# Mengye Ren – Curriculum Vitæ

Contact Information	60 5th Ave, Rm 508 New York, NY 10011-8868, USA	<i>Tel:</i> +1 (212) 992-7547 <i>Email:</i> mengye@cs.nyu.edu <i>Website:</i> https://mengyeren.com	ı
Research Interests	Areas: Machine learning, computer vision, meta learning, representation learning, few-shot learn- ing, 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 Ph.D., Supervisors: Rich Thesis: "Open World M Committee: Roger Gros	<i>Science</i> hard Zemel and Raquel Urtasun achine Learning with Limited Labeled Data" se, Geoffrey Hinton, Yee Whye Teh	2017/01 – 2021/10
	Department of Computer M.Sc., Supervisor: Richa	<i>Science</i> ard Zemel	2015/09 - 2017/01
	Department of Engineerin BASc, CGPA 3.90/4.00,	<i>g Science, ECE Option</i> with high honours	2011/09 – 2015/06
Professional Experience	<ul> <li>New York University, Net Assistant Professor of Con Google Brain, Toronto, O. Visiting Faculty Research</li> <li>Waabi Innovation, Toront Senior Researcher II</li> <li>Uber ATG, Toronto, ON, O Senior Research Scientist Research Scientist II</li> <li>Twitter, Cambridge, MA, Research Intern</li> <li>Google, Mountain View, O Research Intern in Google SWE Intern in StreetView</li> <li>Microsoft, Redmond, WA SDET Intern in Visual St SDET Intern in Visual St</li> </ul>	w York, NY, USA nputer Science and Data Science N, Canada er so, ON, Canada Canada I USA CA, USA Brain and Image Understanding ' , USA udio udio	2022/09 – Present 2022/01 – 2022/09 2021/03 – 2021/12 2018/09 – 2021/02 2017/05 – 2018/09 2016/06 – 2016/08 2015/06 – 2015/08 2014/06 – 2014/08 2013/06 – 2013/08 2012/06 – 2012/08
TEACHING	New York University • DS-GA 3001: Embodie • CSCI-GA 2565: Machin • DS-GA 1008: Deep Lea • CSCI-GA 2565: Machin • DS-GA 1003: Machine	d Learning and Vision ne Learning urning ne Learning Learning	2025 Spring 2024 Fall 2024 Spring 2023 Fall 2023 Spring

## **Vector Institute**

• Deep Learning II

#### **University of Toronto**

• CSC 411: Machine Learning and Data Mining

2019 Winter

2020 Fall

PEER-REVIEWED (\*=equal contribution)

#### CONFERENCE PUBLICATIONS

# 2025

- C1 Hui Dai, Ryan Teehan, and **Mengye Ren**. Are LLMs prescient? A continuous evaluation using daily news as the oracle. In *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, Vancouver, British Columbia, Canada, 2025.
- C2 Raghav Singhal, Zachary Horvitz, Ryan Teehan, **Mengye Ren**, Zhou Yu, Kathleen McKeown, and Rajesh Ranganath. A general framework for inference-time scaling and steering of diffusion models In *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, Vancouver, British Columbia, Canada, 2025.
- C3 Alex N Wang, Christopher Hoang, Yuwen Xiong, Yann LeCun, and **Mengye Ren**. PooDLe: Pooled and dense self-supervised learning from naturalistic videos. In *Proceedings of the 13th International Conference on Learning Representations (ICLR)*, Singapore, 2025.

# 2024

- C4 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.
- C5 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.
- C6 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.
- C7 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.
- C8 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)
- C9 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.

- C10 **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.
- C11 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.
- C12 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.

C13 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

C14 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

- C15 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.
- C16 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.
- C17 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.
- C18 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.
- C19 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.
- C20 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.
- C21 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.
- C22 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)
- C23 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.
- C24 Jingkang Wang, Ava Pun, James Tu, Abbas Sadat, Sergio Casas, Sivabalan Manivasagam, Mengye Ren, and Raquel Urtasun. AdvSim: Generating safety-critical scenarios for selfdriving vehicles. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.

#### 2020

C25 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.

- C26 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.
- C27 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)
- C28 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.
- C29 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.
- C30 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.

- C31 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.
- C32 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**)
- C33 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)
- C34 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.

- C35 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.
- C36 **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**)
- C37 Mengye Ren, Eleni Triantafillou\*, Sachin Ravi\*, Jake Snell, Kevin Swersky, Joshua B. Tenenbaum, Hugo Larochelle, and Richard S. Zemel. Meta-learning for semi-supervised fewshot classification. In *Proceedings of the 6th International Conference on Learning Representations* (*ICLR*), Vancouver, British Columbia, Canada, 2018.
- C38 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.

- C39 Aidan N. Gomez<sup>\*</sup>, Mengye Ren<sup>\*</sup>, 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.
- C40 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)
- C41 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.

C42 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 2024

- WORKSHOP PAPERS 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.

- 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. Costefficient 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 Yanlai Yang and **Mengye Ren**. Memory Storyboard: Leveraging temporal segmentation for streaming self-supervised learning from egocentric videos. *arXiv preprint arXiv:2501.12254*, 2025.
- R2 Yasaman Mahdaviyeh, James Lucas, **Mengye Ren**, Andreas S. Tolias, Richard Zemel, and Toniann Pitassi. Replay can provably increase forgetting. *In submission*, 2024.
- R3 Ying Wang, Yanlai Yang, and **Mengye Ren**. LifelongMemory: Leveraging LLMs for answering queries in long-form egocentric videos. *arXiv preprint arXiv:2312.05269*, 2023.
- R4 Yixuan Luo, **Mengye Ren**, and Sai Qian Zhang. BIM: block-wise self-supervised learning with masked image modeling. *arXiv preprint arXiv:2311.17218*, 2023.
- R5 Andrew J. Nam\*, **Mengye Ren\***, Chelsea Finn, and James L. McClelland. Learning to reason with relational abstractions. *arXiv preprint arXiv:2210.02615*, 2022.
- R6 Renjie Liao, Simon Kornblith, **Mengye Ren**, David J. Fleet, and Geoffrey Hinton. Gaussian-Bernoulli RBMs without tears. *arXiv preprint arXiv:2210.10318*, 2022.
- R7 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.

- R8 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.
- R9 Yuwen Xiong\*, **Mengye Ren**\*, and Raquel Urtasun. Learning to remember from a multi-task teacher. *arXiv preprint arXiv:1910.04650*, 2019.
- P1 Nicholas Baskar Vadivelu, **Mengye Ren**, Xuanyuan Tu, Raquel Urtasun, Jingkang Wang. Systems and methods for mitigating vehicle pose error across an aggregated feature map, US 12,127,085 B2, US Patent, 2024.
  - P2 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.
  - P3 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.
  - P4 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.
  - P5 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.
  - P6 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.
  - P7 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.
  - P8 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
	<ul> <li>NIPS 2017 Travel Award \$800 USD</li> </ul>	2017
	• ICLR 2017 Travel Award \$1,250 USD	2017
	<ul> <li>MLSS 2015 Kyoto Travel Support ¥140,000 JPY</li> </ul>	2015
	• U of T Quantathon 2nd Place \$5,000 CAD	2015
	• U of T Undergraduate Mathematics Competition, Honourable Mention	2015
	<ul> <li>Wallberg Undergraduate Scholarship \$1,500 CAD</li> </ul>	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	• Google Cloud Research Credit, \$5,000	2024-2025
Sponsors	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

PATENTS

#### PROFESSIONAL SERVICE

#### Conference Organizer:

- Conference on Lifelong Learning Agents (CoLLAs) (Associate Program Chair) 2025
- Conference on Neural Information Processing Systems (NeurIPS) (Communication Chair) 2025

# Aroa Chair

Area Chair:			
Conference on Language Modeling (COLM)	2025		
• IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)	2025		
• International Conference on Automated Machine Learning (AutoMI)	2022 - 2023		
NoumDS More contended in Automated Material Continues (AutoME)	2022 - 2023		
• Neurir's 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		
• ICVID 2022 Workshop on Comp Designations for Astronomy Driving	2023		
• ICLK 2025 Workshop on Scene Representations for Autonomous Driving	2023		
Journal Reviewer:			
• Journal of Machine Learning Research (JMLR)			
• International Journal of Computer Vision (IICV)			
• IFFE 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			
• Machino Looming			
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:

2024
2024
2021 - 2022
2019 - 2021
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

# 2025

T1 Lifelong concept learning for machines. New York University. Department of Psychology ConCats Seminar. Apr 4, 2025.

# 2024

- T2 Lifelong and human-like learning in foundation models. Seoul National University. SNU AI Seminar. Seoul, South Korea. Dec 5, 2024.
- T3 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.
- T4 Computer Vision and Deep Learning: A Primer. NYU AI Summer School. New York University. New York, NY, USA. Jun 4, 2024.
- T5 Lifelong and human-like learning in foundation models. Machine Learning Seminar. Flatiron Institute. New York, NY, USA. Apr 30, 2024.
- T6 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

- T7 Lifelong learning in structured environments. American Statistical Association, Statistical Learning and Data Science Webinar. Virtual. Oct 2023.
- T8 Scaling forward gradient with local losses. Baylor College of Medicine, Journal Club Invited Talk. Houston, TX, USA. Jun 2023.
- T9 Biologically plausible learning using local activity perturbation. University of British Columbia. Invited Talk. Vancouver, BC, Canada. Jun 2023.

# 2022

- T10 Meta-learning within a lifetime. NeurIPS 2022 MetaLearn Workshop, Invited Talk. New Orleans, Louisiana, USA. Dec 2022.
- T11 Biologically plausible learning using local activity perturbation. NYU CDS Lunch Seminar. New York, New York, USA. Oct 2022.
- T12 Visual learning in the open world. 19th Conference on Vision and Robotics (CRV), Invited Symposium. Toronto, Ontario, Canada. Jun 2022.

- T13 Visual learning in the open world. University of Oxford. Oxford, UK. Nov 2021.
- T14 Visual learning in the open world. Google Brain. Toronto, Ontario, Canada. Nov 2021.
- T15 Visual learning in the open world. Stanford University. Stanford, California, USA. Oct 2021.
- T16 Steps towards making machine learning more natural. École Polytechnique Fédérale de Lausanne. Lausanne, Switzerland. Apr 2021.
- T17 Steps towards making machine learning more natural. University of Michigan. Ann Arbor, Michigan, USA. Mar 2021.
- T18 Steps towards making machine learning more natural. Université de Montréal. Montréal, Québec, Canada. Mar 2021.
- T19 Steps towards making machine learning more natural. University of North Carolina, Chapel Hill. Chapel Hill, North Carolina, USA. Mar 2021.

- T20 Steps towards making machine learning more natural. University of Chicago. Chicago, Illinois, USA. Mar 2021.
- T21 Steps towards making machine learning more natural. University of British Columbia. Vancouver, British Columbia, Canada. Mar 2021.
- T22 Steps towards making machine learning more natural. University of Waterloo. Waterloo, Ontario, Canada. Mar 2021.
- T23 Steps towards making machine learning more natural. New York University. New York, New York, USA. Mar 2021.
- T24 Steps towards making machine learning more natural. University of Edinburgh. Edinburgh, UK. Mar 2021.
- T25 Steps towards making machine learning more natural. University of Maryland, College Park. College Park, Maryland, USA. Feb 2021.
- T26 A tutorial on few-shot learning and unsupervised representation learning. Vector Institute. Toronto, Ontario, Canada. Jan 2021.

- T27 How can we apply few-shot learning? Vector Institute. Toronto, Ontario, Canada. Oct 2020.
- T28 Towards continual and compositional few-shot learning. Stanford University. Stanford, California, USA. Oct 2020.
- T29 Towards continual and compositional few-shot learning. Brown University. Providence, Rhode Island, USA. Sept 2020.
- T30 Towards continual and compositional few-shot learning. MIT. Cambridge, Massachusetts, USA. Sept 2020.
- T31 Towards continual and compositional few-shot learning. Mila. Montréal, Québec, Canada. Aug 2020.
- T32 Towards continual and compositional few-shot learning. Uber ATG. Toronto, Ontario, Canada. Aug 2020.
- T33 Wandering within a world: Online contextualized few-shot learning. Google Brain. Montréal, Québec, Canada. Aug 2020.
- T34 Wandering within a world: Online contextualized few-shot learning. ICML 2020 Lifelong Learning Workshop. July 2020.
- T35 Wandering within a world: Online contextualized few-shot learning. ICML 2020 Continual Learning Workshop. July 2020.

#### 2019

- T36 Jointly learnable behavior and trajectory planner for autonomous driving. IROS 2019. Macau, China. Nov 2019.
- T37 Meta-learning for more human-like learning algorithms. Columbia University. New York, New York, USA. Oct 2019.

- T38 Learning to reweight examples for robust deep learning. CIFAR deep learning and reinforcement learning summer school. Toronto, Ontario, Canada. Aug 2018.
- T39 Meta-learning for weakly supervised learning. INRIA Grenoble Rhône-Alpes. Grenoble, France. July 2018.
- T40 Learning to reweight examples for robust deep learning. ICML 2018. Stockholm, Sweden. July 2018.

- T41 Meta-learning and learning to reweight examples. Max Planck Institute for Intelligent Systems. Tübingen, Germany. June 2018.
- T42 SBNet: Sparse blocks network for fast inference. CVPR 2018. Salt Lake City, Utah, USA. June 2018.
- T43 Meta-learning for weakly supervised learning. NEC Laboratories America. Princeton, New Jersey, USA. June 2018.
- T44 SBNet: Sparse blocks network for fast inference. Borealis AI Lab (RBC Research). Toronto, Ontario, Canada. Feb 2018.

- T45 Meta-learning for semi-supervised few-shot classification. Vector Institute. Toronto, Ontario, Canada. Nov 2017.
- T46 End-to-end instance segmentation with recurrent attention. CVPR 2017. Honolulu, Hawaii, USA. July 2017.
- T47 Sequence-to-sequence deep learning with recurrent attention. Queen's University. Kingston, Ontario, Canada. May 2017.
- T48 Recurrent neural networks. CSC 2541: Sport Analytics Guest Lecture. University of Toronto. Toronto, Ontario, Canada. Jan 2017.

#### 2016

- T49 Deep dashboard tutorial. University of Guelph. Guelph, Ontario, Canada. Mar 2016.
- T50 Deep dashboard tutorial. University of Toronto. Toronto, Ontario, Canada. Feb 2016.

#### 2015

T51 Exploring data and models for image question answering. ICML 2015 Deep Learning Workshop. Lille, France. July 2015.

Student	Current PhD Students:	
SUPERVISION	Chris Hoang	2023 - Present
	• Jack (Yi Ao) Lu	2023 - Present
	Ryan Teehan	2022 - Present
	• Ying Wang	2024 - Present
	• Yanlai Yang	2022 - Present
	Past PhD Students:	
	Alexander N. Wang	2022 - 2025

#### MEDIA COVERAGE

- Could A.I. turn cities into economic losers? CBS News New York. [link]. 2025/04/10.
- 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.