Jake C. Snell

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Nationality: U.S. citizen

Education

Ph.D., Computer Science, **University of Toronto** 2014 - 2021
Thesis: *Learning to Build Probabilistic Models with Limited Data*
Advisor: Dr. Richard Zemel

M.Sc., Computer Science, **University of Toronto** 2012 - 2014

B.Sc. *cum laude*, Biomedical Engineering, **Yale University** 2006 - 2010

Honors & Awards

- DataX Postdoctoral Fellowship, Center for Statistics & Machine Learning, Princeton University 2023 - 2024
- Transactions on Machine Learning Research (TMLR) Expert Reviewer Certification 2023
- Neural Information Processing Systems (NeurIPS) Outstanding Reviewer Award 2019, 2021
- IEEE International Conf. on Image Processing (ICIP) Finalist for Best Student Paper Award 2017
- International Computer Vision Summer School (ICVSS) Best Presentation Award 2014

Research Experience

Princeton University Princeton, NJ
Postdoctoral Research Associate, Department of Computer Science June 2022 - Present
- Working with Dr. Thomas Griffiths on deep learning methods for Bayesian inference.

University of Toronto & Vector Institute Toronto, Canada
Postdoctoral Fellow, Department of Computer Science March 2021 - May 2022
- Worked with Dr. Richard Zemel on algorithms for reliability quantification.

SK Telecom Seoul, South Korea
Machine Learning Research Intern, T-Brain Group Fall 2018
- Researched Gaussian process methods for few-shot classification.

Twitter Cambridge, MA
Machine Learning Research Intern, Advanced Technologies Group Summer 2016
- Worked with Kevin Swersky on metric learning methods for few-shot learning.

Publications

Manuscripts in Submission

2. Jake C. Snell and Thomas L. Griffiths. Conformal prediction as Bayesian quadrature.

1. Raja Marjieh, Sreejan Kumar, Declan Campbell, Liyi Zhang, Gianluca Bencomo, Jake C. Snell, and Thomas L. Griffiths. Using Contrastive Learning with Generative Similarity to Learn Spaces that Capture Human Inductive Biases.

Articles in Refereed Journals

2. Grace Liu, Jake C. Snell, Thomas L. Griffiths, and Rachit Dubey. Binary climate data heightens perceived impact of climate change. To appear in: Nature Human Behaviour, 2025.

1. Thomas P. Zollo, Zhun Deng, Jake C. Snell, Toniann Pitassi, and Richard Zemel. Improving predictor reliability with selective recalibration. In: Transactions on Machine Learning Research (TMLR), 2024.

Refereed Conference Papers

14. Jake C. Snell, Gianluca Bencomo, and Thomas L. Griffiths. A metalearned neural circuit for nonparametric Bayesian inference. In: Neural Information Processing Systems (NeurIPS). 2024.

13. Gianluca M. Bencomo, Jake C. Snell, and Thomas L. Griffiths. Implicit maximum a posteriori filtering via adaptive optimization. In: International Conference on Learning Representations (ICLR). 2024.

12. Thomas P. Zollo, Todd Morrill, Zhun Deng, Jake C. Snell, Toniann Pitassi, and Richard Zemel. Prompt risk control: a rigorous framework for responsible deployment of large language models. In: International Conference on Learning Representations (ICLR). 2024.

11. Bhishma Dedhia, Michael Chang, Jake C. Snell, Thomas L. Griffiths, and Niraj K. Jha. Im-promptu: in-context composition from image prompts. In: Neural Information Processing Systems (NeurIPS). 2023.

10. Zhun Deng, Thomas P. Zollo, Jake C. Snell, Toniann Pitassi, and Richard Zemel. Distribution-free statistical dispersion control for societal applications. In: Neural Information Processing Systems (NeurIPS). 2023.

9. Jake C. Snell, Thomas P. Zollo, Zhun Deng, Toniann Pitassi, and Richard Zemel. Quantile risk control: a flexible framework for bounding the probability of high-loss predictions. In: International Conference on Learning Representations (ICLR). 2023.

8. Jake C. Snell and Richard Zemel. Bayesian few-shot classification with one-vs-each Pólya-gamma augmented Gaussian processes. In: International Conference on Learning Representations (ICLR). 2021.

7. Marc T. Law, Renjie Liao, Jake C. Snell, and Richard Zemel. Lorentzian distance learning for hyperbolic representations. In: International Conference on Machine Learning (ICML). 2019.

6. Marc T. Law, Jake C. Snell, Amir-massoud Farahmand, Raquel Urtasun, and Richard Zemel. Dimensionality reduction for representing the knowledge of probabilistic models. In: International Conference on Learning Representations (ICLR). 2019.

5. Jack Klys, Jake C. Snell, and Richard Zemel. Learning latent subspaces in variational autoencoders. In: Neural Information Processing Systems (NeurIPS). 2018.

4. Mengye Ren, Eleni Triantafillou, Sachin Ravi, Jake C. Snell, Kevin Swersky, Joshua B. Tenenbaum, Hugo Larochelle, and Richard Zemel. Meta-learning for semi-supervised few-shot classification. In: International Conference on Learning Representations (ICLR). 2018.

3. Jake C. Snell, Kevin Swersky, and Richard Zemel. Prototypical networks for few-shot learning. In: Neural Information Processing Systems (NeurIPS). 2017.

2. Jake C. Snell and Richard Zemel. Stochastic segmentation trees for multiple ground truths. In: Uncertainty in Artificial Intelligence (UAI). 2017.

1. Jake C. Snell, Karl Ridgeway, Renjie Liao, Brett D. Roads, Michael C. Mozer, and Richard Zemel. Learning to generate images with perceptual similarity metrics. In: International Conference on Image Processing (ICIP). 2017.

Invited Talks

- Stanford University, Department of Statistics — February 2024
- CVPR Workshop on Learning with Limited Labeled Data for Image and Video (remote) — June 2022
- Princeton University, Computational Cognitive Science Lab (remote) — January 2022
- SK Telecom ai.x Conference, Seoul, South Korea — June 2019
- TU Berlin, Machine Learning Group — July 2018
- Max Planck Institute for Intelligent Systems, Tübingen, Germany — June 2018
- Samsung Advanced Institute of Technology (SAIT), Suwon, South Korea — March 2018

Teaching Experience

Princeton University

- *Lecturer*, Research Projects in Data Science — Fall 2023, Spring 2024
- *Lecturer*, Probabilistic Models of Cognition (remote) — Fall 2022

University of Toronto

- *Teaching Assistant*, Artificial Intelligence Fundamentals — Summer 2019
- *Teaching Assistant*, Machine Learning and Data Mining — Fall 2013, Fall 2015, Spring 2018
- *Teaching Assistant*, Introduction to Image Understanding — Fall 2017
- *Teaching Assistant*, Probabilistic Learning and Reasoning — Spring 2017
- *Teaching Assistant*, Introduction to Computer Science — Spring 2013, 2014
- *Teaching Assistant*, Introduction to Computer Programming — Fall 2012

Professional Memberships

- Tau Beta Pi (CT Alpha Chapter) — 2010 - present

Service

- *Action Editor*, Transactions on Machine Learning Research (TMLR) — 2023 - Present
- *Area Chair*, International Conference on Automated Machine Learning (AutoML) — 2022 - Present

Reviewing

Journals

- Computer Vision and Image Understanding — 2023
- Journal of Machine Learning Research (JMLR) — 2021
- Transactions on Machine Learning Research (TMLR) — 2022, 2023

Conferences

- Conference on Lifelong Learning Agents (CoLLAs) 2022, 2023
- IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2021
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2024
- International Conference on Learning Representations (ICLR) 2017, 2018, 2020, 2023, 2025
- International Conference on Machine Learning (ICML) 2018, 2019, 2022, 2024, 2025
- Neural Information Processing (NeurIPS) 2017 - 2019, 2021 - 2023

References

Thomas L. Griffiths, Ph.D.
Henry R. Luce Professor of Information Technology, Consciousness, and Culture
Departments of Psychology and Computer Science
Princeton University
tomg@princeton.edu

Richard Zemel, Ph.D.
Trianthe Dakolias Professor of Engineering and Applied Science
Professor, Department of Computer Science
Columbia University
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David Duvenaud, Ph.D.
Associate Professor, Departments of Computer Science and Statistical Sciences
University of Toronto
duvenaud@cs.toronto.edu