

Pashootan Vaezipoor

University of Toronto • Vector Institute

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RESEARCH INTERESTS Machine Reasoning • ML-based Combinatorial Optimization • Reinforcement Learning • Neuro-Symbolic AI

ACADEMIC BACKGROUND *Ph.D. Computer Science* 2016-Present
University of Toronto, Toronto, ON, Canada
- **Advisors:** Dr. Fahiem Bacchus, Dr. Sheila McIlraith

M.Sc. Computer Science 2009-2011
Simon Fraser University, Burnaby, BC, Canada
- **Thesis Title:** Lifted Unit Propagation
(Available at: summit.sfu.ca/item/12187)
- **Advisor:** Dr. David G. Mitchell

B.Sc. Computer Engineering 2004-2008
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

WORK EXPERIENCE **Course Developer and Instructor** 2018-2020
AI Certificate Program
School of Continuing Studies, University of Toronto
- I have been part of the team that developed the certificate program in Artificial Intelligence at University of Toronto (School of Continuing Studies). Specifically, the Deep Learning and Reinforcement Learning modules. I have also been teaching courses ranging from Statistic and ML to Big Data.

Senior Software Developer, Big Data Analytics 2012-2016
SAP Labs, Vancouver, BC, Canada
- I worked on the development of SAP's Cloud for Analytics (<https://hcp.sap.com/capabilities/analytics.html>) as part of the Hadoop/Apache Spark team.

TEACHING EXPERIENCE **Instructor** 2018-2020
AI Certificate Program
School of Continuing Studies, University of Toronto
- Machine Learning (3253)
- Big Data Management Systems & Tools (3252)
- Statistics for Data Science (3251)

Teaching Assistant 2016-2022
Department of Computer Science, University of Toronto
- Introduction to Machine Learning (CSC311) – 1 semester
- Introduction to Artificial Intelligence (CSC384) – 3 semesters
- Introduction to Databases (CSC343) – 1 semester

**CONFERENCE
PUBLICATIONS**

- [1] Tuli, M., Li, A. C., **Vaezipoor, P.**, Klassen, T. Q., Sanner, S. McIlraith, S. A., “Instruction Following in Text-Based Games”. *36th Conference on Neural Information Processing Systems (NeurIPS 2022)*
- [2] Duan, H.*, **Vaezipoor, P.***, Paulus, M. B., Ruan, Y., Maddison, C. J., “Augment with Care: Contrastive Learning for the Boolean Satisfiability Problem”. *37th International Conference on Machine Learning (ICML 2022) – (*) Equal Contribution*
- [3] Khalil, E. B., **Vaezipoor, P.**, Dilkina, B., “Finding Backdoors to Integer Programs: A Monte Carlo Tree Search Framework”. *36th Association for the Advancement of Artificial Intelligence Conference (AAAI 2022)*
- [4] **Vaezipoor, P.**, Li, A. C., Icarte, R., McIlraith, S., “LTL2Actions: Teaching RL agents to Follow Instructions”. *38th International Conference on Machine Learning (ICML 2021)*
(*) This work on was featured on [Vector Institute’s blog](#).
- [5] **Vaezipoor, P.**, Lederman, G., Wu, Y., Maddison, C. J., Grosse, R., Seshia, S. A., Bacchus, F., “Learning Branching Heuristics for Propositional Model Counting”. *35th Association for the Advancement of Artificial Intelligence Conference (AAAI 2021)*
- [6] **Vaezipoor, P.**, Mitchell, D. and Mariën, M., “Lifted Unit Propagation for Effective Grounding”. *International Conference on Applications of Declarative Programming and Knowledge Management (INAP 2011)*

**WORKSHOP
PUBLICATIONS**

- [1] Li, A. C., **Vaezipoor, P.**, Icarte, R. T., McIlraith, S. A., “Exploring Long-Horizon Reasoning with Deep RL in Combinatorially Hard Tasks”. *Decision Awareness in Reinforcement Learning Workshop (DARL) at ICML 2022*
- [2] Tuli, M., Li, A. C., **Vaezipoor, P.**, Klassen, T. Q., Sanner, S., McIlraith, S. A., “Instruction Following in Text-Based Games”. *The Third Wordplay: When Language Meets Games Workshop at NAACL 2022*
- [3] **Vaezipoor, P.**, Lederman, G., Wu, Y., Maddison, C. J., Grosse, R., Seshia, S. A., Bacchus, F., “Neuro#: A Distribution Tailored Model Counter”. *4th Knowledge Representation and Reasoning Meets Machine Learning Workshop (KR2ML) at NeurIPS 2020*
- [4] **Vaezipoor, P.**, Lederman, G., Wu, Y., Grosse, R. and Bacchus, F., “Learning Clause Deletion Heuristics with Reinforcement Learning”. *[Extended Abstract] Conference on Artificial Intelligence and Theorem Proving (AITP 2020)*

PREPRINTS

- [1] Li, A. C., **Vaezipoor, P.**, Icarte, R., McIlraith, S., “Challenges to Solving Combinatorially Hard Long-Horizon Deep RL Tasks”

**SELECTED
POSTERS**

- [1] The Multi-disciplinary Conference on Reinforcement Learning and Decision Making (**RLDM 2022**) at Brown University, Providence, RI, USA

**INVITED TALKS
& SEMINARS**

- Dagstuhl Seminar on [Data-Driven Combinatorial Optimisation](#), Dagstuhl, Saarland, Germany

SERVICE

- Co-chair of the 1st AAAI Workshop on Machine Learning for Operations Research (**ML4OR-21**)
- Reviewer for various conferences and journals including: **NeurIPS** • **ICML** • **ICLR** • **AAAI** • Operations Research Forum (**ORF**) • International Conference on Tools and Algorithms for the Construction and Analysis of Systems (**TACAS**), plus many workshops

GRANTS

	Vector Institute Research Grant (\$6,000)	2022
	Vector Institute Research Grant (\$6,000)	2021

TRAVEL AWARDS

	ICML (\$455)	2022
	CPAIOR (\$130; declined)	2022
	Univ. of Toronto School of Grad Studies Travel Grant (\$700)	2018

REFERENCES

Dr. Fahiem Bacchus, Professor of Computer Science, University of Toronto
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Dr. Elias B. Khalil, Assistant Prof. of Industrial Engineering, University of Toronto
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