*, Xiyan Yu, Frank F. Xu, Yiqing Xie, Graham Neubig, Daniel Fried
the North American Chapter of the Association for Computational Linguistics (NAACL), Findings, 2025

[9] *What Are Tools Anyway? A Survey from the Language Model Perspective*
Zora Zhiruo Wang, Zhoujun Cheng, Hao Zhu, Daniel Fried, Graham Neubig
the Conference on Language Modeling (CoLM), 2024

[10] *TroVE: Inducing A Verifiable and Efficient Toolbox for Programmatic Tasks*
Zora Zhiruo Wang, Graham Neubig, Daniel Fried
the International Conference on Machine Learning (ICML), 2024

[11] *ECCO: Can We Improve Model-Generated Code Efficiency Without Sacrificing Functional Correctness?*
 Siddhant Waghjale, Vishruth Veerendranath, **Zora Zhiruo Wang^m**, Daniel Fried
the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2024

[12] *API-Assisted Code Generation for Question Answering on Varied Table Structured*
 Yihan Can, Shuyi Chen, Ryan Liu, **Zora Zhiruo Wang^m**, Daniel Fried
the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2023

[13] *StarCoder: may the source be with you!*
 Raymond Li, Loubna Ben Allal, ..., **Zora Zhiruo Wang**, ..., Leandro von Werra, Harm de Vries
the Transactions on Machine Learning Research (TMLR)

[14] *Execution-Based Evaluation for Open-Domain Code Generation*
Zora Zhiruo Wang, Shuyan Zhou, Daniel Fried, Graham Neubig
the Conference on Empirical Methods in Natural Language Processing (EMNLP), Findings, 2023

[15] *MCoNaLa: A Benchmark for Code Generation from Multiple Natural Languages*
Zora Zhiruo Wang, Grace Cuenca, Frank F. Xu, Shuyan Zhou, Graham Neubig
the European Chapter of the Association for Computational Linguistics (EACL), 2023

[16] *DocPrompting: Generating Code By Retrieving the Docs*
 Shuyan Zhou, Uri Alon, Frank F. Xu, **Zora Zhiruo Wang**, Zhengbao Jiang, Graham Neubig
the International Conference on Learning Representations (ICLR), 2023

[17] *HiTab: A Hierarchical Table Dataset for Question Answering and Natural Language Generation*
 Zhoujun Cheng*, Haoyu Dong*, **Zora Zhiruo Wang***, R. Jia, J. Guo, Y. Gao, S. Han, J. Lou, D. Zhang
the Association for Computational Linguistics (ACL), 2022

INVITED TALKS

“How Do AI Agents Do Human Work”

AI-TIME

Dec 2025

“From Workflows to Tools: Building Adaptive Agents On the Fly”	Jul 2025
Renmin University of China (RUC)	
“From Workflows to Tools: Building Adaptive Agents On the Fly”	Jun 2025
Pareto AI	
“From Workflows to Tools: Building Adaptive Agents On the Fly”	Jun 2025
Orby AI	
“Building TheAgentCompany: Benchmarking Consequential Real-World Tasks and Adaptive Knowledge Learning”	Mar 2025
AAAI 2025 Workshop on Advancing LLM-Based Multi-Agent Collaboration	
“TheAgentCompany: Benchmarking LLM Agents on Consequential Real-World Tasks”	Mar 2025
AAAI Web Agent Revolution Workshop	
“From Workflows to Tools: Building Adaptive Agents On the Fly”	Mar 2025
AAAI Web Agent Revolution Workshop	
“From Workflows to Tools: Building Adaptive Agents On the Fly”	Dec 2024
Tsinghua University	
“Solving Real-World Tasks via Program Generation”	Nov 2024
UIUC (University of Illinois Urbana-Champaign) iSE Seminar	
“Agent Workflow Memory”	Sep 2024
CAMEL-AI	
“What Are Tools Anyway?”	May 2024
FLAME (Foundation and LAnguage Model) seminar	
“Tool using, learning, and making with LLMs”	Feb 2024
LLM as Agent Seminar	
“Execution-based Open-Domain Coding”	Apr 2023
JetBrains Research Team	

COMMUNITY SERVICES

Workshop & Tutorial Organization

- Organizer: “The 4th Deep Learning for Code Workshop” at NeurIPS Dec 2025
- Organizer: “The Third Deep Learning for Code Workshop” at ICLR Apr 2025
- Tutorial Presenter: “Large Language Models for Tabular Data” at SIGIR Jul 2024
- Head Organizer of the 1st CMU Agent Workshop May 2024
- Head Organizer of CMU Student Research Symposium Aug 2022

Department Services

- Member of Faculty Hiring Student Committee; LTI, CMU 2025
- Member & Student Representative of CMU LTI DEI Committee 2024
- Chair of Faculty Hiring Student Committee; LTI, CMU 2024

Paper Review

- Program committee for NeurIPS, ICLR, ICML, CoLM; ACL, EMNLP, NAACL, EACL; AAAI

TEACHING EXPERIENCE

Teaching Assistant

- Neural Code Generation, Spring 2024: lead student discussion, advise students research projects
- Advanced NLP, Spring & Fall 2023: head TA; prepare assignments, advise students research projects
- Data Science Seminar, Fall 2021: organize research paper discussion, advise students research proposal

Guest Lectures

- “Language Model-Based Agents” at Human-Centered NLP
- “Language Model-Based Agents” at Clinical Translation of AI
- “Evaluation & Benchmarks for Code Generation” at Neural Code Generation and Advanced NLP
- “Tool Use and Language Agents” at Advanced NLP

AWARDS & HONORS

Google PhD Fellowship	2025
CMU Presidential Fellowship	2023
China National Scholarship recipient	2019

MEDIA COVERAGE

Incubity	Sep 2024
Agent Workflow Memory: Transforming AI Task Management	
Medium	Sep 2024
Agent Workflow Memory: using workflows to guide LLM Agent generations	
MarkTechPost	Sep 2024
Agent Workflow Memory (AWM): An AI Method for Improving the Adaptability and Efficiency of Web Navigation Agents	
MarkTechPost	Aug 2024
A Reproducible AI Benchmark for Evaluating Program Efficiency via Two Paradigms	
MarkTechPost	Jul 2023
Google Research Introduces SPAE: An AutoEncoder For Multimodal Generation With Frozen Large Language Models (LLMs)	
SyncedReview	May 2023
‘May the Source Be With You!’ –BigCode’s Open-Access StarCoder Outperforms All Existing Open Code LLMs	