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Jennifer J. Sun

Research Interests

My research centers on developing collaborative AI-scientist frameworks to accelerate discovery.

Appointments

Cornell University, Ithaca, NY. **08/2024–present**
Assistant Professor
Department of Computer Science

Google DeepMind, Los Angeles, CA. **08/2023–present**
Part-time Research Scientist

Education

California Institute of Technology, Pasadena, CA. **09/2017–09/2023**
Doctor of Philosophy in Computing and Mathematical Sciences
Advisors: Pietro Perona, Yisong Yue

University of Toronto, Toronto, Canada. **09/2012–06/2017**
Bachelor of Science in Engineering Science (Electrical and Computer Engineering)
Minor in Robotics and Mechatronics

Selected Honors and Awards

Best Paper Runner Up Award at NeurIPS 2025 CCFM Workshop.	**2025**
Best Poster Award at CVPR 2025 Visual Concepts Workshop.	**2025**
Ben P.C. Chou Doctoral Prize (Caltech).	**2023**
Rising Star in EECS (University of Texas at Austin).	**2022**
Caltech Chen Institute Diversity and Inclusion Award.	**2022**
Amazon AI4Science Fellowship.	**2022**
Rising Star in Data Science (University of Chicago).	**2021**
Best Student Paper Award CVPR.	**2021**
Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarships.	**2019**
Caltech Kortschak Scholar Program.	**2017**
University of Toronto W. S. Wilson Medal for top graduating student in engineering science.	**2017**

Selected Publications

(* denotes equal contribution)

Google Scholar Profile: `https://scholar.google.com/citations?user=TejzmcwAAAAJ&hl=en`

Peer-Reviewed Conference and Journal Publications

X. Wang, K. Horstmann, E. Lin, J. Chen, A. Farhang, S. Stiles, A. Sehgal, J. Light, D. Van Valen, Y. Yue, **J. J. Sun**, Simple Agents Outperform Experts in Biomedical Imaging Workflow Optimization. *Conference on Computer Vision and Pattern Recognition (CVPR)*. 2026.

X. Yang, H. Yu, Y. Sun, B. Hariharan, **J. J. Sun**, Live Interactive Training for Video Segmentation . *Conference on Computer Vision and Pattern Recognition (CVPR)*. 2026.

L. Zhao, S. Zalouk, C. K. Belardi, J. Lovelace, J. P. Zhou, K. Q. Weinberger, Y. Artzi, **J. J. Sun**, Pre-training Limited Memory Language Models with Internal and External Knowledge. *ICLR*. 2026.

Y. Sun, X. Yang, **J. J. Sun**, B. Hariharan, Tracking and Understanding Object Transformations. *In Neural Information Processing Systems (NeurIPS)*. 2025.

Y. Dai, Z. Gao, Y. Satter, S. Dean, **J. J. Sun**, Pre-trained Large Language Models Learn Hidden Markov Models In-context. *In Neural Information Processing Systems (NeurIPS)*. 2025.

A. Sehgal, P. Yuan, Z. Hu, Y. Yue **J. J. Sun**, S. Chaudhuri, Self-Evolving Visual Concept Library using Vision-Language Critics. *Conference on Computer Vision and Pattern Recognition (CVPR)*. 2025.

J. J. Sun, Toward collaborative artificial intelligence development for animal well-being. *Journal of the American Veterinary Medical Association (JAVMA)*. 2025.

L. Zhao, N. B. Gundavarapu, L. Yuan, H. Zhou, S. Yan, **J. J. Sun**, L. Friedman, R. Qian, T. Weyand, Y. Zhao, R. Hornung, F. Schroff, M. Yang, D. A. Ross, H. Wang, H. Adam, M. Sirotenko, T. Liu, B. Gong, VideoPrism: A foundational visual encoder for video understanding. *International Conference on Machine Learning (ICML)*. 2024.

A. Sehgal, A. Grayeli, **J. J. Sun**, S. Chaudhuri, Cosmos: Neurosymbolic Grounding for Compositional World Models. *International Conference on Learning Representations (ICLR)*. 2024.

J. J. Sun*, M. Marks*, A. Ulmer, D. Chakraborty, B. Geuther, E. Hayes, H. Jia, V. Kumar, S. Oleszko, Z. Partridge, M. Peelman, A. Robie, C. E. Schretter, K. Sheppard, C. Sun, P. Uttarwar, J. M. Wagner, E. Werner, J. Parker, P. Perona, Y. Yue, K, Branson, A. Kennedy. MABe22: A Multi-Species Multi-Task Benchmark for Learned Representations of Behavior. *International Conference on Machine Learning (ICML)*. 2023.

J. J. Sun*, P. Karashchuk*, A. Dravid*, S. Ryou, S. Fereidooni, J. Tuthill, A. Katsaggelos, B. Brunton, G. Gkioxari, A. Kennedy, Y. Yue, P. Perona. Self-Supervised 3D Keypoint Discovery in Multi-View Videos. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2023.

K. Luxem*, **J. J. Sun***, S. P. Bradley, K. Krishnan, T. D. Pereira, E. A. Yttri, J. Zimmermann, M. Laubach, Open-Source Tools for Behavioral Video Analysis: Setup, Methods, and Development. *eLife*. 2023.

E. Zhan*, **J. J. Sun***, A. Kennedy, Y. Yue, S. Chaudhuri. Unsupervised Learning of Neurosymbolic Encoders. *Transactions on Machine Learning Research (TMLR)*. 2022.

J. J. Sun*, S. Ryou*, R. Goldshmid, B. Weissbourd, J. Dabiri, D. J. Anderson, A. Kennedy, Y. Yue, P. Perona. Self-Supervised Keypoint Discovery in Behavioral Videos. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2022.

A. Tseng, **J. J. Sun**, Y. Yue. Automatic Synthesis of Diverse Weak Supervision Sources for Behavior Analysis. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2022.

J. J. Sun, T. Karigo, D. Chakraborty, S. P. Mohanty, B. Wild, Q. Sun, C. Chen, D. J. Anderson, P. Perona, Y. Yue, A. Kennedy. The Multi-Agent Behavior Dataset: Mouse Dyadic Social Interactions. *In Neural Information Processing Systems (NeurIPS), Datasets and Benchmarks Track*. 2021.

J. J. Sun, A. Kennedy, E. Zhan, D. J. Anderson, Y. Yue, P. Perona. Task Programming: Learning Data Efficient Behavior Representations. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2021. **(Oral) Best Student Paper Award.**

L. Zhao, Y. Wang, J. Zhao, L. Yuan, **J. J. Sun**, F. Schroff, H. Adam, X. Peng, D. Metaxas, T. Liu. Learning View-Disentangled Human Pose Representation by Contrastive Cross-View Mutual Information Maximization. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2021. **(Oral)**

T. Liu*, **J. J. Sun***, L. Zhao, J. Zhao, L. Yuan, Y. Wang, L.C. Chen, F. Schroff, H. Adam. View-Invariant, Occlusion-Robust Probabilistic Embedding for Human Pose. *International Journal of Computer Vision (IJCV).* 2021.

C. Segalin, J. Williams, T. Karigo, M. Hui, M. Zelikowsky, **J. J. Sun**, P. Perona, D. J. Anderson, A. Kennedy. The Mouse Action Recognition System (MARS): a software pipeline for automated analysis of social behaviors in mice. *eLife.* 2021.

A. Shah*, E. Zhan*, **J. J. Sun**, A. Verma, Y. Yue, S. Chaudhuri. Learning Differentiable Programs with Admissible Neural Heuristics. *In Neural Information Processing Systems (NeurIPS).* 2020.

J. J. Sun, J. Zhao, L.C. Chen, F. Schroff, H. Adam, T. Liu. View-Invariant Probabilistic Embedding for Human Pose. *In Proceedings of the European Conference on Computer Vision (ECCV).* 2020. **(Spotlight)**

Peer-Reviewed Workshop Publications

L. Zhao, S. Zalouk, C. K. Belardi, J. Lovelace, J. P. Zhou, K. Q. Weinberger, Y. Artzi, **J. J. Sun**, Pre-training Limited Memory Language Models with Internal and External Knowledge. *CCFM Workshop at NeurIPS*. 2025.**(Best Paper Runner-up)**

E. Lin, L. Zhao, A. Sehgal, **J. J. Sun**. Beyond Accuracy: Metrics that Uncover What Makes a 'Good' Visual Descriptor. *Visual Concepts Workshop at CVPR.* 2025. **(Best Poster Award)**

A. Sarkar, B. Kim, **J. J. Sun**. How many classes do we need to see for novel class discovery? *Domain Generalization Workshop at CVPR.* 2025.

J. J. Sun*, M. Tjandrasuwita*, A. Sehgal*, A. Solar-Lezama, S. Chaudhuri, Y. Yue, O. Costilla-Reyes. Neurosymbolic Programming for Science. *AI for Science Workshop at NeurIPS.* 2022.

M. Tjandrasuwita, **J. J. Sun**, A. Kennedy, S. Chaudhuri, Y. Yue. Interpreting Expert Annotation Differences in Animal Behavior. *CV4Animals Workshop at CVPR.* 2021.

Patents

J. Lam, A. Huda, **J. J. Sun**, Image processing method for generating training data. US Patent Number: US10672143B2.

A. M. Rotenstein, A. Bachoo, C. Sutanto, **J. J. Sun**, A. Kelman, Three-dimensional detection and tracking pipeline recommendation using performance prediction. US Patent Number: US20200105001A1

Selected Invited Talks

Keynotes: AI4Animal Science Conference (2025), Symposium on AI in Veterinary Medicine (2024).

Workshops & Symposia: LM4Sci Workshop at COLM (2025), CV4Science Workshop at CVPR (2025), CV4Animals Workshop at CVPR (2024), Simulated Bodies Conference (2023), JAX Short Course (2023), CAJAL Training Course (2023), Measuring Behavior Conference Symposium (2022)

Seminars: 2021–2025: Caltech CMX, MIT EECS/Broad Institute, Microsoft Research, Janelia Research Campus, Disney Research, Cornell (CS & Tech), Georgia Tech, UCSD, Duke, Rice, U Toronto, USC, UT Austin, UChicago, Harvard AI4Life, UCI, UCSB, Emory, U Waterloo.

Academic Services

Organizer:: Fine-Grained Visual Categorization Workshop (CVPR 2024), Multi-Agent Behavior Workshop (CVPR 2021, 2022, 2023), Neurosymbolic Programming Tutorial (NeurIPS 2022), Symposium on AI in Veterinary Medicine (2025).

Area Chair: CVPR, ICCV, ICLR

Reviewer: NeurIPS, ICML, ECCV, ICLR (Highlighted Reviewer 2022), CVPR, Nature Communications, IJCV.

Teaching Experience

CS6784-2 Research Design for Machine Learning, *Cornell University*, Instructor. **08/2025–12/2025**

CS4782 Deep Learning, *Cornell University*, Co-Instructor. **01/2025–05/2025**

CS6784-2 Research Design for Machine Learning, *Cornell University*, Instructor. **08/2024–12/2024**

Summer School on Machine Learning in Neuroscience, *CAJAL*, Instructor. **07/2023–07/2023**

Summer School on Neurosymbolic Programming, Co-Instructor. **07/2022–07/2022**

Professional Experience

Google DeepMind, *Venice, CA*, Research Scientist. **08/2023–present**

Developing methods for video understanding.

Google Research, *Venice, CA*, Research Intern (Mobile Vision). **06/2019–12/2019**

Developed view-invariant probabilistic embedding of 2D poses (ECCV 2020 Spotlight)

Google Research, *Venice, CA*, Research Intern (Mobile Vision). **06/2018–09/2018**

Built a dataset and model for affective video analysis (CVPR 2021 Workshop)