

VITA: Zhexiong Liu

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Contact:

Dept. of Computer Science
6117 Sennott Square
University of Pittsburgh
Pittsburgh, PA 15260 USA
Office Phone: (+1) 412-624-8490
Email: zhexiong@cs.pitt.edu
<https://cs.pitt.edu/~zhexiong>

Research Interests:

I am passionate about using natural language processing and large language models (LLMs) to build writing applications (e.g., automated writing evaluation, revision simulation with LLM agents). I am also interested in multimodal learning (e.g., visual question answering, multimodal argument mining) and interpretable machine learning (e.g., neuro-symbolic reasoning, adaptive meta-learning). I focus on developing methodologies to address challenges in education, science, and technology. Please feel free to email me at [zhexiong \[at\] cs.pitt.edu](mailto:zhexiong@cs.pitt.edu) if you are interested in a discussion or collaboration!

Experience:

2024 to 2024: Data & Applied Scientist Intern, Microsoft, Redmond, WA
2023 to 2023: Data & Applied Scientist Intern, Microsoft, Redmond, WA
2022 to 2022: Data & Applied Scientist Intern, Microsoft, Redmond, WA
2022 to 2025: Research Assistant, University of Pittsburgh, Pittsburgh, PA
2021 to 2023: Visiting Student, Carnegie Mellon University, Pittsburgh, PA
2021 to 2021: Applied Scientist Intern, Amazon, Santa Barbara, CA
2020 to 2022: Teaching Assistant, University of Pittsburgh, Pittsburgh PA
2019 to 2020: Research Assistant, Emory University, Atlanta, GA
2019 to 2020: Teaching Assistant, Emory University, Atlanta, GA
2016 to 2018: Algorithm Engineer, Calabar Information Technology, China

Education:

Ph.D. (2025) Computer Science, University of Pittsburgh, Pittsburgh, PA
Advisor: Diane J. Litman
M.S. (2020) Computer Science, Emory University, Atlanta, GA
Advisor: Jinho D. Choi
B.E. (2016) Computer Science & Technology, Sichuan University, China

Publication:

2025

- [1] Tianwen Li, Lindsay Clare Matsumura, Elaine L Wang, **Zhexiong Liu**. Designing Writing Feedback with Large Language Models: Developing Young Adolescents' Conceptual Understanding of Effective Revision. Proceedings of *The International Society of the Learning Sciences Annual Meeting (ISLS) Annual Meeting*, June 2025 (Poster) [link]
- [2] **Zhexiong Liu**, Diane Litman, Elaine L Wang, Tianwen Li, Mason Gobat, Lindsay Clare Matsumura, Richard Correnti. eRevise+RF: A Writing Evaluation System for Assessing Student Essay Revisions and Providing Formative Feedback. Proceedings of *Annual Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL)*, April 2025. [link]
- [3] Tianwen Li, Lindsay Clare Matsumura, Elaine L Wang, Diane Litman, Richard Correnti, **Zhexiong Liu**. Leveraging large language models to fostering young students' metacognition of revision. In *American Educational Research Association Annual Conference (AERA)*, April 2025. (Poster) [link]
- [4] Elaine L Wang, Lindsay Clare Matsumura, **Zhexiong Liu**, Tianwen Li, Richard Correnti, Diane Litman. Elementary Students' Revision Moves in Text-Based Argument Essay Writing: A Corpus Study. In *American Educational Research Association Annual Conference (AERA)*, April 2025. (Round Table). [link]

2024

- [5] Yamen Ajjour, Roy Bar-Haim, Roxanne El Baff, **Zhexiong Liu**, Gabriella Skitalinskaya. The 11th Workshop on Argument Mining. Proceedings of *The 11th Argument Mining Workshop, held in conjunction with The Association for Computational Linguistics (ACL)*, August 2024. (Editor) [link]
- [6] Ke Yu, Shantanu Ghosh, **Zhexiong Liu**, Christopher Deible, Clare B. Poynton, Kayhan Batmanghelich. Anatomy-specific Progression Classification in Chest Radiographs via Weakly Supervised Learning. *Radiology: Artificial Intelligence*, July 2024. [link]
- [7] Tianwen Li, **Zhexiong Liu**, Lindsay Clare Matsumura, Elaine L Wang, Diane Litman, Richard Correnti. Using Large Language Models to Assess Young Students' Writing Revisions. Proceedings of *The 19th Workshop on Innovative Innovative Use of NLP for Building Educational Applications (BEA)*, held in conjunction with the *Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)*, June 2024. [link]
- [8] Richard Correnti, Elaine L Wang, Lindsay Clare Matsumura, Diane Litman, **Zhexiong Liu**, Tianwen Li. Supporting Students' Text-based Evidence Use via Formative Automated Writing and Revision Assessment. *The Routledge International Handbook of Automated Essay Evaluation*, June 2024. [link]
- [9] **Zhexiong Liu**, Jing Zhang, Jiaying Lu, Wenjing Ma, Joyce Ho. LogicPrpBank: A Corpus for Logical Implication and Equivalence. Proceedings of *The 5th Artificial Intelligence for Education Workshop, held in conjunction with the 38th AAAI Conference on Artificial Intelligence (AAAI-24)*, February 2024. [link]
- [10] **Zhexiong Liu**, Cris Benge, Yash Dagli, Siduo Jiang. STIM: Predicting Memory Uncorrectable Errors with Spatio-Temporal Transformer. Proceedings of *Microsoft Journal of Applied Research (MSJAR)*, January 2024. [link]

2023

- [11] **Zhexiong Liu**, Mohamed Elaraby, Yang Zhong, Diane Litman. Overview of ImageArg-2023: The First Shared Task in Multimodal Argument Mining. Proceedings of *The 10th Argument Mining Workshop, held in conjunction with the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, December 2023. [link]
- [12] **Zhexiong Liu**, Diane Litman, Elaine L Wang, Lindsay C. Matsumura, Richard Correnti. Predicting the Quality of Revisions in Argumentative Writing. Proceedings of *The 18th Workshop on Innovative Use of NLP for Building Educational Applications (BEA), held in conjunction with Annual Meeting of the Association for Computational Linguistics (ACL)*, July 2023. [link]
- [13] **Zhexiong Liu** as part of Authors. NL-Augmenter: A Framework for Task-Sensitive Natural Language Augmentation. Proceedings of *Northern European Journal of Language Technology (NEJLT)*, April 2023. [link]
- [14] **Zhexiong Liu**, Licheng Liu, Yiqun Xie, Zhenong Jin, Xiaowei Jia. Task-Adaptive Meta-Learning Framework for Advancing Spatial Generalizability. Proceedings of *The 37th AAAI Conference on Artificial Intelligence (AAAI-23)*, February 2023. [link]
- [15] **Zhexiong Liu**, Cris Benge, Siduo Jiang. Ticket-BERT: A Language Model for Ticket Text Classification. Proceedings of *Microsoft Journal of Applied Research (MSJAR)*, January 2023. [link]

2022

- [16] **Zhexiong Liu***, Meiqi Guo*, Yue Dai*, Diane Litman (*equal contribution). ImageArg: A Multi-modal Tweet Dataset for Image Persuasiveness Mining. Proceedings of *The 9th Argument Mining Workshop, held in conjunction with the International Conference on Computational Linguistics (COLING)*, October 2022. (Best Paper Award) [link]
- [17] Ke Yu, Shantanu Ghosh, **Zhexiong Liu**, Christopher Deible, Kayhan Batmanghelich. Anatomy-Guided Weakly Supervised Abnormality Localization in Chest X-rays. Proceedings of *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, September 2022. [link]

2021

- [18] **Zhexiong Liu** and Adriana Kovashka. Graph-Symbolic VQA with Rich Visual Estimators and No Question-Answer Labels. In *Visual Question Answering Workshop, held in conjunction with the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2021. (Poster Spotlight) [link]
- [19] Hanzhong Zheng, **Zhexiong Liu**, Dejia Shi. Image-text Discourse Coherence Relation Discoveries on Multi-image and Multi-text Documents. Proceedings of *International Conference on Internet of Things, Artificial Intelligence and Mechanical Automation (Io-TAIMA)*, June 2021. [link]

Teaching:

Teaching Assistant at University of Pittsburgh, Pittsburgh, PA

2021 to 2022: Human Language Technologies (CS1671)

2021 to 2022: Introduction to Natural Language Processing (CS2731)

2021 to 2022: Algorithms and Data Structures II (CS1501)

2020 to 2021: Operating Systems (CS1550)

2020 to 2021: Introduction to Computing for Scientist (CS0011)

2020 to 2021: Algorithm Implementation (CS1501)

Teaching Assistant at Emory University, Atlanta, GA
2019 to 2020: Introduction to Statistic Inference (QTM100)
2019 to 2020: Undergraduate/Graduate Theory of Computing (CS424/CS524)
2019 to 2020: Graduate Algorithms (CS526)
2019 to 2020: Mathematics for Quantitative Sciences (QTM120)

Academic Service:

Organizer: The 11th ArgMining Workshop at ACL 2024 [link]
ImageArg Shared Task in the 10th ArgMining Workshop at EMNLP 2023 [link]
Reviewer: AAAI 2025, ACL 2025, EMNLP 2025, NAACL 2025, EDM 2025, ACL-W 2025
CVPR-W 2025, AAAI 2024, ACL 2024, EMNLP 2024, EDM 2024
NAACL-W 2024, CVPR-W 2024, AAAI 2023, ACL 2023, ACL-W 2023
EMNLP-W 2023, CVPR-W 2023, CVPR-W 2022
Volunteer: NAACL 2025, AAAI 2024, AAAI 2023, ACL 2023, COLING 2022

Student Supervision:

2024: Mason Gobat (CS Undergraduate Student)

Invited Talk:

2025: Technology for Good Research Panel at University of Pittsburgh, PA
2023: Computational Linguistics group at University of Groningen, Netherlands

Awards:

2025: National Artificial Intelligence Research Resource Pilot Travel Support
2025, 2023: Association for Computational Linguistics Student Travel Award
2025, 2023, 2022: Department of Computer Science Travel Award at PITT
2025, 2023: Learning Research and Development Center GSC Award at PITT
2024, 2023: Association for Advancement of Artificial Intelligence Student Scholarship
2023: Graduate and Professional Student Government Travel Award at PITT
2022: International Conference on Computational Linguistics Student Travel Award
2022: Best Paper Award in the 9th Argument Mining Workshop at COLING
2020, 2019, 2018: Faculty (Half-Tuition) Scholarship at Emory University
2016: Honors Undergraduate Thesis Program at Sichuan University
2016: Honorable Mention at Mathematical Contest in Modeling
2015: The 3rd Prize at National College Mathematics Competition
2015: Science and Technology Innovation Award at Sichuan University
2015, 2014, 2013: Sichuan University Merit Scholarship

Leadership & Community Engagement:

2024 to 2024: Graduate Mentor, Department of Computer Science, University of Pittsburgh, Pittsburgh, PA

2022 to 2023: Committee Member, School of Computing and Information Academic Council, University of Pittsburgh, Pittsburgh, PA

2022 to 2022: Graduate Mentor, Graduate Global Ties Mentor Program, University of Pittsburgh, Pittsburgh, PA

2020 to 2020: Project Mentor, CMU VentureWell Virtual Energy Hackathon, Carnegie Mellon University, Pittsburgh, PA

2020 to 2020: Volunteer and Instructor, Senior Citizens Digital Literacy, University of Pittsburgh, Pittsburgh, PA

2019 to 2019: Volunteer and Mentor, Emory DataFest Hackathon, Emory University, Atlanta, GA

2018 to 2019: Graduate Assistant and Project Developer, Stuart A. Rose Library, Emory University, Atlanta, GA

Previous years available on request.

Miscellaneous Skills:

Programming: C/C++, Java, Swift, Python, Matlab, R, SQL, Javascript, HTML/CSS

Frameworks: PyTorch, TensorFlow, HuggingFace, AutoGen, Spark MLlib, Django

Languages: Fluent in written & conversational English and Chinese

Sports: Skiing, Swimming, Hiking, Biking

Arts: Calligraphy, Painting, Photography