Mengye Ren – Curriculum Vitæ

CONTACT INFORMATION

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10011-8868, USA

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Website: https://mengyeren.com

RESEARCH INTERESTS

Areas: Machine learning, computer vision, meta learning, representation learning, few-shot learning, brain & cognitively inspired learning, robot learning, self-driving vehicles.
My key research question is: how do we enable human-like, agent-based machine intelligence to continually learn, adapt, and reason in naturalistic environments? I am interested in the emergence of intelligence by learning from a point-of-view experience.

EDUCATION

University of Toronto

Department of Computer Science 2017/01 – 2021/10
Ph.D., Supervisors: Richard Zemel and Raquel Urtasun
Thesis: "Open World Machine Learning with Limited Labeled Data"
Committee: Roger Grosse, Geoffrey Hinton, Yee Whye Teh

Department of Computer Science 2015/09 – 2017/01
M.Sc., Supervisor: Richard Zemel

Department of Engineering Science, ECE Option 2011/09 – 2015/06
BASc, CGPA 3.90/4.00, with high honours

PROFESSIONAL EXPERIENCE

New York University, New York, NY, USA
Assistant Professor of Computer Science and Data Science 2022/09 – Present

Google Brain, Toronto, ON, Canada
Visiting Faculty Researcher 2022/01 – 2022/09

Waabi Innovation, Toronto, ON, Canada
Senior Researcher II 2021/03 – 2021/12

Uber ATG, Toronto, ON, Canada
Senior Research Scientist I 2018/09 – 2021/02
Research Scientist II 2017/05 – 2018/09

Twitter, Cambridge, MA, USA
Research Intern 2016/06 – 2016/08

Google, Mountain View, CA, USA
Research Intern in Google Brain and Image Understanding 2015/06 – 2015/08
SWE Intern in StreetView 2014/06 – 2014/08

Microsoft, Redmond, WA, USA
SDET Intern in Visual Studio 2013/06 – 2013/08
SDET Intern in Visual Studio 2012/06 – 2012/08

TEACHING

New York University

- DS-GA 3001: Embodied Learning and Vision 2025 Spring
- CSCI-GA 2565: Machine Learning 2024 Fall
- DS-GA 1008: Deep Learning 2024 Spring
- CSCI-GA 2565: Machine Learning 2023 Fall
- DS-GA 1003: Machine Learning 2023 Spring

Vector Institute
- Deep Learning II 2020 Fall

University of Toronto
- CSC 411: Machine Learning and Data Mining 2019 Winter

Peer-Reviewed Conference Publications

(*=equal contribution)

2024

C1 Yanlai Yang, Matt Jones, Michael C. Mozer, and **Mengye Ren**. Reawakening knowledge: Anticipatory recovery from catastrophic interference via structured training. In *Advances in Neural Information Processing Systems 37 (NeurIPS)*, Vancouver, British Columbia, Canada, 2024.

C2 Ryan Teehan, Brenden M. Lake, and **Mengye Ren**. CoLLEGe: Concept embedding generation for large language models. In *Proceedings of the 1st Conference on Language Modeling (COLM)*, Philadelphia, Pennsylvania, USA, 2024.

C3 Jack Lu, Ryan Teehan, and **Mengye Ren**. ProCreate, don't reproduce! Propulsive energy diffusion for creative generation. In *Computer Vision – the 18th European Conference (ECCV)*, Milan, Italy, 2024.

C4 Jiachen Zhao, Zhun Deng, David Madras, James Zou, and **Mengye Ren**. Learning and forgetting unsafe examples in large language models. In *Proceedings of the 41st International Conference on Machine Learning (ICML)*, Vienna, Austria, 2024.

C5 Yipeng Zhang, Laurent Charlin, Richard Zemel, and **Mengye Ren**. Integrating present and past in unsupervised continual learning. In *Proceedings of the 3rd Conference on Lifelong Learning Agents (CoLLAs)*, Pisa, Italy, 2024. (**oral**)

C6 Emin Orhan, Wentao Wang, Alex N. Wang, **Mengye Ren**, and Brenden M. Lake. Self-supervised learning of video representations from a child's perspective. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society (CogSci)*, Rotterdam, the Netherlands, 2024.

2023

C7 **Mengye Ren**, Simon Kornblith, Renjie Liao, and Geoffrey Hinton. Scaling forward gradient with local losses. In *Proceedings of the 11th International Conference on Learning Representations (ICLR)*, Kigali, Rwanda, 2023.

C8 Matt Jones, Tyler R. Scott, **Mengye Ren**, Gamaleldin F. Elsayed, Katherine Hermann, David Mayo, and Michael C. Mozer. Learning in temporally structured environments. In *Proceedings of the 11th International Conference on Learning Representations (ICLR)*, Kigali, Rwanda, 2023.

C9 David Mayo, Tyler R Scott, **Mengye Ren**, Gamaledin Elsayed, Katherine Hermann, Matt Jones, and Michael Mozer. Multitask learning via interleaving: A neural network investigation. In *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society (CogSci)*, Sydney, Australia, 2023.

C10 Lunjun Zhang, Anqi Joyce Yang, Yuwen Xiong, Sergio Casas, Bin Yang, **Mengye Ren**, and Raquel Urtasun. Towards unsupervised object detection from LiDAR point clouds. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Vancouver, British Columbia, Canada, 2023.

2022

C11 Chris Zhang*, Runsheng Guo*, Wenyuan Zeng*, Yuwen Xiong, Binbin Dai, Rui Hu, **Mengye Ren**, and Raquel Urtasun. Rethinking closed-loop training for autonomous driving. In *Computer Vision – the 17th European Conference (ECCV)*, Tel-Aviv, Israel, 2022.

2021

C12 Yuwen Xiong, **Mengye Ren**, Wenyuan Zeng, and Raquel Urtasun. Self-supervised representation learning from flow equivariance. In *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021.

C13 James Tu*, Tsun-Hsuan Wang*, Jingkang Wang, Sivabalan Manivasagam, **Mengye Ren**, and Raquel Urtasun. Adversarial attacks on multi-agent communication. In *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021.

C14 Sean Segal*, Nishanth Kumar*, Sergio Casas, Wenyuan Zeng, **Mengye Ren**, Jingkang Wang, and Raquel Urtasun. Just label what you need: Fine-grained active selection for perception and prediction through partially labeled scenes. In *Conference on Robot Learning (CoRL)*, London, United Kingdom, 2021.

C15 James Tu, Huichen Li, Xinchen Yan, **Mengye Ren**, Yun Chen, Ming Liang, Eilyan Bitar, Ersin Yumer, and Raquel Urtasun. Exploring adversarial robustness of multi-sensor perception systems in self driving. In *Conference on Robot Learning (CoRL)*, London, United Kingdom, 2021.

C16 Alexander Wang*, **Mengye Ren***, and Richard S. Zemel. SketchEmbedNet: Learning novel concepts by imitating drawings. In *Proceedings of the 38th International Conference on Machine Learning (ICML)*, 2021.

C17 **Mengye Ren**, Michael L. Iuzzolino, Michael C. Mozer, and Richard S. Zemel. Wandering within a world: Online contextualized few-shot learning. In *Proceedings of the 9th International Conference on Learning Representations (ICLR)*, 2021.

C18 James Lucas, **Mengye Ren**, Irene Kameni, Toniann Pitassi, and Richard S. Zemel. Theoretical bounds on estimation error for meta learning. In *Proceedings of the 9th International Conference on Learning Representations (ICLR)*, 2021.

C19 Bob Wei*, **Mengye Ren***, Wenyuan Zeng, Ming Liang, Bin Yang, and Raquel Urtasun. Perceive, attend and drive: Learning spatial attention for safe self-driving. In *IEEE International Conference on Robotics and Automation (ICRA)*, Xi'an, China, 2021. (**oral**)

C20 Shuhan Tan*, Kelvin Wong*, Shenlong Wang, Sivabalan Manivasagam, **Mengye Ren**, and Raquel Urtasun. SceneGen: Learning to simulate realistic traffic scenes. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.

C21 Jingkang Wang, Ava Pun, James Tu, Abbas Sadat, Sergio Casas, Sivabalan Manivasagam, **Mengye Ren**, and Raquel Urtasun. AdvSim: Generating safety-critical scenarios for self-driving vehicles. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.

2020

C22 Yuwen Xiong, **Mengye Ren**, and Raquel Urtasun. LoCo: Local contrastive representation learning. In *Advances in Neural Information Processing Systems 33 (NeurIPS)*, Vancouver, British Columbia, Canada, 2020.

C23 Nicholas Vadivelu, **Mengye Ren**, James Tu, Jingkang Wang, and Raquel Urtasun. Learning to communicate and correct pose errors. In *Conference on Robot Learning (CoRL)*, Cambridge, Massachusetts, USA, 2020.

C24 Lingyun (Luke) Li, Bin Yang, Ming Liang, Wenyuan Zeng, **Mengye Ren**, Sean Segal, and Raquel Urtasun. End-to-end contextual perception and prediction with interaction transformer. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Las Vegas, Nevada, USA, 2020. (**oral**)

C25 Abbas Sadat*, Sergio Casas Romero*, **Mengye Ren**, Xinyu Wu, Pranaab Dhawan, and Raquel Urtasun. Perceive, predict, and plan: Safe motion planning through interpretable semantic representations. In *Computer Vision – the 16th European Conference (ECCV)*, Glasgow, United Kingdom, 2020.

C26 Quinlan Sykora*, **Mengye Ren***, and Raquel Urtasun. Multi-agent routing value iteration network. In *Proceedings of the 37th International Conference on Machine Learning (ICML)*, Vienna, Austria, 2020.

C27 James Tu, **Mengye Ren**, Sivabalan Manivasagam, Ming Liang, Bin Yang, Richard Du, Frank Cheng, and Raquel Urtasun. Physically realizable adversarial examples for LiDAR object detection. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Seattle, Washington, USA, 2020.

2019

C28 **Mengye Ren**, Renjie Liao, Ethan Fetaya, and Richard S. Zemel. Incremental few-shot learning with attention attractor networks. In *Advances in Neural Information Processing Systems 32 (NeurIPS)*, Vancouver, British Columbia, Canada, 2019.

C29 Kelvin Wong, Shenlong Wang, **Mengye Ren**, Ming Liang, and Raquel Urtasun. Identifying unknown instances for autonomous driving. In *Conference on Robot Learning (CoRL)*, Osaka, Japan, 2019. (**spotlight**)

C30 Abbas Sadat*, **Mengye Ren***, Andrei Pokrovsky, Yen-Chen Lin, Ersin Yumer, and Raquel Urtasun. Jointly learnable behavior and trajectory planner for self-driving vehicles. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Macau, China, 2019. (**oral**)

C31 Chris Zhang, **Mengye Ren**, and Raquel Urtasun. Graph hypernetworks for neural architecture search. In *Proceedings of the 7th International Conference on Learning Representations (ICLR)*, New Orleans, Louisiana, USA, 2019.

2018

C32 **Mengye Ren**, Wenyuan Zeng, Bin Yang, and Raquel Urtasun. Learning to reweight examples for robust deep learning. In *Proceedings of the 35th International Conference on Machine Learning (ICML)*, Stockholm, Sweden, 2018.

C33 **Mengye Ren***, Andrei Pokrovsky*, Bin Yang*, and Raquel Urtasun. SBNet: Sparse blocks network for fast inference. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Salt Lake City, Utah, USA, 2018. (**spotlight**)

C34 **Mengye Ren**, Eleni Triantafillou*, Sachin Ravi*, Jake Snell, Kevin Swersky, Joshua B. Tenenbaum, Hugo Larochelle, and Richard S. Zemel. Meta-learning for semi-supervised few-shot classification. In *Proceedings of the 6th International Conference on Learning Representations (ICLR)*, Vancouver, British Columbia, Canada, 2018.

C35 Yuhuai Wu*, **Mengye Ren***, Renjie Liao, and Roger B. Grosse. Understanding short-horizon bias in meta optimization. In *Proceedings of the 6th International Conference on Learning Representations (ICLR)*, Vancouver, British Columbia, Canada, 2018.

2017

C36 Aidan N. Gomez*, **Mengye Ren***, Raquel Urtasun, and Roger B. Grosse. The reversible residual network: Backpropagation without storing activations. In *Advances in Neural Information Processing Systems 30 (NIPS)*, Long Beach, California, USA, 2017.

C37 **Mengye Ren** and Richard S. Zemel. End-to-end instance segmentation with recurrent attention. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Honolulu, Hawaii, USA, 2017. (**spotlight**)

C38 **Mengye Ren***, Renjie Liao*, Raquel Urtasun, Fabian H. Sinz, and Richard S. Zemel. Normalizing the normalizers: Comparing and extending network normalization schemes. In *Proceedings of the 5th International Conference on Learning Representations (ICLR)*, Toulon, France, 2017.

2015

C39 **Mengye Ren**, Ryan Kiros, and Richard S. Zemel. Exploring models and data for image question answering. In *Advances in Neural Information Processing Systems 28 (NIPS)*, Montréal, Québec, Canada, 2015.

PEER-REVIEWED WORKSHOP PAPERS

2024

W1 Hui Dai, Ryan Teehan, and **Mengye Ren**. Are LLMs prescient? A continuous evaluation using daily news as the oracle. *In NeurIPS Adaptive Foundation Models Workshop (AFM)*, Vancouver, British Columbia, Canada, 2024. **(oral)**

W2 Yipeng Zhang, Laurent Charlin, Richard Zemel, and **Mengye Ren**. Integrating present and past in unsupervised continual learning. In *5th CVPR Workshop on Continual Learning (CLVision)*, Seattle, Washington, USA, 2024.

2023

W3 Ying Wang, Dongdong Sun, Rui Chen, Yanlai Yang, and **Mengye Ren**. Egocentric video comprehension via large language model inner speech. In *3rd International Ego4D Workshop at CVPR*, Vancouver, British Columbia, Canada, 2023.

2022

W4 Andrew J. Nam*, **Mengye Ren***, Chelsea Finn, and James L. McClelland. Learning to reason with relational abstractions. In *2nd Workshop on MATH-AI at NeurIPS*, New Orleans, Louisiana, USA, 2022.

W5 Matt Jones, Tyler R. Scott, Gamaleldin F. Elsayed, **Mengye Ren**, Katherine Hermann, David Mayo, and Michael C. Mozer. Neural network online training with sensitivity to multiscale temporal structure. In *Memory in Artificial and Real Intelligence Workshop at NeurIPS*, New Orleans, Louisiana, USA, 2022.

2020

W6 **Mengye Ren***, Eleni Triantafillou*, Kuan-Chieh Wang*, James Lucas*, Jake Snell, Xaq Pitkow, Andreas S. Tolias, and Richard S. Zemel. Flexible few-shot learning of contextual similarity. In *NeurIPS Meta-Learning Workshop*, Vancouver, British Columbia, Canada, 2020.

W7 Laleh Seyyed-Kalantari, Karsten Roth, **Mengye Ren**, Parsa Torabian, Joseph P. Cohen, and Marzyeh Ghassemi. Multi-label incremental few-shot learning for medical image pathology classifiers. In *Medical Imaging Meets NeurIPS Workshop*, Vancouver, British Columbia, Canada, 2020.

W8 **Mengye Ren**, Michael L. Iuzzolino, Michael C. Mozer, and Richard S. Zemel. Wandering within a world: Online contextualized few-shot learning. In *ICML Continual Learning Workshop & Lifelong Learning Workshop & Workshop on Learning in Artificial Open Worlds*, Vienna, Austria, 2020. (**oral**)

W9 Jingkang Wang*, **Mengye Ren***, Ilija Bogunovic, Yuwen Xiong, and Raquel Urtasun. Cost-efficient online hyperparameter optimization. In *ICML RealML Workshop*, Vienna, Austria, 2020.

2019

W10 James Lucas, **Mengye Ren**, and Richard S. Zemel. Information-theoretic limitations on novel task generalization. In *NeurIPS Workshop on Machine Learning with Guarantees*, Vancouver British Columbia, Canada, 2019. (**oral**)

W11 Yuwen Xiong*, **Mengye Ren***, Renjie Liao, Kelvin Wong, and Raquel Urtasun. Deformable filter convolution for point cloud reasoning. *arXiv preprint arXiv:1907.13079*. In *NeurIPS Workshop on Sets & Partitions*, Vancouver, British Columbia, Canada, 2019.

2018

W12 **Mengye Ren**, Renjie Liao, Ethan Fetaya, and Richard S. Zemel. Incremental few-shot learning with attention attractor networks. In *NeurIPS Meta-Learning Workshop*, Montréal, Québec, Canada, 2018.

W13 Chris Zhang, **Mengye Ren**, and Raquel Urtasun. Graph hypernetworks for neural architecture search. In *NeurIPS Meta-Learning Workshop*, Montréal, Québec, Canada, 2018.

2017

W14 **Mengye Ren**, Eleni Triantafillou*, Sachin Ravi*, Jake Snell, Kevin Swersky, Joshua B. Tenenbaum, Hugo Larochelle, and Richard S. Zemel. Meta-learning for semi-supervised few-shot classification. In *NIPS Meta-Learning Workshop & Learning with Limited Data Workshop*, Long Beach, California, USA, 2017.

W15 Yuhuai Wu*, **Mengye Ren***, Renjie Liao, and Roger B. Grosse. Understanding short-horizon bias in meta optimization. In *NIPS Meta-Learning Workshop*, Long Beach, California, USA, 2017.

2015

W16 **Mengye Ren**, Ryan Kiros, and Richard Zemel. Exploring models and data for image question answering. In *ICML Deep Learning Workshop*, Lille, France, 2015. (**oral**)

Preprints & Tech Reports

R1 Hui Dai, Ryan Teehan, and **Mengye Ren**. Are LLMs prescient? A continuous evaluation using daily news as the oracle. *arXiv preprint arXiv:2411.08324*, 2024.

R2 Alex N Wang, Christopher Hoang, Yuwen Xiong, Yann LeCun, and **Mengye Ren**. PooDLe: Pooled and dense self-supervised learning from naturalistic videos. *arXiv preprint arXiv:2408.11208*, 2024.

R3 Yasaman Mahdaviyeh, James Lucas, **Mengye Ren**, Andreas S. Tolias, Richard Zemel, and Toniann Pitassi. Replay can provably increase forgetting. *In submission*, 2024.

R4 Ying Wang, Yanlai Yang, and **Mengye Ren**. LifelongMemory: Leveraging LLMs for answering queries in long-form egocentric videos. *arXiv preprint arXiv:2312.05269*, 2023.

R5 Yixuan Luo, **Mengye Ren**, and Sai Qian Zhang. BIM: block-wise self-supervised learning with masked image modeling. *arXiv preprint arXiv:2311.17218*, 2023.

R6 Andrew J. Nam*, **Mengye Ren***, Chelsea Finn, and James L. McClelland. Learning to reason with relational abstractions. *arXiv preprint arXiv:2210.02615*, 2022.

R7 Renjie Liao, Simon Kornblith, **Mengye Ren**, David J. Fleet, and Geoffrey Hinton. Gaussian-Bernoulli RBMs without tears. *arXiv preprint arXiv:2210.10318*, 2022.

R8 **Mengye Ren**, Tyler R. Scott, Michael L. Iuzzolino, Michael C. Mozer, and Richard Zemel. Online unsupervised learning of visual representations and categories. *arXiv preprint arXiv:2109.05675*, 2021.

R9 **Mengye Ren***, Eleni Triantafillou*, Kuan-Chieh Wang*, James Lucas*, Jake Snell, Xaq Pitkow, Andreas S. Tolias, and Richard S. Zemel. Flexible few-shot learning of contextual similarity. *arXiv preprint arXiv:2012.05895*, 2020.

R10 Yuwen Xiong*, **Mengye Ren***, and Raquel Urtasun. Learning to remember from a multi-task teacher. *arXiv preprint arXiv:1910.04650*, 2019.

Patents

P1 LingYun Li, Bin Yang, Wenyuan Zeng, Ming Liang, **Mengye Ren**, Sean Segal, and Raquel Urtasun. Systems and methods for generating motion forecast data for a plurality of actors with respect to an autonomous vehicle, US 11,780,472 B2, *US Patent*, 2023.

P2 Raquel Urtasun, Abbas Sadat, **Mengye Ren**, Andrei Pokrovsky, Yen-Chen Lin, and Ersin Yumer. Jointly learnable behavior and trajectory planning for autonomous vehicles, US 11,755,014 B2, *US Patent*, 2023.

P3 LingYun Li, Bin Yang, Ming Liang, Wenyuan Zeng, **Mengye Ren**, Sean Segal, and Raquel Urtasun. Systems and methods for generating motion forecast data for a plurality of actors with respect to an autonomous vehicle, US 11,691,650 B2, *US Patent*, 2023.

P4 Xuanyuan Tu, Sivabalan Manivasagam, **Mengye Ren**, Ming Liang, Bin Yang, and Raquel Urtasun. Systems and methods for training object detection models using adversarial examples, US 11,686,848 B2, *US Patent*, 2023.

P5 Shuhan Tan, Kelvin Ka Wing Wong, Shenlong Wang, Siva Manivasagam, **Mengye Ren**, and Raquel Urtasun. Systems and methods for simulating traffic scenes, US 11,580,851 B2, *US Patent*, 2023.

P6 Raquel Urtasun, Kelvin Ka Wing Wong, Shenlong Wang, **Mengye Ren**, and Ming Liang. Systems and methods for identifying unknown instances, US 11,475,675 B2, *US Patent*, 2022.

P7 Raquel Urtasun, **Mengye Ren**, Andrei Pokrovsky, and Bin Yang. Sparse convolutional neural networks, US 11,061,402 B2, *US Patent*, 2021.

Awards & Honors

- NSERC Postdoctoral Fellowship, $90,000 CAD (declined) 2021 – 2023
- Facebook Fellowship Finalist (91 out of 1876 PhD applicants worldwide) 2020
- NSERC Alexander Graham Bell Scholarship, $105,000 CAD 2018 – 2021
- NVIDIA Research Pioneer Award 2018
- NVIDIA Research Pioneer Award 2017
- NIPS 2017 Travel Award $800 USD 2017
- ICLR 2017 Travel Award $1,250 USD 2017
- MLSS 2015 Kyoto Travel Support ¥140,000 JPY 2015
- U of T Quantathon 2nd Place $5,000 CAD 2015
- U of T Undergraduate Mathematics Competition, Honourable Mention 2015
- Wallberg Undergraduate Scholarship $1,500 CAD 2014
- International 5th place in Windward AI Challenge, 1st in U of T 2014
- Dean's List for all semesters in undergraduate studies 2011 – 2015
- Entrance Scholarship from the University of Toronto $5,000 CAD 2011
- Meritorious Award in Mathematical Contest of Modeling (MCM) 2011

Research Sponsors

- Google Cloud Research Credit, $5,000 2024-2025
- Center for AI Safety Compute Credit 2024
- Microsoft Accelerating Foundation Models Research Cloud Credit, $80,000 2023-2025
- Google Cloud Research Credit, $5,000 2022-2023

Professional Service

Program Chair:

- Conference on Lifelong Learning Agents (CoLLAs) (Associate Program Chair) 2025

Area Chair:

- IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2025
- International Conference on Automated Machine Learning (AutoML) 2022 - 2023
- NeurIPS Workshop on Meta-Learning (MetaLearn) 2020 - 2022

Workshop Organizer:

- NeurIPS 2024 Workshop on Adaptive Foundation Models (Designated Contact) 2024
- NeurIPS 2024 Workshop on Compositional Learning 2024
- ICML 2023 Localized Learning Workshop (Designated Contact) 2023
- ICLR 2023 Workshop on Scene Representations for Autonomous Driving 2023

Journal Reviewer:

- Journal of Machine Learning Research (JMLR)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Computational Imaging (TCI)
- Neural Networks
- Machine Learning
- Optimization Methods and Software
- Nature Computational Science

Conference Reviewer:

- Conference on Neural Information Processing Systems (NeurIPS)
- International Conference on Machine Learning (ICML)
- International Conference on Learning Representations (ICLR)
- Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- Conference on Lifelong Learning Agents (CoLLAs) (Senior Reviewer)
- International Conference on Machine Learning (ICML) Workshops
- International Conference on Robotics and Automation (ICRA)
- International Conference on Intelligent Robots and Systems (IROS)
- Association for the Advancement of Artificial Intelligence Conference (AAAI)
- Uncertainty in Artificial Intelligence (UAI)

Scientific Reviewer:

- NSF Postdoctoral Fellowship Program 2024
- ETH Zurich/Swiss National Supercomputing Center 2024

Seminar (Co-)Organizer:

- Self-Supervised Learning Weekly Seminars 2021 – 2022
- Meta-Learning Weekly Seminars 2019 – 2021
- Uber ATG R&D Weekly Paper Reading Seminars 2018 – 2019

Open Source Softwares

- Forward-mode automatic differentiation for TensorFlow.
  GitHub: `https://github.com/renmengye/tensorflow-forward-ad`
- DeepDashboard: Real-time web-based training visualizer.
  GitHub: `https://github.com/renmengye/deep-dashboard`

Invited Talks

2024

T1 Lifelong and human-like learning in foundation models. Columbia University. NSF AI Institute for Artificial and Natural Intelligence. New York, NY, USA. Sep 13, 2024.

T2 Computer Vision and Deep Learning: A Primer. NYU AI Summer School. New York University. New York, NY, USA. Jun 4, 2024.

T3 Lifelong and human-like learning in foundation models. Machine Learning Seminar. Flatiron Institute. New York, NY, USA. Apr 30, 2024.

T4 Lifelong and human-like learning in foundation models. Smart Minds meet Smart Machines: AI for Science and Public Good. German Consulate General in New York. New York, NY, USA. Apr 8, 2024.

2023

T5 Lifelong learning in structured environments. American Statistical Association, Statistical Learning and Data Science Webinar. Virtual. Oct 2023.

T6 Scaling forward gradient with local losses. Baylor College of Medicine, Journal Club Invited Talk. Houston, TX, USA. Jun 2023.

T7 Biologically plausible learning using local activity perturbation. University of British Columbia. Invited Talk. Vancouver, BC, Canada. Jun 2023.

2022

T8 Meta-learning within a lifetime. NeurIPS 2022 MetaLearn Workshop, Invited Talk. New Orleans, Louisiana, USA. Dec 2022.

T9 Biologically plausible learning using local activity perturbation. NYU CDS Lunch Seminar. New York, New York, USA. Oct 2022.

T10 Visual learning in the open world. 19th Conference on Vision and Robotics (CRV), Invited Symposium. Toronto, Ontario, Canada. Jun 2022.

2021

T11 Visual learning in the open world. University of Oxford. Oxford, UK. Nov 2021.

T12 Visual learning in the open world. Google Brain. Toronto, Ontario, Canada. Nov 2021.

T13 Visual learning in the open world. Stanford University. Stanford, California, USA. Oct 2021.

T14 Steps towards making machine learning more natural. École Polytechnique Fédérale de Lausanne. Lausanne, Switzerland. Apr 2021.

T15 Steps towards making machine learning more natural. University of Michigan. Ann Arbor, Michigan, USA. Mar 2021.

T16 Steps towards making machine learning more natural. Université de Montréal. Montréal, Québec, Canada. Mar 2021.

T17 Steps towards making machine learning more natural. University of North Carolina, Chapel Hill. Chapel Hill, North Carolina, USA. Mar 2021.

T18 Steps towards making machine learning more natural. University of Chicago. Chicago, Illinois, USA. Mar 2021.

T19 Steps towards making machine learning more natural. University of British Columbia. Vancouver, British Columbia, Canada. Mar 2021.

T20 Steps towards making machine learning more natural. University of Waterloo. Waterloo, Ontario, Canada. Mar 2021.

T21 Steps towards making machine learning more natural. New York University. New York, New York, USA. Mar 2021.

T22 Steps towards making machine learning more natural. University of Edinburgh. Edinburgh, UK. Mar 2021.

T23 Steps towards making machine learning more natural. University of Maryland, College Park. College Park, Maryland, USA. Feb 2021.

T24 A tutorial on few-shot learning and unsupervised representation learning. Vector Institute. Toronto, Ontario, Canada. Jan 2021.

2020

T25 How can we apply few-shot learning? Vector Institute. Toronto, Ontario, Canada. Oct 2020.

T26 Towards continual and compositional few-shot learning. Stanford University. Stanford, California, USA. Oct 2020.

T27 Towards continual and compositional few-shot learning. Brown University. Providence, Rhode Island, USA. Sept 2020.

T28 Towards continual and compositional few-shot learning. MIT. Cambridge, Massachusetts, USA. Sept 2020.

T29 Towards continual and compositional few-shot learning. Mila. Montréal, Québec, Canada. Aug 2020.

T30 Towards continual and compositional few-shot learning. Uber ATG. Toronto, Ontario, Canada. Aug 2020.

T31 Wandering within a world: Online contextualized few-shot learning. Google Brain. Montréal, Québec, Canada. Aug 2020.

T32 Wandering within a world: Online contextualized few-shot learning. ICML 2020 Lifelong Learning Workshop. July 2020.

T33 Wandering within a world: Online contextualized few-shot learning. ICML 2020 Continual Learning Workshop. July 2020.

2019

T34 Jointly learnable behavior and trajectory planner for autonomous driving. IROS 2019. Macau, China. Nov 2019.

T35 Meta-learning for more human-like learning algorithms. Columbia University. New York, New York, USA. Oct 2019.

2018

T36 Learning to reweight examples for robust deep learning. CIFAR deep learning and reinforcement learning summer school. Toronto, Ontario, Canada. Aug 2018.

T37 Meta-learning for weakly supervised learning. INRIA Grenoble - Rhône-Alpes. Grenoble, France. July 2018.

T38 Learning to reweight examples for robust deep learning. ICML 2018. Stockholm, Sweden. July 2018.

T39 Meta-learning and learning to reweight examples. Max Planck Institute for Intelligent Systems. Tübingen, Germany. June 2018.

T40 SBNet: Sparse blocks network for fast inference. CVPR 2018. Salt Lake City, Utah, USA. June 2018.

T41 Meta-learning for weakly supervised learning. NEC Laboratories America. Princeton, New Jersey, USA. June 2018.

T42 SBNet: Sparse blocks network for fast inference. Borealis AI Lab (RBC Research). Toronto, Ontario, Canada. Feb 2018.

2017

T43 Meta-learning for semi-supervised few-shot classification. Vector Institute. Toronto, Ontario, Canada. Nov 2017.

T44 End-to-end instance segmentation with recurrent attention. CVPR 2017. Honolulu, Hawaii, USA. July 2017.

T45 Sequence-to-sequence deep learning with recurrent attention. Queen's University. Kingston, Ontario, Canada. May 2017.

T46 Recurrent neural networks. CSC 2541: Sport Analytics Guest Lecture. University of Toronto. Toronto, Ontario, Canada. Jan 2017.

2016

T47 Deep dashboard tutorial. University of Guelph. Guelph, Ontario, Canada. Mar 2016.

T48 Deep dashboard tutorial. University of Toronto. Toronto, Ontario, Canada. Feb 2016.

2015

T49 Exploring data and models for image question answering. ICML 2015 Deep Learning Workshop. Lille, France. July 2015.

Student Supervision

PhD Students (NYU):

- Chris Hoang 2023 - Present
- Jack (Yi Ao) Lu 2023 - Present
- Ryan Teehan 2022 - Present
- Alexander Wang 2022 - Present
- Ying Wang 2024 - Present
- Yanlai Yang 2022 - Present

Media Coverage

- Interview: Even experts don't know how AI makes decisions. MarketWatch. [link]. 2024/02/15.
- Panel: Can AI be regulated and how? CGTN. [link]. 2023/06/16.
- Researchers Build AI That Builds AI. Quanta Magazine. [link]. 2022/01/25.