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 resulting in my motivation to work on distributional robustness.

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
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

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Publications

○ *Maximum Mean Discrepancy Distributionally Robust Nonlinear Chance-Constrained Optimization with Finite-Sample Guarantee* (**Y. Nemmour***, H. Kremer*, B. Schölkopf, J. Zhu), to appear at 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), to appear at 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