



Seminar



**UNIVERSITÀ
DI TRENTO**
Dipartimento di
Ingegneria Industriale

Reinforcement Learning with Guarantees

March 8th, h. 14:00 pm

Aula A107, Polo Ferrari 1, Via Sommarive 5, Trento

Speaker

Mario Zanon, IMT School for Advanced Studies Lucca

Info

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RL struggles to provide strong guarantees on the behavior of the resulting control scheme. In contrast, MPC is a standard tool for the closed-loop optimal control of complex systems with constraints and limitations, and benefits from a rich theory to assess closed-loop behavior. Because of model inaccuracy, however, MPC can fail at delivering satisfactory closed-loop performance. This seminar will discuss how to leverage the advantages of the two techniques, offering a path towards safe and explainable RL.

Biosketch

Mario Zanon received the Master's degree in Mechatronics from the University of Trento, and the Diplôme d'Ingénieur from the Ecole Centrale Paris, in 2010. After research stays at the KU Leuven, University of Bayreuth, Chalmers University, and the University of Freiburg he received the Ph.D. degree in Electrical Engineering from the KU Leuven in November 2015. He held a Post-Doc researcher position at Chalmers University until the end of 2017, after which he became Assistant Professor and from 2021 Associate Professor at the IMT School for Advanced Studies Lucca. His research interests include reinforcement learning, numerical methods for optimization, economic MPC, optimal control and estimation of nonlinear dynamical systems in particular for aerospace and automotive applications.