RUIQI GAO

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EDUCATION

University of California, Los Angeles   Sep 2016 – Jun 2021
Ph.D. in Statistics
Advisor: Song-Chun Zhu
GPA: 4.00 / 4.00

Peking University   Sep 2012 – Jul 2016
B.S. in School of Mathematics
Major in Statistics and Probability
  • Cumulative GPA: 3.78 / 4.00
  • Rank: 8 / 178

RESEARCH INTERESTS

Generative models, representation learning, unsupervised learning, computer vision.

EXPERIENCE

Research Scientist   Jul 2021 –present
Google Brain team

Research Assistant   Sep 2016 – Jun 2021
Center for Vision, Cognition, Learning and Autonomy, UCLA
Advisor: Prof. Song-Chun Zhu

Research Intern   Jun 2020 –Sep 2020
Google
Mentors: Diederik P. Kingma and Ben Poole

Research Intern   Jun 2019 –Sep 2019
Google
Mentors: Zhen Xu and Andrew M. Dai

Research Intern   Jun 2018 –Sep 2018
Hikvision Research America
Mentor: Jianwen Xie

Research Assistant   Sep 2015 –Jun 2016
Vision Research Group, Peking University
Advisor: Prof. Yizhou Wang

Research Assistant   Jun 2015 –Sep 2015
Junction of Statistics and Biology, UCLA
Advisor: Prof. Jingyi Jessica Li

PUBLICATIONS

* denotes equal contributions

Yaxuan Zhu, **Ruiqi Gao**, Siyuan Huang, Song-Chun Zhu, Ying Nian Wu. "Learning Neural Representation of Camera Pose with Matrix Representation of Pose Shift via View Synthesis". *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.

Ruiqi Gao, Yang Song, Ben Poole, Ying Nian Wu, Diederik P. Kingma. "Learning Energy-Based Models by Diffusion Recovery Likelihood". *International Conference on Learning Representations (ICLR)*, 2021.

Ruiqi Gao, Jianwen Xie, Xue-Xin Wei, Song-Chun Zhu, Ying Nian Wu. "On Path Integration of Grid Cells: Group Representation and Isotropic Scaling". *ArXiv*, 2020.

Erik Nijkamp*, **Ruiqi Gao***, Pavel Sountsov, Srinivas Vasudevan, Bo Pang, Song-Chun Zhu, Ying Nian Wu. "Learning Energy-Based Model with Flow-based Backbone by Neural Transport MCMC". *ArXiv*, 2020.

Ruiqi Gao, Erik Nijkamp, Diederik P. Kingma, Zhen Xu, Andrew M. Dai, and Ying Nian Wu. "Flow Contrastive Estimation of Energy-Based Models".
Conference on Computer Vision and Pattern Recognition (CVPR), 2020. [Oral]
NeurIPS workshop on Bayesian Deep Learning, 2019. [Spotlight]

Ruiqi Gao, Jianwen Xie, Siyuan Huang, Yufan Ren, Song-Chun Zhu and Ying Nian Wu. "Learning Vector Representation of Local Content and Matrix Representation of Local Motion, with Implications for V1". *ArXiv*, 2020.

Jianwen Xie*, Zilong Zheng*, **Ruiqi Gao**, Wenguan Wang, Song-Chun Zhu and Ying Nian Wu. "Generative VoxelNet: Learning Energy-Based Models for 3D Shape Synthesis and Analysis". *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2020.

Xianglei Xing, **Ruiqi Gao**, Tian Han, Song-Chun Zhu and Ying Nian Wu. "Deformable Generator Networks: Unsupervised Disentanglement of Appearance and Geometry". *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2020.

Jianwen Xie*, **Ruiqi Gao***, Zilong Zheng, Song-Chun Zhu and Ying Nian Wu. "Motion-Based Generator Model: Unsupervised Disentanglement of Appearance, Trackable and Intrackable Motions in Dynamic Patterns". *AAAI Conference on Artificial Intelligence (AAAI)*, 2020. [Oral]

Jianwen Xie, **Ruiqi Gao**, Erik Nijkamp, Song-Chun Zhu and Ying Nian Wu. "Representation learning: a statistical perspective". *Annual Review of Statistics and Its Application (ARSIA)*, 2019.

Ruiqi Gao*, Jianwen Xie*, Song-Chun Zhu and Ying Nian Wu. "Learning Grid Cells as Vector Representation of Self-Position Coupled with Matrix Representation of Self-Motion". *International Conference on Learning Representations (ICLR)*, 2019.

Jianwen Xie*, **Ruiqi Gao***, Zilong Zheng, Song-Chun Zhu and Ying Nian Wu. "Learning Dynamic Generator Model by Alternating Back-Propagation Through Time". *AAAI Conference on Artificial Intelligence (AAAI)*, 2019. [Spotlight]

Xianglei Xing, Tian Han, **Ruiqi Gao**, Song-Chun Zhu and Ying Nian Wu. "Unsupervised disentanglement of appearance and geometry by deformable generator network". *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.

Ruiqi Gao*, Yang Lu*, Junpei Zhou, Song-Chun Zhu and Ying Nian Wu. "Learning Energy-Based Models as Generative ConvNets via Multi-grid Modeling and Sampling". *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [Spotlight]

Ying Nian Wu, **Ruiqi Gao**, Tian Han and Song-Chun Zhu. "A Tale of Three Probabilistic Families: Discriminative, Descriptive and Generative Models". *Quarterly of Applied Mathematics (QAM)*, 2019.

Jianwen Xie, Yang Lu, **Ruiqi Gao**, Song-Chun Zhu and Ying Nian Wu. "Cooperative Training of Descriptor and Generator Networks". *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2018.

Jianwen Xie*, Zilong Zheng*, **Ruiqi Gao**, Wenguan Wang, Song-Chun Zhu and Ying Nian Wu. "Learning Descriptor Networks for 3D Shape Synthesis and Analysis". *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [Oral]

Jianwen Xie, Yang Lu, **Ruiqi Gao**, Song-Chun Zhu and Ying Nian Wu. "Cooperative Learning of Energy-Based Model and Latent Variable Model via MCMC Teaching". *AAAI Conference on Artificial Intelligence (AAAI)*, 2018. [Oral]

Yang Lu, **Ruiqi Gao**, Song-Chun Zhu and Ying Nian Wu. "Exploring Generative Perspective of Convolutional Neural Networks by Learning Random Field Models". *Statistics and Its Interface*, 2018.

Shuo Li, Xialiang Dou, **Ruiqi Gao**, Xinzhou Ge, Minping Qian, and Lin Wan. "A remark on copy number variation detection methods". *PLoS One*, 2018.

Ruiqi Gao and Jingyi Jessica Li. "Correspondence of *D. melanogaster* and *C. elegans* developmental stages revealed by alternative splicing dynamics of conserved exon". *BMC Genomics*, 2017.

ACADEMIC HONORS & AWARDS	CVPR outstanding reviewer	2021
	Most Promising Statistician Award, UCLA	2019
	Doctoral Student Travel Award, UCLA	2017 - 2020
	Excellent College Graduate Award, Peking University	2016
	Guanghua Scholarship, Peking University	2015
	Yizheng Alumni Scholarship, Peking University	2014
	May Fourth Scholarship, Peking University	2013
	Entrance Scholarship, Peking University	2012

INVITED TALKS	Amazon, California.	Jan 2021
	Facebook AI Research, California.	Jan 2021
	Nvidia Research, Mountain View, California.	Nov 2020
	Google Brain, Mountain View, California.	Oct 2020
	Institute for Artificial Intelligence, Peking University.	Oct 2020
	Google Brain, Mountain View, California.	Sep 2019
	Guest lecture at CS276A: Pattern Recognition and Machine Learning, UCLA.	Sep 2018
	Hikvision Research, Santa Clara, California.	Sep 2018
	Guest lecture at CS266A/Stats232A: Statistical Modeling and Learning in Vision and Cognition, UCLA.	Mar 2018

PROFESSIONAL SERVICES

Peer-reviewed Journals and Conferences

Conference on Neural Information Processing Systems (NeurIPS), 2020-2021
International Conference on Learning Representations (ICLR), 2020-2021
Computer Vision and Pattern Recognition (CVPR), 2019-2021
European Conference on Computer Vision (ECCV), 2020
International Conference on Computer Vision (ICCV), 2019, 2021
AAAI Conference on Artificial Intelligence (AAAI), 2019-2021
International Conference on Artificial Intelligence and Statistics (AISTATS), 2021
IEEE Access, 2019

STUDENTS MENTORED

- Yaxuan Zhu, Ph.D. in Statistics, UCLA, 2018 Winter - present
- Dehong Xu, Master in Statistics, UCLA, 2020 Fall - present
- Yufan Ren, Master in Computer Science, University of Lausanne, 2019 Fall - 2020 Spring
- Xiaolin Fang, Ph.D. in Computer Science, MIT, 2018 Summer
- Junpei Zhou, Master in Language Technologies, CMU, 2017 Summer
- Wenwen Si, Master in Computer Vision, CMU, 2017 Summer
- Jiawen Wu, Master in Computer Science, USC, 2017 Summer

SKILLS

C/C++, Python, MATLAB, R, TensorFlow, PyTorch
Fluent in English and Chinese