Curriculum Vitae

JIHWAN JEONG

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EDUCATION

Sep. 2019 – present	**Ph.D., University of Toronto (In Progress)** Mechanical and Industrial Engineering	Toronto, ON
Aug. 2017 – Aug. 2019	**M.S., KAIST** Industrial and Systems Engineering • GPA: 4.26 / 4.30 • Dissertation title: "Bayesian Optimization for a Multiple-Component System with Target Values"	Daejeon, Korea
Feb. 2009 – Feb. 2015	**B.S., KAIST** Chemistry • GPA: 3.83 / 4.30 (Cum Laude) • Dissertation title: "Survey on Structure and Reaction of Metal Organic Framework for Systematic Prediction of MOF Structure and Stability"	Daejeon, Korea

RESEARCH INTERESTS

Keywords: **Offline Reinforcement Learning, Model-Based Reinforcement Learning, Decision-Aware Model Learning, Bayesian Neural Networks**

- Data-driven reinforcement learning with learned models
- Uncertainty quantification in neural networks
- Robust sequential decision-making under uncertainty
- Learning models while taking end tasks into account

STATISTICAL AND COMPUTER EXPERIENCE

Session	Course Title	Grade	
Fall, 2020	Linear Programming and Network Flows (MIE1620H)	A+	U of T, Toronto, ON
Winter, 2020	Probabilistic Learning and Reasoning (CSC2506H)	A+	
Winter, 2020	Structured Learning and Inference (MIE1516H)	A+	
Fall, 2019	Decision Support Systems (MIE1513H)	A+	
Fall, 2019	Stochastic Programming and Robust Optimization (MIE1612H)	A+	
Fall, 2018	Dynamic Programming and Reinforcement Learning (IE540)	A+	KAIST, Daejeon, South Korea
Spring, 2018	Stochastic Modeling I (IE632)	A0	
Spring, 2018	Advanced Engineering Statistics (IE541)	A+	
Fall, 2017	Deep Learning and AlphaGo (EE488)	A+	
Fall, 2017	Engineering Random Processes (EE528)	A+	
Fall, 2017	Data-driven Decision Making and Control (IE481)	A+	
Fall, 2017	Applied Data Structures and Algorithms (IE362)	A+	

RESEARCH EXPERIENCE

Jun. 2022 – Sep. 2022	**Vector Institute Research Internship** Under the supervision of Professor Pascal Poupart (ppoupart@uwaterloo.ca) Topics: Offline RL, Meta RL	Vector Institute, Toronto, ON
Sep. 2019 – present	**Data-Driven Decision-Making Lab (D3M)** Under the supervision of Professor Scott Sanner (ssanner@mie.utoronto.ca)	U of T, Toronto, ON
Sep. 2017 – Jul. 2019	**System Analytics Lab** Advised by Professor Hayong Shin (hyshin@kaist.ac.kr) and co-advised by Professor Jinkyoo Park (jinkyoo.park@kaist.ac.kr)	KAIST, Daejeon, South Korea

PUBLICATIONS

Published

1. **J. Jeong**, P. Jaggi, A. Butler, S. Sanner, "An Exact Symbolic Reduction of Linear Smart Predict+Optimize to Mixed Integer Linear Programming." In *Proceedings of the 39th International Conference on Machine Learning (ICML-22)*, Baltimore, USA, 2022.
2. N. Patton*, M. Gimelfarb*, **J. Jeong***, S. Sanner. "A Distributional Framework for Risk-Sensitive End-to-End Planning in Continuous MDPs." In *Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI-22),* Online, 2022.
3. Z. Mai, R. Li, **J. Jeong,** D. Quispe, H. Kim, S. Sanner. "Online Continual Learning in Image Classification: An Empirical Survey." *Neurocomputing*, 469: 28-51, 2022.
4. N. Patton*, M. Gimelfarb*, **J. Jeong***, S. Sanner. "Scalable Risk-Sensitive Planning by Gradient Descent." *Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning, ICAPS,* online, 2021.
5. **J. Jeong***, P. Jaggi*, S. Sanner. "Symbolic Dynamic Programming for Continuous State MDPs with Linear Program Transitions." In *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI-21)*, Online, 2021.
6. **J. Jeong**, H. Shin. "Bayesian Optimization for a Multiple-Component System with Target Values." *Computers & Industrial Engineering,* 157: 107410, 2021.
7. D. Shim*, Z. Mai*, **J. Jeong***, S. Sanner, H. Kim, J. Jang. "Online Class-Incremental Continual Learning with Adversarial Shapley Value." In *Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI-21)*, Online, 2021.
8. Z. Mai, H. Kim, **J. Jeong**, S. Sanner. "Batch-level Experience Replay with Review for Continual Learning." arXiv: 2007.05683 [cs.LG].
   (Winning entry to Continual Learning Challenge in *Workshop on Continual Learning in Computer Vision* in *CVPR-20*)

(* equal contribution)

In Preparation

1. **J. Jeong**, A. Kumar, S. Sanner. "A Mixed Integer Linear Programming Reduction of Disjoint Bilinear Programs via Symbolic Variable Elimination." (*under review*)
2. **J. Jeong***, X. Wang*, M. Gimelfarb, H. Kim, B. Abdulhai, S. Sanner. "Conservative Bayesian Model-Based Value Expansion for Offline Policy Optimization" *(under review)*

SKILLS AND ABILITIES

Language	Korean: Native English: Fluent
Programming Language	Python (NumPy, SciPy, Scikit-Learn, PyTorch, Tensorflow, etc.) Java, Matlab
Other	LaTex

TEACHING & ADVISING

Teaching Assistantship — U of T, Toronto, ON

(MIE451) Decision Support Systems (fall, 2022)
(MIE369) Introduction to AI (winter, 2022; winter, 2021; summer, 2020)
(MIE424) Optimization in Machine Learning (winter, 2020)
(APS1070) Foundations of Data Analytics and Machine Learning (fall, 2019)

WORK EXPERIENCE

Jun. 2021 – Sep. 2021 — **LG AI Research (Research Intern)** — Seoul, South Korea

Fundamental Research Lab (Mentor: Hyunwoo Kim, hwkim@lgresearch.ai)

- Project: Offline reinforcement learning
  Implemented and tested SOTA model-based offline RL algorithms
  Working on a paper (in progress as a part of PhD thesis)

Oct. 2015 – Aug. 2017 — **National Service** (Mandatory for 21 months) — Seoul, South Korea

- Served for the Auxiliary Police in Seoul

Apr. 2015 – Sep. 2015	**UNCCD Regional Coordinating Unit for Asia-Pacific (Research Intern)** *Funded by the Ministry of Environment of Korea* • Worked on a research paper "Flood Risk Reduction in Myanmar: Do Land Degradation and Deforestation Matter?" • Supported work of supervisor (Mr. Youlin Yang, youlin.unescap@un.org)	Bangkok, Thailand

ACTIVITIES

10 Jul. 2018 – 20 Jul. 2018	**Workshop "Biomimicry, digital cities and big data"** *Organized by the Cité des sciences et de l'industrie, Universcience, and l'Atelier International Expérimental pour la Cité Bio-numérique*	Paris, France
Jul. 2014 – Aug. 2014	**International Environment Expert Training Program** *Co-organized by the Ministry of Environment and Korea Environment Corporation* • Awarded the funding for an internship program at an international organization	Seoul, South Korea
Sep.2013 – Dec. 2014	**Green in KAIST (Student committee for green campus)** • Served as a vice president • Communicated with professors, staff members, and the student body of the university	Daejeon, South Korea

PRESENTATIONS

Jul. 2022	"An Exact Symbolic Reduction of Linear Smart Predict+Optimize to Mixed Integer Linear Programming". The 39th International Conference on Machine Learning (ICML-22).	Baltimore, MD, USA

AWARDS & HONORS

Jun. 2020	**"ALL" Track winner at Continual Learning Challenge, *Workshop on Continual Learning in Computer Vision in* CVPR 2020** Assigned to Zheda Mai, Hyunwoo Kim, **Jihwan Jeong**, and Scott Sanner
Feb. 2015	**Undergraduate Course Graduation with Honor** (Cum Laude)
Feb. 2009 – Mar. 2013	**National Excellence Scholarship (Natural Sciences and Engineering)** *Funded by the Korea Student Aid Foundation* Four-year scholarship for undergraduate study