

*Curriculum Vitae*  
**JIHWAN JEONG**

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**EDUCATION**

Sep. 2019 – present	<b>Ph.D., University of Toronto (In Progress)</b> Information Engineering • GPA: 4.0 / 4.0	Toronto, ON
Aug. 2017 – Aug. 2019	<b>M.S., KAIST</b> 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>B.S., KAIST</b> Chemistry • GPA: 3.83 / 4.30 (Cum Laude)	Daejeon, Korea

**RESEARCH INTERESTS**

- **Development and Application of Large Language Models (LLMs):** Focusing on LLMs for enhanced natural language understanding and generation across diverse AI applications.
- **Personalization in LLMs:** Delving into methods to augment personalization capabilities in LLMs, enhancing content relevance and engagement.
- **Integrating Reinforcement Learning (RL) with LLMs:** Exploring the use of RL with LLMs for broader objectives such as alignment, factuality, and personalization, drawing from my research at Google.
- **Offline Model-Based Reinforcement Learning:** Deepening expertise in offline model-based reinforcement learning, a pivotal aspect of my doctoral research, aimed at improving decision-making processes in practical AI systems.

**RESEARCH EXPERIENCE**

Jun. 2023 – present	<b>Google Research Student Researcher Program</b> Topics: Large language models, conversational recommender system, RLHF, RLAIIF	Remote, Toronto, ON
Jun. 2022 – Sep. 2022	<b>Vector Institute Research Internship</b> Under the supervision of Professor Pascal Poupart ( <a href="mailto:ppoupart@uwaterloo.ca">ppoupart@uwaterloo.ca</a> ) Topics: Model-based Offline RL, Meta RL, Adaptive Planning with a Learned Model	Vector Institute, Toronto, ON
Sep. 2019 – present	<b>Data-Driven Decision-Making Lab (D3M)</b> Under the supervision of Professor Scott Sanner ( <a href="mailto:ssanner@mie.utoronto.ca">ssanner@mie.utoronto.ca</a> )	U of T, Toronto, ON
Sep. 2017 – Jul. 2019	<b>System Analytics Lab</b> Advised by Professor Hayong Shin ( <a href="mailto:hyshin@kaist.ac.kr">hyshin@kaist.ac.kr</a> ) and co-advised by Professor Jinkyoo Park ( <a href="mailto:jinkyoo.park@kaist.ac.kr">jinkyoo.park@kaist.ac.kr</a> )	KAIST, Daejeon, South Korea

**PUBLICATIONS**

Published	<ol style="list-style-type: none"> <li>1. G. Tennenholtz, Y. Chow, C. Hsu, <b>J. Jeong</b>, L. Shani, A. Tulepbergenov, D. Ramachandran, M. Mladenov, C. Boutilier. “Demystifying Embedding Spaces using Large Language Models.” In <i>International Conference on Learning Representations (ICLR-24)</i>, Vienna, Austria, 2024 (to appear).</li> <li>2. <b>J. Jeong*</b>, X. Wang*, M. Gimelfarb, H. Kim, B. Abdulhai, S. Sanner. “Conservative Bayesian Model-Based Value Expansion for Offline Policy Optimization.” In <i>International Conference on Learning</i></li> </ol>
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- Representations (ICLR-23)*, Kigali, Rwanda, 2023.
3. **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.
  4. **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.
  5. 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.
  6. 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.
  7. 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.
  8. **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.
  9. **J. Jeong**, H. Shin. “Bayesian Optimization for a Multiple-Component System with Target Values.” *Computers & Industrial Engineering*, 157: 107410, 2021.
  10. 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.
  11. 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)

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In Preparation	<ol style="list-style-type: none"> <li>1. <b>J. Jeong</b>, X. Wang, S. Sanner, P. Poupart. “Offline Meta-Learners are Few-Shot Online Planners.”</li> <li>2. <b>J. Jeong</b>, Y. Chow, G. Tennenholtz, C. Hsu, A. Tulepbergenov, M. Ghavamzadeh, C. Boutilier. “Factual and Tailored Recommendation Endorsements using Language Models and Reinforcement Learning.” (<a href="https://arxiv.org/abs/2310.06176">https://arxiv.org/abs/2310.06176</a>)</li> </ol>
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## 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

**SKILLS & ABILITIES**

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

**WORK EXPERIENCE**

Jun. 2021 – Sep. 2021	<b>LG AI Research (Research Intern)</b> Fundamental Research Lab (Mentor: Hyunwoo Kim, <a href="mailto:hwkim@lgresearch.ai">hwkim@lgresearch.ai</a> ) <ul style="list-style-type: none"> <li>Project: Offline model-based reinforcement learning Implemented and tested SOTA model-based offline RL algorithms Paper accepted at ICLR-23</li> </ul>	Seoul, South Korea
Oct. 2015 – Aug. 2017	<b>National Service</b> (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, <i>Workshop on Continual Learning in Computer Vision in CVPR 2020</i> Assigned to Zheda Mai, Hyunwoo Kim, <b>Jihwan Jeong</b> , and Scott Sanner
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**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,
Winter, 2020	Structured Learning and Inference (MIE1516H)	A+	Toronto, ON
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+	