

Weak Simulation Quasimetric in a Gossip Scenario

by **Simone Tini**.

Joint work with Ruggero Lanotte and Massimo Merro.

Abstract

We propose the notion of weak simulation quasimetric, as the quantitative counterpart of weak simulation for probabilistic processes. This is an asymmetric variant of the weak bisimulation metric defined by Desharnais et al. which maintains most of the properties of the original definition. However, our asymmetric version is particularly suitable to reason on protocols where the systems under consideration are not approximately equivalent. As a main application, we adopt our simulation theory in a simple probabilistic timed process calculus to derive an algebraic theory which reveals to be very effective to evaluate the performances of gossip protocols.