Arash Bahari Kordabad

CONTACT & PERSONAL INFORMATION

E-mail: Arash.b.kordabad@ntnu.no Arashbahari20@gmail.com
Homepage: `www.ntnu.edu/employees/arash.b.kordabad` *Tell:* (+47) 48406162
Date and Place of Birth: Feb.10,1995, Tabriz, Iran *Nationality:* Iranian
Marital Status: Married

RESEARCH INTERESTS

Control Theory, Reinforcement Learning, Optimal Control, Model Predictive Control

EDUCATION

Norwegian University of Science and Technology(NTNU), Trondheim, Norway

Ph.D., Department of Engineering Cybernetics **Feb.2020 - present**

- Thesis Topic: "Theoretical properties of Learning-based MPC"
- Supervisor: Prof. Sébastien Gros
- Co-Supervisor: Prof. Anastasios Lekkas

Sharif University of Technology, Tehran, Iran

M.S., Department of Mechanical Engineering **Sep.2017 - Sep.2019**

- Thesis Topic: "Control of Bifurcation and Chatter Suppression in Peripheral Milling Process"
- Supervisor: Prof. Hamed Moradi
- GPA: 19.41/20

University of Tabriz, Tabriz, Iran

B.S., Department of Mechanical Engineering **Sep.2013 - Sep.2017**

- Thesis Topic: "On the Muscle Models as Viscoelastic Material and Comparison of Force-Length Models for Active Skeletal Muscle"
- Supervisor: Prof. Kamal Jahani
- GPA: 18.1/20

HONORS AND AWARDS

Having received the honour as the First rank of Mechanical Engineering at Sharif University of Technology **2018**

Present among 40 top Mechanical Engineering students from all over the country. (Scientific Olympiads for university student) **2017**

Ranked Five among 99 Mechanical Engineering students in Bachelor Degree. **2017**

Ranked top 0.2 of 250,000 participants (669^{th}) in the National Universities Entrance Exam known as "KONKOOR" for B.Sc. degree. **2013**

SELECTED COURSES

Advanced Nonlinear Systems	Numerical Optimal Control	
Intelligent Systems:19.3/20	Nonlinear Control:19.3/20	Robust Control:19.3/20
Advanced Mathematics:20/20	Stochastic Control:19.4/20	Advanced Dynamics:19.9/20
Automatic Control:20/20	Modern Control:18.9/20	Robotic:20/20

ACADEMIC EXPERIENCE

Teaching Assistant **2018**
Automatic Control course for Undergraduate students at Sharif University of Technology.

Intelligent Systems Project **2018**
Solving Traveller Salesperson using the Continuous Genetic Algorithm, M. Broushaki.

Modern Control Project **2017**

Designing Luenberger Observer and Pole Placement Control for the Dual Inverse Pendulum in the state of Continuous and Discrete time, H. Salarieh.

Dynamic of Machinery Project **2015**
Design of Four-bar Linkage for Path Following, M. Ettefagh.

Journal Publications

- **Bahari Kordabad, A.**, Gros, S. (2021). "Reinforcement Learning of Storage Function in Economic Nonlinear MPC" *.IEEE Transactions on Automatic Control.* [Submitted]
- **Bahari Kordabad, A.**, Moradi, H. (2021). "Lyapunov based robust optimal control for time-delay systems with application in milling process" *.Applied Mathematical Modelling.* [Submitted]
- **Bahari Kordabad, A.**, Boroushaki, M. (2020). "Emotional Learning Based Intelligent Controller for MIMO Peripheral Milling Process". *Journal of Applied and Computational Mechanics*, 6(3), 480-492.

Conference Publications

- W.Cai, **A. Bahari Kordabad**, H. Nejatbakhsh Esfahani, and S. Gros, "Optimal Management of the Peak Power Penalty for Smart Grids Using MPC-based Reinforcement Learning", *60th Conference on Decision and Control (CDC)*, 2021, [submitted].
- **A. Bahari Kordabad**, H. Nejatbakhsh Esfahani, W.Cai, and S. Gros,"Quasi-Newton Iteration in Deterministic Policy Gradient", *60th Conference on Decision and Control (CDC)*, 2021, [submitted].
- W.Cai, **A. Bahari Kordabad**, H. Nejatbakhsh Esfahani, A. M. Lekkas, and S. Gros,"MPC-based Reinforcement Learning for a Simplified Freight Mission of Autonomous Surface Vehicles", *60th Conference on Decision and Control (CDC)*, 2021, [submitted].
- **A. Bahari Kordabad**, W. Cai, and S. Gros,"Multi-agent Battery Storage Management using MPC-based Reinforcement Learning", *2021 IEEE Conference on Control Technology and Applications (CCTA)*
- **A. Bahari Kordabad**, and S. Gros, "Verification of Dissipativity and Evaluation of Storage Function in Economic Nonlinear MPC using Q-Learning", *7th IFAC Conference on Nonlinear Model Predictive Control*, 2021.
- H. Nejatbakhsh Esfahani, **A. Bahari Kordabad**, and S. Gros, "Approximate Robust NMPC using Reinforcement Learning", *2021 European Control Conference (ECC)*
- **A. Bahari Kordabad**, H. Nejatbakhsh Esfahani, and S. Gros, "Bias Correction in Deterministic Policy Gradient Using Robust MPC", *2021 European Control Conference (ECC)*
- **A. Bahari Kordabad**, W. Cai, and S. Gros, "MPC-based reinforcement learning for economic problems with application to battery storage", *2021 European Control Conference (ECC)*
- H. Nejatbakhsh Esfahani, **A. Bahari Kordabad**, and S. Gros, "Reinforcement learning based on MPC/MHE for unmodeled and partially observable dynamics", *2021 American Control Conference (ACC).*
- **A. Bahari Kordabad**, H. Nejatbakhsh Esfahani, A. M. Lekkas, and S. Gros, "Reinforcement learning based on scenario-tree MPC for ASVs", *2021 American Control Conference (ACC).*

Language

Persian Turkish English Norwegian

References

Sebastien Gros
sebastien.gros@ntnu.no

Hamed Moradi
hamedmoradi@sharif.edu

Mehrdad Broushaki
boroushaki@sharif.edu

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