

# Songwei Ge

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## Education

### Department of Computer Science, University of Maryland

College Park, MD, USA

PH.D. IN COMPUTER SCIENCE

Sep. 2020 - Present

- Advisors: David Jacobs and Jia-Bin Huang.
- GPA: 4.00/4.00
- Selected courses: Advanced Numerical Optimization, Fundamental Concepts of Differential Geometry, Foundation of Deep Learning.

### School of Computer Science, Carnegie Mellon University

Pittsburgh, PA, USA

M.S. IN COMPUTATIONAL BIOLOGY

Aug. 2018 - May. 2020

- Thesis Advisors: Barnabás Póczos, Eunsu Kang and Ziv Bar-Joseph.
- GPA: 4.00/4.00
- Selected courses: Machine Learning for Ph.D., Convex Optimization, Probabilistic Graphical Models.

### School of Information, Renmin University of China

Beijing, China

B.S. IN COMPUTER SCIENCE AND TECHNOLOGY

Sep. 2014 - Jul. 2018

- Thesis Advisors: Zhicheng Dou. (**Best thesis award** in Computer Science.)

### HillHouse Academy, Renmin University of China

Beijing, China

B.S. IN FINANCE

Sep. 2014 - Jul. 2018

- Thesis Advisor: Wei Xu.

## Employment

### NVIDIA Research

Santa Clara, CA, USA

MENTORS: YOGESH BALAJI, [MING-YU LIU](#)

May. 2024 - Now

Research Intern

### BAIR, University of California, Berkeley.

Berkeley, CA, USA

MENTOR: [ANGJOO KANAZAWA](#)

Aug. 2023 - May. 2024

Visiting Scholar

### The Robotics Institute, Carnegie Mellon University.

Pittsburgh, PA, USA

MENTOR: [JUN-YAN ZHU](#)

Jan. 2023 - Aug. 2023

Visiting PhD

### NVIDIA Research

Santa Clara, CA, USA

MENTORS: YOGESH BALAJI, [MING-YU LIU](#)

May. 2022 - May. 2023

Research Intern

### Facebook AI Research

Menlo Park, CA, USA

MENTOR: [DEVI PARIKH](#)

June. 2021 - Dec. 2021

Research Intern, Student Researcher

### Facebook AI Research

Menlo Park, CA, USA

MENTORS: LARRY ZITNICK, [DEVI PARIKH](#)

June. 2020 - Aug. 2020

Research Intern

### Microsoft Research

Beijing, China

ADVISOR: [RUIHUA SONG](#)

Apr. 2018 - Jul. 2018

Software Engineer Intern

## Selected Publications

### PEER REVIEWED PUBLICATIONS

- **Rethinking Score Distillation as a Bridge Between Image Distributions.**  
[Songwei Ge](#)<sup>\*</sup>, [David McAllister](#)<sup>\*</sup>, [Jia-Bin Huang](#), [David W. Jacobs](#), [Alexei A. Efros](#), [Aleksander Holynski](#), [Angjoo Kanazawa](#).  
*In Neural Information Processing Systems (NeurIPS), 2024.*

- **On the Content Bias in Frechet Video Distance.**  
Songwei Ge, Aniruddha Mahapatra, Gaurav Parmar, Jun-Yan Zhu, Jia-Bin Huang.  
*In Computer Vision and Pattern Recognition (CVPR), 2024*
- **Grounded Text-to-Image Synthesis with Attention Refocusing.**  
Quynh Phung, Songwei Ge, Jia-Bin Huang.  
*In Computer Vision and Pattern Recognition (CVPR), 2024*
- **Preserve Your Own Correlation: A Noise Prior for Video Diffusion Models.**  
Songwei Ge, Guilin Liu, Seungjun Nah, Tyler Poon, Andrew Tao, Bryan Catanzaro, David Jacobs, Jia-Bin Huang, Ming-Yu Liu, Yogesh Balaji.  
*In International Conference on Computer Vision (ICCV), 2023*
- **Expressive Text-to-Image Generation with Rich Text.**  
Songwei Ge, Taesung Park, Jun-Yan Zhu, Jia-Bin Huang.  
*In International Conference on Computer Vision (ICCV), 2023*
- **Hyperbolic Contrastive Learning for Visual Representations beyond Objects.**  
Songwei Ge\*, Shlok Mishra\*, Simon Kornblith, Chun-Liang Li, David Jacobs.  
*In Computer Vision and Pattern Recognition (CVPR), 2023*
- **Long Video Generation with Time-Agnostic VQGAN and Time-Sensitive Transformer.**  
Songwei Ge, Thomas Hayes, Harry Yang, Xi Yin, Guan Pang, David Jacobs, Jia-Bin Huang, Devi Parikh.  
*In European Conference on Computer Vision (ECCV), 2022.*
- **MUGEN: A Playground for Video-Audio-Text Multimodal Understanding and GENERATION.**  
Thomas Hayes, Songyang Zhang, Xi Yin, Guan Pang, Sasha Sheng, Harry Yang, Songwei Ge, Isabelle Hu, Devi Parikh  
*In European Conference on Computer Vision (ECCV), 2022.*
- **Robust Contrastive Learning Using Negative Samples with Diminished Semantics.**  
Songwei Ge, Shlok Mishra, Haohan Wang, Chun-Liang Li, David Jacobs.  
*In Neural Information Processing Systems (NeurIPS), 2021.*
- **Shift Invariance Can Reduce Adversarial Robustness.**  
Songwei Ge\*, Vasu Singla\*, Ronen Basri, David Jacobs.  
*In Neural Information Processing Systems (NeurIPS), 2021.*
- **Conceptual Blending with Large-scale Language and Vision Models.**  
Songwei Ge, Devi Parikh.  
*In International Conference on Computational Creativity (ICCC Oral), 2021.*
- **Creative Sketch Generation.**  
Songwei Ge, Vedanuj Goswami, Larry Zitnick, Devi Parikh.  
*In Workshop on Machine Learning for Creativity and Design at NeurIPS (Oral), 2020*  
*In International Conference on Learning Representations (ICLR) 2021.*
- **Supervised Adversarial Alignment of Single-Cell RNA-seq Data.**  
Songwei Ge, Haohan Wang, Amir Alavi, Eric P. Xing, Ziv Bar-Joseph.  
*In the 24th International Conference on Research in Computational Molecular Biology (RECOMB), 2020*
- **Learning Robust Global Representations by Penalizing Local Predictive Power.**  
Haohan Wang, Songwei Ge, Eric P. Xing, Zachary C. Lipton.  
*In Neural Information Processing Systems (NeurIPS), 2019.*
- **From Text to Sound: a Preliminary Study on Retrieving Sound Effects to Radio Stories.**  
Songwei Ge, Curtis Xuan, Ruihua Song, Chao Zou, Wei Liu and Jin Zhou.  
*In ACM International Conference on Research and Development in Information Retrieval (SIGIR), 2019.*
- **Hallucinating Point Cloud into 3D Sculptural Object.**  
Songwei Ge\*, Chun-Liang Li\*, Eunsu Kang\*, Lingyao Zhang, Austin Dill, Manzil Zaheer, Barnabás Póczos.  
*In Workshop on Machine Learning for Creativity and Design at NeurIPS, 2018, and Inter-Society for the Electronic Arts (ISEA), 2019*
- **A Computational Strategy for Finding Novel Targets and Therapeutic Compounds for Opioid Dependence.**  
Xiaojun Wu, Siwei Xie, Lirong Wang, Peihao Fan, Songwei Ge, Xiang-Qun Xie, Wei Wu.

*In PLoS One, 2018*

• **Personalizing Search Results Using Hierarchical RNN with Query-aware Attention.**

Songwei Ge, Zhicheng Dou, Zhengbao Jiang, Jian-Yun Nie, Ji-Rong Wen.

*In ACM International Conference on Information and Knowledge Management (CIKM), 2018*

## Selected Honors & Awards

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Dec 2023	<b>NVIDIA Graduate Fellowship</b>	<i>Santa Clara, CA</i>
Jan 2023	<b>Meta Graduate Fellowship Finalist</b>	<i>Menlo Park, CA</i>
Dec 2022	<b>NVIDIA Graduate Fellowship Finalist</b>	<i>Santa Clara, CA</i>
Dec 2022	<b>NeurIPS Outstanding Reviewer</b>	<i>New Orleans, LA</i>
2019-2020	<b>CMU MSCB Academic Scholarship</b>	<i>Pittsburgh, PA</i>
Jun 2018	<b>Outstanding Undergraduate Thesis Award</b> (Top 1% in RUC & Top 1 in the Computer Science)	<i>Beijing, China</i>
Jan 2017	<b>Meritorious Winners</b> , American Mathematical Contest in Mathematical Modeling	<i>Beijing, China</i>

## Professional Service

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2021-2024	<b>Conference Reviewer</b> Annual Conference on Neural Information Processing Systems	<i>NeurIPS</i>
2023-2024	<b>Conference Reviewer</b> ACM SIGGRAPH Conference and Exhibition on Computer Graphics in Asia	<i>SIGGRAPH Asia</i>
2022-2025	<b>Conference Reviewer</b> International Conference on Learning Representations	<i>ICLR</i>
2023	<b>Conference Reviewer</b> ACM SIGGRAPH Conference and Exhibition on Computer Graphics	<i>SIGGRAPH</i>
2023	<b>Conference Reviewer</b> International Conference on Computer Vision	<i>ICCV</i>
2023	<b>Journal Reviewer</b> Transactions on Pattern Analysis and Machine Intelligence	<i>PAMI</i>
2023-2024	<b>Conference Reviewer</b> Conference on Computer Vision and Pattern Recognition	<i>CVPR</i>
2022	<b>External Reviewer</b> The ACM Symposium on User Interface Software and Technology	<i>UIST</i>
2022-2024	<b>Conference Reviewer</b> European Conference on Computer Vision	<i>ECCV</i>
2022	<b>Emergency Reviewer</b> Conference on Computer Vision and Pattern Recognition	<i>CVPR</i>
2022-2024	<b>Conference Reviewer</b> International Conference on Machine Learning	<i>ICML</i>

## Teaching

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2024	<b>Guest Lecturer</b> Machine Learning at Scale	<i>College Park, MD</i>
2023	<b>Guest Lecturer</b> Art and Machine Learning	<i>Pittsburgh, PA</i>
2021	<b>Teaching Assistant</b> Algorithm	<i>College Park, MD</i>
2020	<b>Teaching Assistant</b> Introduction to Machine Learning	<i>College Park, MD</i>
2019	<b>Guest Lecturer</b> Art and Machine Learning	<i>Pittsburgh, PA</i>
2017	<b>Teaching Assistant</b> Advanced Algorithm Design	<i>Beijing China</i>