ZEMING CHEN

🔖 Google Scholar 📑 Semantic Scholar ⚙ GitHub

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RESEARCH INTEREST

My research aims to build AI reasoning agents that serve the common good with a focus on developing strong foundation models, designing novel reasoning paradigms, and adapting them to human-centered applications in critical areas like medicine and global fairness.

Broad: Machine Learning, Natural Language Processing, Multimodality

Specific: Large-scale AI Development (Foundation & Frontier Models), Learning & Reasoning Algorithms, World Model, Agentic AI for Research & Science

My current work involves reframing AI reasoning as test-time continual learning with new methodologies in RL post-training and Deep Research agents.

INDUSTRY EXPERIENCE

Meta (FAIR)   *1 Hacker Way, Menlo Park, CA, USA*
Research Scientist Intern, Language & Multimodal Foundations (PhD)   *6/23/2025 to 10/11/2025*
- **Responsibilities**: Performing research on scaling test-time learning for long-context reasoning and episodic memory with LLMs. Investigating how instruction-tuning with a meta-learning algorithm improves LLM's reasoning performance through test-time learning.
- **Project**: Designing a learning algorithm that teaches LLMs to perform complex reasoning and episodic memorization as test-time self-supervised learning.
- Supervised by **Barlas Oğuz**

Meta (FAIR)   *1101 Dexter Ave N, Seattle, WA, USA*
Research Scientist Intern, Language & Multimodal Foundations (PhD)   *7/8/2024 to 10/11/2024*
- **Responsibilities**: Performing research on novel algorithms that enable learning the semantics of multimodal data (specifically text, audio, images, video, and other modalities).
- **Project**: Developing multimodal Vision-Language-Action models (VLAMs) with the abilities for world modeling, video-language reasoning, and embodied decision-making.
- Supervised by **Ramakanth Pasunuru** & **Asli Celikyilmaz**

Allen Institute for Artificial Intelligence (AI2)   *2157 N Northlake Way, Seattle, WA, USA*
Research Intern, Aristo   *6/6/2022 - 9/10/2022*
- **Responsibilities**: Performing research on AI systems that enable robust and systematic reasoning over language.
- **Project**: Developing an algorithm for distilling counterfactual knowledge from massive-scale Large Language Models to improve the robustness of targeted reasoning models.
- Supervised by **Kyle Richardson** & **Ashish Sabharwal**

PUBLICATIONS

PERK: Long-Context Reasoning as Parameter-Efficient Test-Time Learning
Zeming Chen*, Angelika Romanou, Gail Weiss, Antoine Bosselut
Arxiv Preprint

MEDITRON: Open Medical Foundation Models Adapted for Clinical Practice
Zeming Chen*, Angelika Romanou, Antoine Bonnet, Alejandro Hernández-Cano, Badr Alkhamissi, Kyle Matoba, et al., Physician Evaluation Group, Noémie Boillat-Blanco, Kristina Keitel, Javier Elkin, Blaise Robert, Syrielle Montariol, Mary-Anne Hartley, Martin Jaggi, Antoine Bosselut
Highlighted Research - Annual Report Of The ETH Board On The ETH Domain
Spotlight Research blog by Meta AI
Nature Portfolio Preprint

MEDITRON-70B: Scaling Medical Pretraining for Large Language Models

Zeming Chen*, Alejandro Hernández-Cano, Angelika Romanou, Antoine Bonnet, Kyle Matoba, et al., Mary-Anne Hartley, Martin Jaggi, Antoine Bosselut

Highlited Research for Science and Medicine - AI Index Report 2024 from Stanford Institute for Human-Centered Artificial Intelligence

Top ML Papers of the Week (by dair.ai)

Arxiv Preprint

INCLUDE: Evaluating Multilingual Language Understanding with Regional Knowledge

Angelika Romanou*, Negar Foroutan*, Anna Sotnikova*, **Zeming Chen***, Sree Harsha Nelaturu, Shivalika Singh, Rishabh Maheshwary, Micol Altomare, Mohamed A. Haggag, Imanol Schlag, Marzieh Fadaee, Sara Hooker, Antoine Bosselut

Spotlight Research blog by Cohere for AI

Spotlight Award (Top 5% Submission)

*The 13th International Conference on Learning Representations (**ICLR 2025**)*

GeoExplorer: Active Geo-localization with Curiosity-Driven Exploration

Li Mi*, Manon Bechaz, **Zeming Chen**, Antoine Bosselut, Devis Tuia

*The 63rd Annual Meeting of the Association for Computational Linguistics (**ACL 2025**)*

Do Vision-Language Models Have Internal World Models? Towards an Atomic Evaluation

Qiyue Gao*, Xinyu Pi, Kevin Liu, Junrong Chen, Ruolan Yang, Xinqi Huang, Xinyu Fang, Lu Sun, Gautham Kishore, Bo Ai, Stone Tao, Mengyang Liu, Jiaxi Yang, Chao-Jung Lai, Chuanyang Jin, Jiannan Xiang, Benhao Huang, **Zeming Chen**, David Danks, Hao Su, Tianmin Shu, Ziqiao Ma, Lianhui Qin, Zhiting Hu

*The 63rd Annual Meeting of the Association for Computational Linguistics (**ACL 2025**)*

Could ChatGPT get an engineering degree? Evaluating higher education vulnerability to AI assistants

Beatriz Borges*, Negar Foroutan, Deniz Bayazit, Anna Sotnikova, Syrielle Montariol, Tanya Nazaretzky, Mohammadreza Banaei, Alireza Sakhaeirad, Philippe Servant, Seyed Parsa Neshaei, Jibril Frej, Angelika Romanou, Gail Weiss, Sepideh Mamooler, **Zeming Chen**, Simin Fan, Silin Gao, Mete Ismayilzada, Debjit Paul, Philippe Schwaller, Sacha Friedli, Patrick Jermann, Tanja Käser, Antoine Bosselut, EPFL Grader Consortium, EPFL Data Consortium

*Proceedings of the National Academy of Sciences (**PNAS**)*

Discovering Knowledge-Critical Subnetworks in Pretrained Language Models

Deniz Bayazit*, Negar Foroutan, **Zeming Chen**, Gail Weiss, Antoine Bosselut

*The 2024 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2024**)*

Complex Reasoning over Logical Queries on Commonsense Knowledge Graphs

Tianqing Fang*, **Zeming Chen**, Yangqiu Song, Antoine Bosselut

*The 62nd Annual Meeting of the Association for Computational Linguistics (**ACL 2024**)*

RECKONING: Reasoning through Dynamic Knowledge Encoding

Zeming Chen*, Gail Weiss, Eric Mitchell, Asli Celikyilmaz, Antoine Bosselut

*The 37st Conference on Neural Information Processing Systems (**NeurIPS 2023**)*

DISCO: Distilling Phrasal Counterfactuals with Large Language Models

Zeming Chen*, Qiyue Gao*, Antoine Bosselut, Ashish Sabharwal, Kyle Richardson

*The 61st Annual Meeting of the Association for Computational Linguistics (**ACL 2023**)*

Mitigating Label Biases for In-context Learning

Yu Fei*, Yifan Hou, **Zeming Chen**, Antoine Bosselut

*61st Annual Meeting of the Association for Computational Linguistics (**ACL 2023**)*

Curriculum: A Broad-Coverage Benchmark for Linguistic Phenomena in Natural Language Understanding

Zeming Chen*, Qiyue Gao

*Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL 2022**)*

Oral Presentation

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

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

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

Attentive Tree Network for Monotonicity Reasoning
Zeming Chen*
*The 1st & 2nd Workshop on Natural Logic meets Machine Learning (**NALOMA 2020-21**)*

EDUCATION

Swiss Federal Institute of Technology Lausanne (EPFL), Lausanne, Switzerland   *Sep 2022 - Present*
Doctor of Philosophy (P.h.D) in Computer Science, Natural Language Processing
Advisor: Antoine Bosselut

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

AWARDS

Outstanding Reviewer Award ,
- Annual Meeting of the Association for Computational Linguistics (ACL 2023)
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

OPEN SOURCE PROJECTS

Meditron-70B
- Meditron is a suite of open-source large foundation models for clinical practice.
- **2.0k GitHub Stars**
Megatron-LLM
- This library enables pre-training and fine-tuning of Large Language Models at scale.
- **567 GitHub Stars**

PROGRAM COMMITTEE & REVIEWER SERVICE

ICLR 2026 Conference
NeurIPS 2025 Conference
EMNLP 2025 Conference
ACL 2025 Conference
ICLR 2025 Conference
EMNLP 2024 Conference
NAACL 2024 Conference
AAAI 2024 Conference
ICLR 2024 Conference
AAAI 2023 Conference
EMNLP 2023 Conference
ACL 2023 Conference
AAAI 2022 Conference
AAAI Magazine 2022
AAAI Magazine 2021

PROGRAMMING SKILLS

Programming:	Python, Java, JavaScript, C/C++, SQL, HTML/CSS
Software Tools & Libraries:	**Deep Learning:** Pytorch, Tensorflow, Megatron, Lightning, Ray
	NLP: Transformers, TRL, vLLM, AllenNLP, CoreNLP
	Robotics: ROS, OpenCV, MATLAB, LabView
	Full Stack: Spring Boot, React JS, Angular JS, Electron JS
	Database: MongoDB, Microsoft SQL Server, MySQL, Firebase