

Department of Computing Science
University of Alberta
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EDUCATION

Ph.D. Candidate, Computer Science

Specialization: **Reinforcement Learning**

Sep. 2015 – present **University of Alberta**, Edmonton, Alberta, Canada

Supervisor: Professor Richard S. Sutton

Co-Supervisor: Professor Adam White

GPA: 4.3 / 4

Ph.D. Student, Neuroscience (voluntary withdrawal)

Specialization: **fMRI Data Analysis**

Sep. 2014 – Aug. 2015 **University of British Columbia**, Vancouver, British Columbia, Canada

Supervisor: Dr. Todd S. Woodward

GPA: NA

M.Sc. Computer Science

Specialization: **Supervised Learning**

Sep. 2012 – Aug. 2014 **University of Alberta**, Edmonton, Alberta, Canada

Thesis title: “Using Functional or Structural Magnetic Resonance Images and Personal Characteristic Data to Diagnose ADHD and Autism”

Supervisor: Professor Russell Greiner

Co-Supervisor: Professor Matthew R.G. Brown

GPA: 4.1 / 4

RESEARCH

RESEARCH INTEREST

My goal is to understand computational principles underlying intelligence. I am interested in the broad area of Artificial Intelligence, specifically in Reinforcement Learning and how machines learn to have a goal-directed behavior by interacting with the world. My primary research focus is on understanding off-policy learning algorithms and building new stable algorithms that learn fast. A second topic of interest is fully incremental deep reinforcement learning through mitigating catastrophic interference.

HONOURS AND AWARDS

Feb. 2019 – Feb. 2020 J.P. Morgan (AI) Ph.D. Fellowship (**international fellowship**)
Value: \$55000 – at University of Alberta

Sep. 2018 – Apr. 2019 Queen Elizabeth 2 Scholarship (**provincial scholarship**)
Value: \$15000 – at University of Alberta.

Apr. 2015 International Tuition Award
Value: \$1066 – at University of British Columbia.

Feb. 2015 Faculty of Medicine Graduate Award
Value: \$3500 – at University of British Columbia.

Sep. 2014 International Tuition Award
Value: \$2133 – University of British Columbia.

Feb. 2014 Graduate Student GPA Award
Value: \$1000 – University of Alberta.

PUBLICATIONS AND PRESENTATIONS

REFEREED JOURNAL PUBLICATIONS

2016 **Sina Ghiassian**, Russell Greiner, Ping Jin, Matthew R.G. Brown. Using Functional or Structural Magnetic Resonance Images and Personal Characteristic Data to Identify ADHD and Autism. PLOS One 1234 11.12 (2016): e0166934.

REFEREED CONFERENCE PAPERS

2020 **Sina Ghiassian**, Andrew Patterson, Shivam Garg, Dhawal Gupta, Adam White, Martha White. Gradient Temporal-Difference Learning with Regularized Corrections. Accepted to the International Conference on Machine Learning 2020 (ICML 2020).

2020 **Sina Ghiassian**, Banafsheh Rafiee, Yat Long Lo, Adam White. Improving Performance in Reinforcement Learning by Breaking Generalization in Neural Networks. In Proceedings of the 19th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2020).

2019 Banafsheh Rafiee, **Sina Ghiassian**, Adam White, Richard Sutton. Prediction in Intelligence: An Empirical Comparison of Off-policy Algorithms on Robots. In Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS 2019), pp. 332-340.

REFEREED WORKSHOP PAPERS

2019 Yat Long Lo, **Sina Ghiassian**. Overcoming Catastrophic Interference in Online Reinforcement Learning with Dynamic Self-Organizing Maps. Accepted to the Biological and Artificial Reinforcement Learning workshop of the Neural Information Processing Systems conference in Nov. 2019.

2018 Banafsheh Rafiee, **Sina Ghiassian**, Adam White, Richard Sutton. Robot Off-policy Prediction: An empirical Comparison of Learning Algorithms. Accepted to the Continual Learning workshop of the Neural Information Processing Systems conference (NIPS CL) in Nov. 2018.

2018 Wesly Chung, **Sina Ghiassian**, Somjit Nath, Martha White. Rejection Sampling for Off-Policy Reinforcement Learning. Accepted to the Continual Learning workshop of the Neural Information Processing Systems conference (NIPS CL) in Nov. 2018.

2016 **Sina Ghiassian**, Banafsheh Rafiee, Richard Sutton. A First Empirical Study of Emphatic Temporal Difference Learning. Accepted to the Continual Learning workshop of the Neural Information Processing Systems conference (NIPS CL) in Nov. 2016.

2013 **Sina Ghiassian**, Russell Greiner, Ping Jin, Matthew R.G. Brown. Learning to Clasify Psychiatric Disorders based on fMR Images: Autism vs. Healthy and ADHD vs. Healthy. Accepted to the Machine Learning and Interpretation in NeuroImaging workshop of the Neural Information Processing Systems conference (NIPS MLINI) in Nov. 2013.

PRE-PRINTS

2018 **Sina Ghiassian**, Andrew Patterson, Martha White, Richard Sutton, Adam White. Online Off-policy Prediction. ArXiv:1805.07476 (2018).

2018 **Sina Ghiassian**, Huizhen Yu, Banafsheh Rafiee, Richard Sutton. Two input transformation methods for fast online reinforcement learning with neural nets. ArXiv:1805.07476 (2018).

WORK EXPERIENCE

May 2017 – Aug. 2017 Borealis AI, Reinforcement learning research intern.

REVIEWING EXPERIENCE

2020	Program committee member for the International Conference on Machine Learning (ICML 2020).
2018	Program committee member for the Association for the Advancement of Artificial Intelligence (AAAI 19) conference.
2016	Sub-reviewer for the Association for the Advancement of Artificial Intelligence (AAAI 17) conference.

TEACHING EXPERIENCE

Teaching Assistant, Department of Computing Science, University of Alberta.

Sep. 2017 – Dec. 2017	Reinforcement learning for Artificial Intelligence.
Jan. 2013 – Apr. 2013	Advanced Python Programming.
Sep. 2012 – Dec. 2012	Introductory Python Programming.

Teaching Assistant, Department of Computer Science, University of Tehran

Sep. 2011 – Jan. 2012	Algorithmic Graph Theory.
Jan. 2011 – May. 2011	Introduction to Computer Science and Programming.
Sep. 2008 – Jan. 2009	Calculus 1.

RELEVANT COURSES

Machine Learning	Reinforcement Learning for Artificial Intelligence, Deep Learning, Machine Learning, Data Mining, Probabilistic Graphical Models.
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