

Zhengxiang Shi

CONTACT INFORMATION

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United Kingdom, WC1E 6BT
University College London

RESEARCH KEYWORDS

❑ **Parameter-efficient Fine-tuning**
❑ **Language Modelling**
❑ Recommendation System
❑ Semi-supervised Learning

❑ **Continued Pre-training**
❑ **Instruction Tuning**
❑ Conversational System
❑ Information Retrieval

BIOGRAPHY

I am currently a final year PhD candidate in Natural Language Processing (NLP) at University College London (UCL). Central to my research is the ambition to leverage language models (LMs) **efficiently** and **robustly** to solve **general** tasks. To that end, my existing (first-authored) work can be broadly categorized into the following directions: (1) **Language Modelling and Pre-training** [NeurIPS 2023, Findings of ACL 2023]; (2) **Parameter-efficient Fine-tuning** [Preprint 1]; and (3) **Interactive Systems** [Preprint 2, Findings of EMNLP 2023, Findings of NAACL 2022, AAAI 2022, Amazon Alexa Proceeding].

EDUCATION

University College London
Ph.D. in Computer Science

London, United Kingdom
Oct. 2020 - 2024 (Expected)

- **Affiliation:** UCL SpaceTimeLab and UCL Web Intelligent Group
- **Advisors:** Prof. Aldo Lipani and Prof. Emine Yilmaz

University College London
M.S. in Data Science (Distinction)

London, United Kingdom
Sep. 2019 - Sep. 2020

University of Liverpool
B.S. in Mathematics (First Class Honours)

Liverpool, United Kingdom
Sep. 2017 - July. 2019

Xi'an Jiaotong-Liverpool University
B.S. in Mathematics (First Class Honours)

Suzhou, China
Sep. 2015 - July. 2017

INTERSHIP EXPERIENCE

Nile Foundation, Amazon
Applied Scientist Internship
• Supervised by Dr. Oleg Rokhlenko and Prof. Eugene Agichtein.

Seattle, United States
Jul. 2023 – Oct. 2023

Alexa Shopping, Amazon
Applied Scientist Internship
• Supervised by Dr. Gabriella Kazai and Dr. Yunlong Jiao.

London, United Kingdom
Oct. 2022 – Jan. 2023

Amazon Alexa AI
Alexa Prize TaskBot Challenge
• \$250,000 Research Grant.

London, United Kingdom
Apr. 2021 – Apr. 2022

PUBLICATIONS

🔍 SCHOLAR
📄 RESEARCH

Preprints & Under Submission

15. **Zhengxiang Shi, Aldo Lipani**

DePT: Decomposed Prompt Tuning for Parameter-Efficient Fine-tuning
Submitted to International Conference on Learning Representations (ICLR 2024)
Advances in Neural Information Processing Systems (NeurIPS) 3rd Workshop on Efficient

Natural Language and Speech Processing 2023

📄 <https://openreview.net/forum?id=KjegfPGRde> 🔗 [Code Repository](#)

📄 <https://neurips.cc/virtual/2023/81140>





📄 *arXiv preprint arXiv:2309.05173*

14. **Zhengxiang Shi**, Giuseppe Castellucci, Simone Filice, Elad Kravi, Saar Kuzi, Eugene Agichtein, Oleg Rokhlenko
Ambiguity Detection and Calibration for Question Answering with Large Language Models
Submitted to ACL Rolling Review (ACL ARR), 2023
13. **Zhengxiang Shi**, Wang Xi, Aldo Lipani
Self Contrastive Learning for Session-based Recommendation
Submitted to European Conference on Information Retrieval (ECIR), 2023
📄 *arXiv preprint arXiv:2306.01266* 🔗 [Code Repository](#)
12. Youjing Yu, **Zhengxiang Shi**, Aldo Lipani
Understanding User Confidence in Conversational Search
Submitted to European Conference on Information Retrieval (ECIR), 2023
11. Haijin Li, **Zhengxiang Shi**, Aldo Lipani
RecAlpaca: Instruction-Tuned Language Models for Conversational Recommendation
Submitted to European Conference on Information Retrieval (ECIR), 2023
10. Junyuan Liu, **Zhengxiang Shi**, Aldo Lipani
SummEQuAL: Summarization Evaluation via Question Answering using Large Language Models
Submitted to European Conference on Information Retrieval (ECIR), 2023



Peer-reviewed Conference (with proceedings)

9. **Zhengxiang Shi**, Aldo Lipani
Don't Stop Pretraining? Make Prompt-based Fine-tuning Powerful Learner
Advances in Neural Information Processing Systems (NeurIPS), 2023
📄 <https://openreview.net/forum?id=s7xWeJQACI> 🔗 [Code Repository](#)
📄 *arXiv preprint arXiv:2305.01711*
8. **Zhengxiang Shi**, Procheta Sen, Aldo Lipani
Lexical Entrainment for Conversational Systems
Empirical Methods in Natural Language Processing (Findings of EMNLP), 2023
📄 <https://arxiv.org/abs/2310.09651> 🔗 [Code Repository](#)
7. **Zhengxiang Shi**, Aldo Lipani
Rethink the Effectiveness of Text Data Augmentation: An Empirical Analysis
European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN), 2023
📄 <https://doi.org/10.14428/esann/2023.ES2023-42> 🔗 [Code Repository](#)
6. **Zhengxiang Shi**, Francesco Tonolini, Nikolaos Aletras, Emine Yilmaz, Gabriella Kazai, Yunlong Jiao
Rethinking Semi-supervised Learning with Language Models
Association for Computational Linguistics (Findings of ACL), 2023
📄 <https://aclanthology.org/2023.findings-acl.347> 🔗 [Code Repository](#)
5. **Zhengxiang Shi**, Yue Feng, Aldo Lipani
Learning to Execute Actions or Ask Clarification Questions
North American Chapter of the Association for Computational Linguistics (Findings of NAACL), 2022
📄 <https://aclanthology.org/2022.findings-naacl.158> 🔗 [Code Repository](#)
4. Jerome Ramos, To Eun Kim, **Zhengxiang Shi**, Xiao Fu, Fanghua Ye, Yue Feng, Aldo Lipani
Conditia: A state machine like architecture for multi-modal task bots
Alexa Prize TaskBot Challenge Proceedings (Amazon Proceedings), 2022

 <https://www.amazon.science/alex-prize/proceedings/condita-a-state-machine-like-architecture-for-multi-modal-task-bots>

3. **Zhengxiang Shi**, Pin Ni, Meihui Wang, To Eun Kim, Aldo Lipani
Attention-based Ingredient Parser
European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN), 2022
 <https://doi.org/10.14428/esann/2022.ES2022-10>  [Code Repository](#)
2. **Zhengxiang Shi**, Qiang Zhang, Aldo Lipani
StepGame: A New Benchmark for Robust Multi-Hop Spatial Reasoning in Texts
Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), Oral Presentation, 2022
 <https://ojs.aaai.org/index.php/AAAI/article/view/21383>  [Code Repository](#)

Peer-reviewed Workshop Papers (without proceedings)

1. **Zhengxiang Shi**, Jerome Ramos, To Eun Kim, Xi Wang, Hossein A Rahmani, Aldo Lipani
When and what to ask through world states and text instructions
Advances in Neural Information Processing Systems (NeurIPS WS) IGLU Workshop, 2022
 <https://nips.cc/virtual/2022/66405>  [Code Repository](#)

AWARDS, GRANTS, AND FUNDING

Pending Awards and Grants Applications

Llama-2 Grant for Education (*Under Review*) 2023
with Prof. John Shawe-Taylor, Prof. Yvonne Rogers, Prof. Emine Yilmaz, Dr. Sahan Bulathwela,
Prof. Mutlu Cukurova, and Prof. Maria Perez-Ortiz

Awards and Grants Received

NeurIPS 2023 Scholar Award 2023
NeurIPS 2022 IGLU Challenge Research Prize 2022
AAAI-22 Scholarship 2022
Amazon Alexa Prize Competition Research Grant 2022
Microsoft Azure Computing Grant 2021
UCL PhD Studentship (International) 2020 – 2024
University Academic Excellence Award at UoL 2018 – 2019
University Academic Excellence Award at UoL 2017 – 2018
University Academic Excellence Award at XJTLU 2016 – 2017
University Academic Excellence Award at XJTLU 2015 – 2016

TEACHING & SUPERVISION EXPERIENCE

Supervision Experience

I have had the privilege of guiding and collaborating with several aspiring and talented researchers and students in their academic pursuits:

Research Project Co-supervisor 2022 – 2023
Youjing Yu (Now a PhD student at the University of Cambridge)
Master Thesis Co-supervisor 2023
Junyuan Liu (Now a PhD student at University College London)
Master Thesis Co-supervisor 2023
Haijin Li (Now a Research Engineer at Kuaishou Technology)

Teaching Experience

Teaching Assistant at UCL 2023 – 2024
Statistical Natural Language Processing (Prof. Pontus Stenetorp)
Teaching Assistant at UCL 2023 – 2024
Machine Learning for Data Science (Prof. Aldo Lipani)
Teaching Assistant at UCL 2023 – 2024
Geospatial Programming (Prof. Aldo Lipani)

Teaching Assistant at UCL <i>Machine Learning for Data Science</i> (Prof. Aldo Lipani)	2022 – 2023
Teaching Assistant at UCL <i>Geospatial Programming</i> (Prof. Aldo Lipani)	2022 – 2023
Teaching Assistant at UCL <i>Machine Learning for Data Science</i> (Prof. Aldo Lipani)	2021 – 2022
Teaching Assistant at UCL <i>Geospatial Programming</i> (Prof. Aldo Lipani)	2021 – 2022
Teaching Assistant at UCL <i>Machine Learning for Data Science</i> (Prof. Aldo Lipani)	2020 – 2021
Teaching Assistant at UCL <i>Geospatial Programming</i> (Prof. Aldo Lipani)	2020 – 2021



ACADEMIC SERVICES Program Committee and/or Reviewer

- **Natural Language Processing Venues:** ACL ARR (Feb. 2023 - Present), ACL (2022, 2023), EMNLP (2022, 2023), EACL (2022, 2023), COLING (2023, 2024)
- **Information Retrieval Venues:** ECML/PKDD (2022), KDD (2023), SIGIR (2022, 2023, 2024), ECIR (2024), SDM (2024)
- **Machine Learning Venues:** AAAI (2023, 2024), NeurIPS (2023)