

Learning Equations and Playing Robots

G. Martius, University of Tübingen

I am driven by the vision to create learning robots that can become helpful assistance to humans in many tasks. Efficient learning is a key challenge towards that goal. I will present work on discovering compact equations that describe data, which is both relevant to robotics and the natural sciences. I will move on to recent work on combining intrinsic motivation signals with model-based planning methods to make robots learn by freely playing how to interact effectively with the world.

The learned world models enable zero-shot planning for new tasks, which is really exciting. Next, we consider how to impose more structure into the play phase. It turns out, we can operationalize the concept of regularity as an additional intrinsic motivation that leads to improved performance in downstream construction tasks.