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Yassine Nemmour
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Personal Profile

I am a final-year PhD student in machine learning working on distributionally robust optimization, learning-based model predictive control and reinforcement learning. I enjoy working on robustness of data-driven control and learning approaches against distribution shifts. Previously, I also worked on robotics which played a large role for my interest in robust learning.

Education

Since 06/2018 **PhD in Machine Learning**, *Max Planck Institute for Intelligent Systems*, Tübingen, Germany.
Research topics: distributionally robust optimization, robust learning, model predictive control, model-based reinforcement learning, machine learning for robotics
Advisors: Bernhard Schölkopf, Jia-Jie Zhu, Expected graduation: 10/2023

2014–2017 **M.Sc. in Robotics, Systems, and Control**, ETH Zürich.
Thesis at University of Toronto with Angela Schoellig & Andreas Krause: *Safe exploration in robotics using Bayesian Optimization and Reinforcement Learning and deployment on a real robot.*

2011–2014 **B.Sc. in Mechanical Engineering**, *ETH Zürich*.
Thesis with Raffaello D'Andrea: *Implementation and analysis of broadcasting protocols in a network of drones.*

Work Experience

11-12/2017 **Student assistant**, *Aspaara*, Zürich.

09/2015–02/2016 **Research internship**, *Bosch Center for Artificial Intelligence (BCAI)*, Germany.
Motion planning for robotics using Reinforcement learning and Linear Temporal Logic.
Hosted by Mathias Bürger

2013–2014 **Undergraduate teaching**, *Linear Algebra and Analysis*, M. Eng. department, ETH Zürich.

Talks

2022 Talk at EURO 2022 on distributionally robust chance constraints using MMD.

2022 Tutorial on Data-driven Chance-constrained optimization at TU Berlin - Oxford summer school

Publications

- *Estimation Beyond Data Reweighting: Kernel Method of Moments* (H. Kremer, **Y. Nemmour**, B. Schölkopf, J. Zhu), International Conference on Machine Learning (**ICML**) 2023
- *Maximum Mean Discrepancy Distributionally Robust Nonlinear Chance-Constrained Optimization with Finite-Sample Guarantee* (**Y. Nemmour***, H. Kremer*, B. Schölkopf, J. Zhu), IEEE Conference on Decision and Control (**CDC**) 2022.
- *Adversarially Robust Kernel Smoothing* (J. Zhu, C. Kouridi, **Y. Nemmour**, B. Schölkopf), International Conference on Artificial Intelligence and Statistics (**AISTATS**) 2022, **Oral**
- *Shallow Representation is Deep: Learning Uncertainty-aware and Worst-case Random Feature Dynamics* (D. Agudelo-Espana, **Y. Nemmour**, B. Schölkopf, J. Zhu), IEEE Conference on Decision and Control (**CDC**) 2022.
- *Distributional Robustness Regularized Scenario Optimization with Application to Model Predictive Control*, (**Y. Nemmour**, B. Schölkopf, J. Zhu), Learning for Dynamics and Control (**L4DC**) 2021

- *Reliable Real-Time Ball Tracking for Robot Table Tennis*, (S. Gomez-Gonzalez, **Y. Nemmour**, B.Schölkopf, J. Peters), Robotics – doi:10.3390/robotics8040090, 2019
- *Distributionally robust chance constrained programs using maximum mean discrepancy*, (**Y. Nemmour**, B. Schölkopf, J. Zhu), Safe and Robust Control of Uncertain Systems Workshop NeurIPS 2021

Extracurricular Activities

2021-present	University Tübingen Basketball team
2020	Machine Learning Summer School (MLSS) Tuebingen Volunteer
2014-2017	Member of CTF (computer security) student team (gn00bz/flagbot) at ETH Zürich
2010	Finalist at Swiss Physics Olympiads (15th place – Bronze Medal)

Skills

Languages	German and French (bilingual), English (C2), Arabic (A2)
Programming	Python, Matlab, C++, Assembly x86/ARM, Linux
ML tools	PyTorch, cvxpy, scikit-learn, ROS, CasADi