Enhancing multiscale integrators by data Richard Tsai (The University of Texas at Austin) B. Engquist, R. Fang

We discuss how data (gathered offline and online) can be used to enhance classical multiscale integrators. We first review an approach that derives latent slow variables of a dynamical system. We will also discuss recent attempts involving the deep learning paradigm, addressing the issues of collecting suitable data sets (from computation) and some specific challenges arising from oscillatory multiscale dynamical systems.