Parameter Independent Reachability in Parametric MDPs

by Sebastian Arming.
Joint work with Ezio Bartocci and Ana Sokolova.

Abstract

We study parametric Markov decision processes (PMDPs) and their reachability properties "independent" of the parameters. This is in contrast to existing approaches, which consider optimal reachability probabilities per parameter point. This over approximates the reachability probability that can be achieved by any parameter agnostic policy (i.e., a policy without access to the parameters). It is not a-priori clear how to compare the performance of two policies over the whole parameter range, as their corresponding reachability probabilities are functions of the parameters. We thus present and compare several possible notions of optimality.