

Yutong (Kelly) He

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Education

- 2022 – 2027
(Expected) **Carnegie Mellon University** – Pittsburgh, PA
PhD in Machine Learning, School of Computer Science
Advisors: Zico Kolter, Ruslan Salakhutdinov
- 2019 – 2022 **Stanford University** – Stanford, CA
MS in Computer Science (with Distinction in Research)
Advisors: Stefano Ermon
GPA: 4.20/4.30
- 2015 – 2019 **University of Rochester** – Rochester, NY
BS in Mathematics (with Highest Distinction)
BS in Data Science (with Highest Distinction)
GPA: 3.95/4.00

Honors and Scholarships

- 2022 Outstanding Paper at ICLR 2022
- 2021 2nd place in Alexa Prize Socialbot Grand Challenge 4
- 2020 Siebel Scholar 2020-2021
- 2019-2020 Best Project Awards at Stanford CS 229, CS 224N, CS 230
- 2019 Doris Ermine Smith Award for Achievement in Mathematics
- 2019 Phi Beta Kappa
- 2018 University of Rochester Research Presentation Award
- 2018 University of Rochester Discovery Grant
- 2017 Xerox Engineering Research Fellowship

Publications

- 2023 **Towards reporting bias in visual-language datasets: bimodal augmentation by decoupling object-attribute association**
Qiyu Wu, Mengjie Zhao, **Yutong He**, Lang Huang, Junya Ono, Hiromi Wakaki, Yuki Mitsufuji
arXiv:2310.01330
- 2023 **Consistency Trajectory Models: Learning Probability Flow ODE Trajectory of Diffusion**
Dongjun Kim, Chieh-Hsin Lai, Wei-Hsiang Liao, Naoki Murata, Yuhta Takida, Toshimitsu Uesaka, **Yutong He**, Yuki Mitsufuji, Stefano Ermon
arXiv:2310.02279
- 2023 **Localized Text-to-Image Generation for Free via Cross Attention Control**
Yutong He, Ruslan Salakhutdinov, J. Zico Kolter
arXiv:2306.14636
- 2023 **CSP: Self-Supervised Contrastive Spatial Pre-Training for Geospatial-Visual Representations**
Gengchen Mai, Ni Lao, **Yutong He**, Jiaming Song, Stefano Ermon
International Conference on Machine Learning (ICML 2023)

- 2022 **SatMAE: Pre-training Transformers for Temporal and Multi-Spectral Satellite Imagery**
Yezhen Cong*, Samar Khanna*, Chenlin Meng, Patrick Liu, Erik Rozi, **Yutong He**, Marshall Burke, David B. Lobell, Stefano Ermon
Neural Information Processing Systems (NeurIPS 2022)
- 2022 **Understanding Economic Development in Rural Africa using Satellite Imagery, Building footprints and Deep Models**
Amna Elmustafa, Erik Rozi, **Yutong He**, Gengchen Mai, Stefano Ermon, Marshall Burke, David Lobell
International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2022)
- 2022 **Neural Generation Meets Real People: Building a Social, Informative Open-Domain Dialogue Agent**
Ethan A. Chi, Caleb Chiam, Trenton Chang, Swee Kiat Lim, Chetanya Rastogi, Alexander Iyabor, **Yutong He**, Hari Sowrirajan, Avanika Narayan, Jillian Tang, Haojun Li, Ashwin Paranjape, Christopher D. Manning
The 23rd Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL 2022)
- 2022 **Comparing Distributions by Measuring Differences that Affect Decision Making**
Shengjia Zhao*, Abhishek Sinha*, **Yutong He***, Aidan Perreault, Jiaming Song, Stefano Ermon
International Conference on Learning Representations (ICLR 2022)
Outstanding Paper Award (Top 7/4492)
- 2022 **SDEdit: Guided Image Synthesis and Editing with Stochastic Differential Equations**
Chenlin Meng, **Yutong He**, Yang Song, Jiaming Song, Jiajun Wu, Jun-Yan Zhu, Stefano Ermon
International Conference on Learning Representations (ICLR 2022)
- 2021 **Spatial-Temporal Super-Resolution of Satellite Imagery via Conditional Pixel Synthesis**
Yutong He, Dingjie Wang, Nicholas Lai, William Zhang, Chenlin Meng, Marshall Burke, David B. Lobell, Stefano Ermon
Neural Information Processing Systems (NeurIPS 2021)
- 2021 **Tracking Urbanization in Developing Regions with Remote Sensing Spatial-Temporal Super-Resolution**
Yutong He*, William Zhang*, Chenlin Meng, Marshall Burke, David B. Lobell, Stefano Ermon
Neural Information Processing Systems (NeurIPS 2021) workshop on Machine Learning for the Developing World (ML4D)
- 2021 **Neural, Neural Everywhere: Controlled Generation Meets Scaffolded, Structured Dialogue**
Ethan A. Chi, Caleb Chiam, Trenton Chang, Swee Kiat Lim, Chetanya Rastogi, Alexander Iyabor, **Yutong He**, Hari Sowrirajan, Avanika Narayan, Jillian Tang, Haojun Li, Ashwin Paranjape, Christopher D. Manning
Alexa Prize Proceedings 2021
- 2020 **Fine-grained Image-to-Image Transformation towards Visual Recognition**
Wei Xiong, **Yutong He**, Yixuan Zhang, Wenhan Luo, Lin Ma, and Jiebo Luo
International Conference on Computer Vision and Pattern Recognition (CVPR 2020)
- 2020 **Motion-based Handwriting Recognition and Word Reconstruction**
Junshen Kevin Chen*, Wanze Xie*, **Yutong He***
arXiv:2101.06025

Industry Experience

- Summer 2023 **Sony Group Corporation (Student Research Scientist Intern)** – Tokyo, Japan
Worked in Sony Creative AI team on controllable generation methods.
- Summer 2020 **Adobe Inc. (Machine Learning Engineer Intern)** – San Jose, CA
Worked in Sensei & Search team on visual-textual search and recommendation for E-commerce.

Teaching Experience

- Spring 2023 **10707: Advanced Deep Learning (Carnegie Mellon University)**
Guest lecturer on Diffusion Models
- Fall 2022 **10417: Intermediate Deep Learning (Carnegie Mellon University)**
Guest lecturer on Diffusion Models
- Winter 2022 **CS 228: Probabilistic Graphical Models (Stanford)**
TA and lecturer on Markov chain Monte Carlo
- Fall 2021 **CS 236: Deep Generative Models (Stanford)**
TA and lecturer on neural networks
- Winter 2021 **CS 228: Probabilistic Graphical Models (Stanford)**
TA and lecturer on Markov chain Monte Carlo
- Spring 2019 **CSC 249/449: Machine Vision (University of Rochester)**
Teaching Assistant
- Fall 2018 **DSC 262/462: Computational Introduction to Statistics (University of Rochester)**
Teaching Assistant
- Spring 2018 **CSC 242/442: Data Mining (University of Rochester)**
Teaching Assistant
- Spring 2018 **MTH 150: Discrete Mathematics (University of Rochester)**
Teaching Assistant
- Fall 2017 **CSC 242/442: Artificial Intelligence (University of Rochester)**
Teaching Assistant
- Fall 2017 **CSC 261/461: Database System (University of Rochester)**
Teaching Assistant
- Fall 2017 **MTH 201: Introduction to Probability (University of Rochester)**
Teaching Assistant
- Spring 2017 **CSC 172: Data Structures and Algorithms (University of Rochester)**
Workshop Leader
- Spring 2017 **MTH 162: Calculus IIA (University of Rochester)**
Workshop Leader
- Fall 2016 **CSC 171: Introduction to Computer Science (University of Rochester)**
Workshop Leader
- Fall 2016 **MTH 141: Calculus I (University of Rochester)**
Workshop Leader

Leadership and Mentorship

- 2021 **Stanford AI4ALL (Computer Vision Mentor)**
Led a group of high school students from under-represented populations to complete a hands-on research project in computer vision, and provided them exposure to a variety of AI topics, in-depth discussions of cutting-edge AI research, and exploration of the humanistic and societal impact of AI.

- 2021 **Stanford CURIS Program for Undergraduate Research (Mentor)**
Mentored a group of undergraduate students on artificial intelligence research projects.
- 2020 **Stanford Summer Undergraduate Research Fellowship (Graduate Student Mentor)**
Advised Summer Undergraduate Research Fellowship (SURF) scholars to reflect on their summer research/professional development experience, learn about the graduate school application process, and gain insight into graduate student life, specifically at Stanford.
- 2018-2019 **University of Rochester Computer Science Undergraduate Council (President)**
- Served as a representative of the undergraduate students in computer science community in University of Rochester and a bridge of communication between computer science undergraduate students and the graduate students, faculty members, other departments and other schools.
 - Hosted university hackathons, department town halls, social events, and panels.
 - Organized teams to attend international programming competitions.
- 2018-2019 **University of Rochester Goergen Institute for Data Science (Peer Advisor)**
Advised students on declaring majors, making connections with faculty members, reviewing research opportunities, and exploring interdisciplinary study.
- 2016-2019 **University of Rochester Computer Science Undergraduate Council (Tutor)**
Held weekly voluntary tutoring session for computer science, mathematics, statistics courses.

Technical Skills

Programming languages

Python, Java, R, SQL, Bash, C/C++, MATLAB, CUDA, Lisp, HTML/CSS, JavaScript

Software

L^AT_EX, Git, PyTorch, TensorFlow, Keras, Scikit-learn, RStudio, Jupyter Lab/Notebook, Gdb, Valgrind, Adobe Photoshop, Adobe Premiere Pro

Languages

Chinese (fluent), English (fluent), Japanese (intermediate), Spanish (elementary)