ZEMING CHEN

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RESEARCH INTEREST

Broad: Natural Language Processing, Deep Learning, Computational Semantics
Specific: natural language understanding and reasoning, neural-symbolic inference, causal model interpretability, neural language model, few-shot and continual learning, commonsense reasoning,

EDUCATION

Swiss Federal Institute of Technology Lausanne (EPFL), Lausanne Switzerland *Sep 2022 - May 2026*
Doctor of Philosophy (P.h.D) in Computer Science, Natural Language Processing

Rose-Hulman Institute of Technology, Terre Haute USA *Sep 2018 - May 2022*
Magna Cum Laude
Bachelor of Science in Computer Science & Mathematics

PUBLICATION

DISCO: Distilling Phrasal Counterfactuals with Large Language Models
Zeming Chen*, Qiyue Gao*, Kyle Richardson, Antoine Bosselut, Ashish Sabharwal
Arxiv Preprint

Curriculum: A Broad-Coverage Benchmark for Linguistic Phenomena in Natural Language Understanding
Zeming Chen*, Qiyue Gao
2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies
Oral Presentation

Probing Linguistic Information For Logical Inference In Pre-trained Language Models
Zeming Chen*, Qiyue Gao
36th AAAI Conference on Artificial Intelligence 2022
Oral Presentation

NeuralLog: Natural Language Inference with Joint Neural and Logical Reasoning
Zeming Chen*, Qiyue Gao*, Lawrence S. Moss
*10th Joint Conference on Lexical and Computational Semantics (*SEM) 2021, Association of Computational Linguistics*

Monotonicity Marking from Universal Dependency Trees
Zeming Chen*, Qiyue Gao
14th International Conference on Computational Semantics (IWCS) 2021, Association of Computational Linguistics
Outstanding Paper Award

Attentive Tree Network for Monotonicity Reasoning
Zeming Chen*
1st Workshop on Natural Logic meets Machine Learning (NALOMA) 2020, Association of Computational Linguistics

AWARD

- **Outstanding Paper Award**, 14th International Conference on Computational Semantics (IWCS) 2021
- **Frank Young Outstanding Scholarship Award**, *Rose-Hulman Institute of Technology, Department of Computer Science and Software Engineering*
- **Michael Atkins Outstanding Senior Thesis Award**, *Rose-Hulman Institute of Technology, Department of Computer Science and Software Engineering*

RESEARCH EXPERIENCE

Indiana University *June 2021 - Present*
Advisor: Lawrence S. Moss

- CURRICULUM: A broad-coverage benchmark and task augmentation suite for linguistic phenomena.
- Inference Information Probes: Methodology and datasets for probing linguistic information in contextualized embeddings.

Indiana University *sep 2020 - May 2021*
Advisor: Lawrence S. Moss

- NeuralLog: A neural-symbolic inference engine targeting syntactic variation.
- Udep2Mono: A system for automatic monotonicity polarity annotation.

WORK EXPERIENCE

Allen Institute for Artificial Intelligence (AI2) *June 2022 - Sep 2022*
Research Intern, Aristo
- Conducted research on counterfactual reasoning and Natural Language Inference.
- Supervised by Kyle Richardson and Ashish Sabharwal

Sunshine Import & Export CO.,LTD *June 2019 - Aug 2019*
Full-stack Software Consultant
- Developed and deployed an Enterprise Resources Planning system
- Built an enterprise-level product and user database

PROGRAMMING SKILLS

Programming:	Python, Java, JavaScript/Typescript, C/C++, Lisp, SQL, HTML/CSS
Software Tools & Libraries:	**Deep Learning:** Pytorch, Tensorflow, Pytorch-lightning, Ray
	NLP: Transformers, AllenNLP, JIANT, CoreNLP, OpenAI GPT-3
	Robotics: ROS, OpenCV, LabView, MATLAB
	Full Stack: Spring Boot, React JS, Angular, electron.js
	Database: MongoDB, Microsoft SQL Server, Neo4j, MySQL, Firebase

OPEN-SOURCE PROJECTS

Automatic Social Distance Monitoring *Summer 2020*
- Real-time pedestrian detection and social distance analysis.
- C++, OpenCV, YOLOv3

RHIT Rover System *fall 2020 - Winter 2021*
- Main software framework for RHTI mars rover.
- Control, simulation, navigation, perception, mapping & localization, communication
- ROS, Python, C++

SERVICE

37th AAAI Conference 2022 *3 reviews*
AAAI Magazine 2022 *2 review*
AAAI Magazine 2021 *3 reviews*

TEACHING ASSISTANCE & GRADER EXPERIENCE

CSSE 230 Algorithm Design and Analysis *Spring 2022*
CSSE 413 Artificial Intelligence *Fall 2021*
CSSE 374 Software Design *Winter 2020*

EXTRACURRICULAR

University Rover Challenge Team (Rose-Hulman) *sep 2018 - may 2022*

Captain for Robotics Software Development

- Autonomous path planning and trajectory optimization
- Simultaneously Localization and Mapping (SLAM)
- Visual perception with OpenCV
- Robotic software design and development with ROS