Two-time-scale Markovian Systems and Applications

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Abstract — Originated from applications in signal processing, random evolution, telecommunications, financial engineering, and manufacturing systems, two-time-scale Markovian systems have received much attention lately. Summarizing some of our recent work, this talk includes asymptotic expansions of solutions to the forward equations, scaled and unscaled occupation measures, approximation error bounds, and associated switching diffusion processes, controlled dynamic systems, Markov decision processes, and some application examples.