James Queeney

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RESEARCH INTERESTS

I am interested in developing reliable, data-driven methods for decision making and control, with a focus on addressing barriers for real-world deployment. My current research considers the need for robustness, safety, and generalization in deep reinforcement learning.

EDUCATION

Boston University Aug 2023
PhD in Systems Engineering
- Dissertation: "Reliable deep reinforcement learning: Stable training and robust deployment"

Boston University Jan 2022
MS in Systems Engineering

Colgate University May 2013
BA in Mathematics and Mathematical Economics
- Class of 2013 Valedictorian, Honors in Mathematics, Phi Beta Kappa, Summa Cum Laude

RESEARCH EXPERIENCE

Postdoctoral Research Fellow 2023 – Present
Mitsubishi Electric Research Laboratories
- Topic: Data-driven methods for decision making and control in complex applications

Research Affiliate 2023 – Present
Massachusetts Institute of Technology – Host: Jonathan How
- Topic: Robust coordination and control of multi-agent systems

Doctoral Research Fellow 2019 – 2023
Boston University – Advisors: Ioannis Paschalidis, Christos Cassandras
- Topic: Reliable deep reinforcement learning with performance guarantees

Research Intern Summer 2022
Mitsubishi Electric Research Laboratories – Host: Mouhacine Benosman
- Publication: "Risk-averse model uncertainty for distributionally robust safe reinforcement learning"

Research Assistant 2017 – 2018
Colgate University – Host: William Cipolli
- Topic: Bayesian non-parametric approaches to supervised learning with Polya trees

INDUSTRY EXPERIENCE

Director of Operations Research 2017 – 2018
Bargain Hunt

Private Equity Associate 2015 – 2017
Thomas H. Lee Partners – Consumer & Healthcare Group

Investment Banking Analyst 2013 – 2015
Bank of America Merrill Lynch – Mergers & Acquisitions Group

TEACHING AND OUTREACH

CISE Graduate Student Workshop Organizer Jan 2023
Boston University Center for Information & Systems Engineering

Graduate Teaching Fellow Fall 2022
Boston University – Optimization Theory and Methods (SE 674)

Research Mentor Summer 2021
Boston University Research in Science & Engineering Program

Graduate Teaching Fellow Fall 2019
Boston University – Introduction to Programming for Engineers (EK 125)

PUBLICATIONS

- Queeney, J. (2023). *Reliable deep reinforcement learning: Stable training and robust deployment.* PhD thesis, Boston University.
- Queeney, J., Ozcan, E. C., Paschalidis, I. C., and Cassandras, C. G. (2023). Optimal transport perturbations for safe reinforcement learning with robustness guarantees. arXiv preprint, arXiv:2301.13375.
- Queeney, J. and Benosman, M. (2023). Risk-averse model uncertainty for distributionally robust safe reinforcement learning. arXiv preprint, arXiv:2301.12593.
- Giammarino, V., Queeney, J., Carstensen, L. C., Hasselmo, M. E., and Paschalidis, I. C. (2023). Opportunities and challenges from using animal videos in reinforcement learning for navigation. To appear in *The 22nd World Congress of the International Federation of Automatic Control (IFAC 2023)*.
- Queeney, J., Paschalidis, I. C., and Cassandras, C. G. (2022). Generalized policy improvement algorithms with theoretically supported sample reuse. arXiv preprint, arXiv:2206.13714.
- Queeney, J., Paschalidis, I. C., and Cassandras, C. G. (2021). Generalized proximal policy optimization with sample reuse. In *Advances in Neural Information Processing Systems (NeurIPS 2021)*, volume 34. Curran Associates, Inc.
- Queeney, J., Paschalidis, I. C., and Cassandras, C. G. (2021). Uncertainty-aware policy optimization: A robust, adaptive trust region approach. In *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI 2021)*, volume 35, pages 9377-9385. AAAI Press.

PRESENTATIONS

- Reliable deep reinforcement learning: Stable training and robust deployment (2023). *Boston University Division of Systems Engineering PhD Final Defense*, Boston, MA.
- Reliable deep reinforcement learning with robustness and safety guarantees (2023). *Mitsubishi Electric Research Laboratories Invited Talk*, Cambridge, MA.
- Safe reinforcement learning with robustness guarantees (2023). *Massachusetts Institute of Technology Invited Talk*, Cambridge, MA.
- Balancing stability and efficiency in deep reinforcement learning (2023). *Harvard University Invited Talk*, Cambridge, MA.
- Stable and efficient reinforcement learning with principled sample reuse (2022). *CISE Graduate Student Workshop 8.0*, Boston, MA. **Best Presenter Award**.
- Robust and efficient reinforcement learning from limited data (2021). *Boston University Division of Systems Engineering PhD Prospectus Defense*, Boston, MA.

- Generalized proximal policy optimization with sample reuse (2021). *35th Conference on Neural Information Processing Systems (NeurIPS 2021)*, Virtual.
- Uncertainty-aware policy optimization: A robust, adaptive trust region approach (2021). *CISE Best Student Paper Awards Presentation*, Virtual. **Best Student Paper Award Finalist**.
- Uncertainty-aware policy optimization: A robust, adaptive trust region approach (2021). *35th AAAI Conference on Artificial Intelligence (AAAI 2021)*, Virtual.

HONORS AND AWARDS

- Doctoral Research Fellow, *Boston University* 2019 – 2023
- CISE Best Student Paper Award Finalist, *Boston University* 2022
- CISE Graduate Student Workshop Best Presenter Award, *Boston University* 2022
- CISE Best Student Paper Award Finalist, *Boston University* 2021
- Dean's Fellowship Award, *Boston University* 2018 – 2019
- Class of 2013 Valedictorian, *Colgate University* 2013
- Osborne Mathematics Prize, *Colgate University* 2013
- Phi Beta Kappa Award, *Colgate University* 2013
- Phi Beta Kappa, *Colgate University* 2013
- Summa Cum Laude, *Colgate University* 2013
- Honors in Mathematics, *Colgate University* 2013
- John T. Mitchell Award, *Colgate University* 2012 – 2013
- Charles A. Dana Scholar, *Colgate University* 2011 – 2013
- Alumni Memorial Scholar, *Colgate University* 2009 – 2013
- Sisson Mathematics Prize, *Colgate University* 2010
- Dodge Prize, *Colgate University* 2010

SKILLS

- **Programming Languages**: Python, MATLAB, R
- **Software**: DeepMind Control Suite, Gurobi, MuJoCo, OpenAI Gym, TensorFlow