ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Control-affine systems from a differential geometric point of view with application to model-free optimization in robotics and biological systems

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N.2.35

ABSTRACT

Control-affine systems have been at the center of differential geometric control theory. Using their geometric structure, advanced concepts, and system's properties (for example, reachability and controllability) have advanced significantly. In our research, we investigated further developments of control-affine systems in both the theoretical front and novel applications front. Particularly, we connected differential geometric control tools used in the analysis of control-affine systems with averaging/approximation methods known in perturbation theory. Some of said approximation techniques enabled the analysis and design of control-affine systems that advance model-free, real-time optimization and control techniques, which also made contributions to many fields, such as but not limited to robotics and biological systems.

We hope to see you there!

