

Ungureanu, Viorica Mariela**Optimal control for linear discrete-time systems with Markov perturbations in Hilbert spaces.** (English) [Zbl 1159.93036](#)

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Summary: We discuss a quadratic control problem for linear discrete-time systems with Markov perturbations in Hilbert spaces, which is linked to a discrete-time Riccati equation defined on certain infinite-dimensional ordered Banach space. We prove that under stabilizability and stochastic uniform observability conditions, the Riccati equation has a unique, uniformly positive, bounded on \mathbb{N} and stabilizing solution. Based on this result, we solve the proposed optimal control problem. An example illustrates the theory.

MSC:

- [93E20](#) Optimal stochastic control
- [49N05](#) Linear optimal control problems
- [60J75](#) Jump processes (MSC2010)
- [93C05](#) Linear systems in control theory
- [93C55](#) Discrete-time control/observation systems

Cited in **5** Documents**Keywords:**

discrete-time stochastic systems; stochastic observability; Riccati equation; optimal control

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