

Yun Cheng

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RESEARCH INTERESTS

Large Language Models, Vision-Language Models, Multimodal Machine Learning, Self-Improvement, Representation Learning, Robustness and Generalization, LLM Metacognition and Meta-Reasoning

EDUATION

Princeton University	Princeton, NJ
<i>Ph.D. in Computer Science</i>	September 2023
• Advised by Prof. Sanjeev Arora	
Carnegie Mellon University	Pittsburgh, PA
<i>M.S. in Machine Learning</i>	December 2022
GPA 4.14/4.33	
• Advised by Prof. Louis-Philippe Morency	
• Selected Coursework: <i>Intermediate Deep Learning, Machine Learning in Practice, Probabilistic Graphical Models, Convex Optimization, Advanced Multimodal Machine Learning</i>	
Carnegie Mellon University	Pittsburgh, PA
<i>B.S. in Computer Science (University Honors)</i>	December 2021
<i>B.S. in Discrete Mathematics and Logic (University & College Honors)</i>	
GPA 3.85/4.0	
• Selected Coursework: <i>Intro to Deep Learning, Probability and Mathematical Statistics (PhD), Multimodal Machine Learning, Intro to Machine Learning (PhD), Design and Analysis of Algorithms, Distributed Systems, Graph Theory</i>	

PUBLICATIONS

1. Simon Park*, Abhishek Panigrahi*, **Yun Cheng***, Dingli Yu, Anirudh Goyal, Sanjeev Arora. “Generalizing from SIMPLE to HARD Visual Reasoning: Can We Mitigate Modality Imbalance in VLMs?” ICML 2025.
2. Paul Pu Liang, Chun Kai Ling, **Yun Cheng**, Alexander Obolenskiy, Yudong Liu, Rohan Pandey, Alex Wilf, Louis-Philippe Morency, Russ Salakhutdinov. “Multimodal Learning Without Labeled Multimodal Data: Guarantees and Applications.” ICLR 2024.
3. Paul Pu Liang, **Yun Cheng**, Xiang Fan, Chun Kai Ling, Suzanne Nie, Richard Chen, Zihao Deng, Nicholas Allen, Randy Auerbach, Faisal Mahmood, Ruslan Salakhutdinov, Louis-Philippe Morency. “Quantifying & modeling multimodal interactions: An information decomposition framework.” NeurIPS 2023.
4. Paul Pu Liang, Yiwei Lyu, Xiang Fan, Zetian Wu, **Yun Cheng**, Jason Wu, Leslie Chen, Peter Wu, Michelle A Lee, Yuke Zhu, Ruslan Salakhutdinov, Louis-Philippe Morency. “MultiBench: Multiscale Benchmarks for Multimodal Representation Learning.” NeurIPS Datasets and Benchmarks (2021).
5. **Yun Cheng**, Yixue Liu, Tomasz Tkocz, Albert Xu. “Typical Values of Extremal-Weight Combinatorial Structures with Independent Symmetric Weights”. Electron. J. Combin. 30 (2023), no. 1, Paper No. 1.12, 12 pp.
6. Paul Pu Liang, Yiwei Lyu, Xiang Fan, Arav Agarwal, **Yun Cheng**, Louis-Philippe Morency, Ruslan Salakhutdinov. “MultiZoo & MultiBench: A Standardized Toolkit for Multimodal Representation Learning.” JMLR (2023).

HONORS & AWARDS	<i>Francis Robbins Upton Fellowship</i> <i>Mathematics Prize</i> <i>CMU SCS DEI Grace Hopper Sponsorship</i> <i>Machine Learning TA Award</i> <i>Dean's List, High Honors</i>	2023-2028 2022 2022 2020-2021 2018-2022
TEACHING	Princeton University <i>Teaching Assistant</i> Natural Language Processing (Instructor: Danqi Chen, Tri Dao, Vikram Ramaswamy) Spring 2025 Introduction to Machine Learning (Instructor: Jia Deng, Adji Bousso Dieng) Carnegie Mellon University <i>Teaching Assistant</i> Advanced Multimodal Machine Learning (Instructor: Louis-Philippe Morency) Spring 2023 Artificial Social Intelligence (Instructor: Louis-Philippe Morency) Spring 2023 Multimodal Machine Learning (Instructor: Louis-Philippe Morency, Yonatan Bisk, Daniel Fried) Fall 2022, Spring 2023 Intro to Machine Learning (Instructor: Matt Gormley) Spring 2021, Fall 2021 Mathematical Concepts and Proofs (Instructor: John Mackey) Fall 2019, Fall 2020 Concepts of Mathematics Summer 2020	Princeton, NJ Pittsburgh, PA
SKILLS	<i>Programming Languages:</i> Python (NumPy, PyTorch, Tensorflow, Scikit-Learn, CVXPY, Pandas, Matplotlib), C/C++, Java, Go, Standard ML <i>Languages:</i> English, Mandarin (Native or Bilingual)	
PROFESSIONAL SERVICE	Reviewer NeurIPS, ICLR, EMNLP	