Curriculum Vitae

JIHWAN JEONG

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EDUCATION

Sep. 2019 – present	**Ph.D., University of Toronto (In Progress)** Information Engineering • GPA: 4.0 / 4.0	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 Model-Based Reinforcement Learning, Reinforcement Learning for Language-Based Tasks, Decision-Aware Model Learning**

- Data-driven reinforcement learning with learned models
- Uncertainty quantification in neural networks
- Reinforcement learning for natural language processing
- Learning models while taking end tasks into account

RESEARCH EXPERIENCE

Jun. 2023 – present	**Google Research Student Researcher Program** Topics: Large language models, conversational recommender system, RLHF, RLAIF	Remote, Toronto, ON
Jun. 2022 – Sep. 2022	**Vector Institute Research Internship** Under the supervision of Professor Pascal Poupart (ppoupart@uwaterloo.ca) Topics: Model-based Offline RL, Meta RL, Adaptive Planning with a Learned Model	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***, X. Wang*, M. Gimelfarb, H. Kim, B. Abdulhai, S. Sanner. "Conservative Bayesian Model-Based Value Expansion for Offline Policy Optimization." In *International Conference on Learning Representations (ICLR-23)*, Kigali, Rwanda, 2023.
2. **J. Jeong**, A. Kumar, S. Sanner. "A Mixed Integer Linear Programming Reduction of Disjoint Bilinear Programs via Symbolic Variable Elimination." In *Proceedings of the 20th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR-23)*, Nice, France, 2023.
3. **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.

4. 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.
5. 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.
6. 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.
7. **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.
8. **J. Jeong**, H. Shin. "Bayesian Optimization for a Multiple-Component System with Target Values." *Computers & Industrial Engineering,* 157: 107410, 2021.
9. 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.
10. 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**, X. Wang, S. Sanner, P. Poupart. "Meta-Learners are Few-Shot Offline Planners."

   [Work done during internship at Google Research]
2. **J. Jeong**, Y. Chow, G. Tennenholtz, C. Hsu, A. Tulepbergenov, M. Ghavamzadeh, C. Boutilier. "Factual and Personalized Recommendations using Language Models and Reinforcement Learning."
3. G. Tennenholtz, Y. Chow, C. Hsu, **J. Jeong**, L. Shani, A. Tulepbergenov, D. Ramachandran, M. Mladenov, C. Boutilier. "Demystifying Embedding Spaces using Large Language Models."

SKILLS & ABILITIES

Language	Korean: Native English: Fluent
Programming Language	Python (PyTorch, Tensorflow, PAX, JAX, Flax) Java, Matlab
Other	LaTex

TEACHING & ADVISING

Course Instructor
(MIE369) Introduction to AI (winter, 2023)
Teaching Assistantship
(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)

U of T,
Toronto, ON

WORK EXPERIENCE

Jun. 2021 – Sep. 2021	**LG AI Research (Research Intern)** Fundamental Research Lab (Mentor: Hyunwoo Kim, hwkim@lgresearch.ai) • Project: Offline model-based reinforcement learning Implemented and tested SOTA model-based offline RL algorithms Paper accepted at ICLR-23	Seoul, South Korea
Oct. 2015 – Aug. 2017	**National Service** (Mandatory for 21 months)	Seoul, South Korea

PRESENTATIONS

May. 2023	"A Mixed Integer Linear Programming Reduction of Disjoint Bilinear Programs via Symbolic Variable Elimination", CPAIOR-23.	Nice, France
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

STATISTICAL & COMPUTER EXPERIENCE

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