Elliot Creager

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Current position

2023 - *Assistant Professor*, University of Waterloo

Previous experience

2020 - 2021 *Graduate Fellow*, Schwartz Reisman Inst. for Technology and Society, Toronto, Ontario
2019 - 2020 *Student Researcher*, Google Brain, Toronto, Ontario
2019 *Research Intern*, Google Brain, Toronto, Ontario
2015 - 2017 *Research Scientist*, Analog Devices, Inc., Cambridge, Massachusetts
2014 *Research Intern*, Analog Devices, Inc.
2013 *Research Intern*, Analog Devices, Inc.

Education

2023 Ph.D. in Computer Science, University of Toronto
2015 M.A. in Music Technology, McGill University
2013 Sc.B. in Electrical Engineering (Honors) and A.B. in Music, Brown University

Publications

Conferences

2023a A. Mani, I. P. Chandratreya, **E. Creager**, C. Vondrick, and R. Zemel, "SurfsUp: Learning Fluid Simulation for Novel Surfaces", *ICCV 2023*

2022a S. Pitis, **E. Creager**, A. Mandlekar, and A. Garg, "MoCoDA: Model-based Counterfactual Data Augmentation", *NeurIPS 2022*

2021b F. Trauble, **E. Creager**, N. Kilbertus, F. Locatello, A. Dittadi, A. Goyal, B. Schölkopf, and S. Bauer, "On Disentangled Representations Learned from Correlated Data", *ICML 2021* (Oral)

2021a **E. Creager**, J.-H. Jacobsen, and R. Zemel, "Environment Inference for Invariant Learning", *ICML 2021*

2020c S. Pitis, **E. Creager**, and A. Garg, "Counterfactual Data Augmentation for Locally Factored Dynamics", *NeurIPS 2020* (also "outstanding paper" at *ICML 2020 Object-oriented Learning Workshop*)

2020b M. Mladenov, **E. Creager**, O. Ben-Porat, K. Swersky, R. Zemel, and C. Boutilier, "Optimizing Long-term Social Welfare in Recommender Systems: A Constrained Matching Approach", *ICML 2020*

2020a **E. Creager**, D. Madras, T. Pitassi, and R. Zemel, "Causal Modeling for Fairness in Dynamical Systems", *ICML 2020*

2019a D. Madras, **E. Creager**, T. Pitassi, and R. Zemel, "Fairness Through Causal Awareness: Learning Latent-Variable Models for Biased Data", *ACM FAT* 2019*

2019c **E. Creager**, D. Madras, J.-H. Jacobsen, M.A. Weis, K. Swersky, T. Pitassi, and R. Zemel, "Flexibly Fair Representation Learning by Disentanglement", *ICML 2019*

2019b C.-H. Chang, **E. Creager**, A. Goldenberg, and D. Duvenaud, "Explaining Image Classifiers by Counterfactual Generation", *ICLR 2019*

2018a D. Madras*, **E. Creager***, T. Pitassi, and R. Zemel, "Learning Adversarially Fair and Transferable Representations", *ICML 2018*

2016 **E. Creager**, N.D. Stein, R. Badeau, and P. Depalle, "Nonnegative Tensor Factorization with Frequency Modulation Cues for Blind Audio Source Separation", *ISMIR 2016*,

Workshops

2023b B. Eyre, **E. Creager**, D. Madras, V. Papyan, and R. Zemel, "Out of the Ordinary: Spectrally Adapting Regression for Covariate Shift", *ICML 2023 Workshop on Spurious Correlations, Invariance, and Stability*

2022b B. Eyre, R. Zemel and **E. Creager**, "Towards Environment-Invariant Representation Learning for Robust Task Transfer", *ICML 2022 Workshop on Spurious Correlations, Invariance, and Stability*

2021d D. Dickson and **E. Creager**, "Measuring User Recourse in a Dynamic Recommender System", *ICML 2021 Workshop on Algorithmic Recourse*

2021c **E. Creager** and R. Zemel, "Online Algorithmic Recourse by Collective Action", *ICML 2021 Workshop on Algorithmic Recourse*

2020d R. Adragna, **E. Creager**, D. Madras, and R. Zemel, "Fairness and Robustness in Invariant

∗ denotes equal contribution

Learning: A Case Study in Toxicity Classification", *NeurIPS 2020 Workshop on Algorithmic Fairness Through the Lens of Causality* (Oral)

2018b W. Grathwohl*, **E. Creager** *, S.K.S. Ghasemipour*, R. Zemel, "Gradient-Based Optimization of Neural Network Architecture", *ICLR 2018 Workshop*

Teaching

Course instructor

2022 *Introduction to Artificial Intelligence*, University of Toronto

Conference tutorials

2022 *Algorithmic Fairness: at the Intersections*, NeurIPS

Teaching assistant

2022 *Introduction to Machine Learning*, University of Toronto
2021 *Introduction to Machine Learning*, University of Toronto
2021 *Probabilistic Learning and Reasoning*, University of Toronto
2019 *AI and Ethics: Mathematical Foundations and Algorithms*, University of Toronto
2019 *Fairness and Privacy in Machine Learning*, African Institute for Mathematical Sciences (Rwanda)
2018 *Machine Learning and Data Mining*, University of Toronto
2018 *Probabilistic Learning and Reasoning*, University of Toronto
2017 *Introduction to Artificial Intelligence*, University of Toronto
2014 *Digital Audio Signal Processing*, McGill University
2013 *Communications Systems*, Brown University
2012 *Communications Systems*, Brown University

Academic service

2024 *Program Committee*, Workshop on Recommendation Ecosystems: Modeling, Optimization and Incentive Design (AAAI)
2023 *Program Committee*, Workshop on Robustness of Few-shot and Zero-shot Learning in Foundation Models (NeurIPS)
2023 *Program Committee*, Workshop on Regulating Machine Learning (NeurIPS)
2023 *Program Committee*, Workshop on Distribution Shifts: New Frontiers with Foundation Models (NeurIPS)
2023 *Program Committee*, Workshop on Causal Representation Learning (NeurIPS)
2023 *Program Committee*, Conference on Health, Inference, and Learning
2022 *Program Committee*, Workshop on Distribution Shifts (NeurIPS)
2022 *Program Committee*, Workshop on Robustness in Sequence Modeling (NeurIPS)
2022 *Program Committee*, Workshop on A Causal View on Dynamical Systems (NeurIPS)

2022 *Program Committee*, Workshop on Algorithmic Fairness Through the Lens of Causality and Privacy (NeurIPS)
2022 *Program Committee*, Workshop on Continuous-time Methods for ML (ICML)
2022 *Program Committee*, Workshop on Principles of Distribution Shifts (ICML)
2022-2023 *Program Committee*, Workshop on Spurious Correlations, Invariance, and Stability (ICML)
2021 *Program Committee*, Workshop on Distribution Shifts: Connecting Methods and Applications (NeurIPS)
2021 *Program Committee*, Workshop on Algorithmic Fairness Through the Lens of Causality and Robustness (NeurIPS)
2021-2023 *Ethics Reviewer*, NeurIPS
2020-2023 *Program Committee*, ICML
2020 *Co-organizer*, Resistance AI Workshop (NeurIPS)
2020-2023 *Program Committee*, ACM FAccT Conference
2020 *Program Committee*, Workshop on Algorithmic Fairness Through the Lens of Causality and Interpretability (NeurIPS)
2019-2023 *Program Committee*, NeurIPS
Program Committee, Fair Machine Learning for Health Workshop (NeurIPS)

Skills

programming: Python (TensorFlow, PyTorch, JAX, NumPy, Pandas)
computing: Amazon Web Services, Google Cloud, Unix, bash, git, LaTeX