Bora Yongacoglu | Curriculum Vitae

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Work Experience

Post-Doctoral Fellow **August 2023–Present**
Department of Electrical and Computer Engineering, University of Toronto

Post-Doctoral Fellow **January 2023–August 2023**
Department of Mathematics and Statistics, Queen's University

Teaching Fellow **September 2020–April 2021**
Department of Mathematics and Statistics, Queen's University

Education

Queen's University **Dec 2022**
PhD, Applied Mathematics
Thesis: Decentralized Learning in Stochastic and Mean-Field Games
Advisors: Serdar Yüksel and Gürdal Arslan

Queen's University **Aug 2018**
Master of Science, Applied Mathematics
Thesis: Reinforcement Learning for Decentralized Stochastic Control
Advisors: Serdar Yüksel

McGill University **June 2016**
Bachelor of Arts, Majors in Mathematics and Economics

Research Interests

- Reinforcement learning
- Game theory
- Multi-agent (deep) reinforcement learning
- Optimization Algorithms
- Learning in partially observable systems
- Mean-field games and large-scale decentralized systems

Research Contributions

Journal Papers

Yongacoglu, B., G. Arslan, and S. Yüksel. "Satisficing Paths and Independent Multi-Agent Reinforcement Learning in Stochastic Games." *Society of Industrial and Applied Mathematics Journal on Mathematics of Data Science.* To Appear.

Yongacoglu, B., G. Arslan, and S. Yüksel. "Decentralized Learning for Optimality in Stochastic Dynamic Teams and Games with Local Control and Global State Information." *IEEE Transactions on Automatic Control.* 67, no. 10 (2022).

Conference Papers

A. Altabaa, **Yongacoglu, B.**, and S. Yüksel. "Decentralized Multi-Agent Reinforcement Learning for Continuous-Space Stochastic Games." *2023 IEEE American Control Conference (ACC).*

Yongacoglu, B., G. Arslan, and S. Yüksel. "Independent Learning and Subjectivity in Mean-Field Games." *2022 IEEE 61st Conference on Decision and Control (CDC)* (pp. 2845-2850). IEEE.

Yongacoglu, B., G. Arslan, and S. Yüksel. "Reinforcement Learning for Decentralized Stochastic Control." *2019 IEEE 58th Conference on Decision and Control (CDC)* (pp. 5556-5561). IEEE.

Yongacoglu, B., G. Arslan, and S. Yüksel. "Decentralized Q-Learning with Constant Aspirations in Stochastic Games." *2019 53rd Asilomar Conference on Signals, Systems, and Computers* (pp. 1744-1749). IEEE.

Preprints (Under Review)

Yongacoglu, B., G. Arslan, and S. Yüksel. "Independent Learning in Mean-Field Games: Satisficing Paths and Convergence to Subjective Equilibria." arXiv: arXiv:2209.05703 (Submitted).

Yongacoglu, B., G. Arslan, and S. Yüksel. "Asynchronous Decentralized Q-Learning in Stochastic Games." (Submitted)

Other Communications

Yongacoglu, B. "Learning and Dynamics in Mean-Field Games: Satisficing and Subjective Equilibria." *Ninth Meeting on System and Control Theory.* University of Waterloo, May 3rd, 2023.

Yongacoglu, B. "Policy Revision Dynamics and Algorithm Design in Stochastic and Mean-Field Games." *GERAD Seminar.* Polytechnique Montreal, February 15th, 2023.

Yongacoglu, B. "Reinforcement Learning under Decentralized Information." [Poster] *Canadian Mathematical Society Winter Meeting* December 2017.

Yongacoglu, B. "The Role of Information in Conflict." [Poster] *McGill University Arts Research Internship Gala.* December 2014.

Professional Activities

Referee, *Various Journals* **2017-Present**

I have served as an anonymous referee for various academic journals and conferences. A partial list includes the following venues: *Transactions on Automatic Control*, *Automatica*, *Journal of Artificial Intelligence Research*, *International Symposium on Information Theory*, *Systems and Control Letters*, *IEEE Transactions on Control of Network Systems*, *IEEE Conference on Decision and Control*, and *American Control Conference*.

Seminar Organization, *Department of Mathematics and Statistics, Queen's University*

- Stochastic Control and Related Fields — Winter 2023
- Graduate Mathematics Society Seminar — Fall 2022

Awards and Honours

- **2023 Outstanding Student Paper Prize**,
  - Awarded by the *IEEE Networks and Communication Systems Technical Committee* for our paper 2022 CDC paper "Independent Learning and Subjectivity in Mean-Field Games."
- 2021-2022 Senator Frank Carrel Fellowship ($10,000).
- 2020-2021 Ontario Graduate Scholarship ($15,000).
- 2020-2021 Dorrance Family Award ($7,000).
- 2018-2019 E.G. Bauman Fellowship ($15,000).
- 2017-2018, R. Samuel McLaughlin Fellowship ($10,000).
- 2017-2018, Queen's Graduate Award ($1,500).
- 2016-2017, Queen's Graduate Award ($4,000).
- 2014, McGill University Arts Research Internship Award ($4,000).

Skills

Programming Languages

Proficient in Python (including data science packages such as NumPy, Pandas, and Matplotlib), LaTeX, and MATLAB.

Public Speaking

- Several technical presentations delivered to audiences of 50+ professional researchers;
- Over 15 technical seminars delivered to groups of 10-20 people;

Languages

English (native language), Turkish, and French

Service

Secretary and Treasurer — **2019-2020**
Graduate Mathematics Society of Queen's University

President — **2018-2019**
Graduate Mathematics Society of Queen's University