EPCE Random Variable and Stochastic Process

1. Objective

Learn and analyze for control engineering

* Mathematical model for random variable on probability space
* Estimation and Prediction based on Bayesian approach
* Stochastic process for dynamic system based on model based
* Statistical analysis for dynamic system analysis based on data
* Machine learning for dynamic system

1. Textbook

* “Stochastic Processes, Estimation and Control”, Speyer, 2008,SIAM,
* “Bayesian Filtering and Smoothing”, Simo Sarkka, 2013, Cambridge University Press
* “Statistics and Machine Learning Toolbox” , matlab toolbox

1. Lecture / Tutorials

* Lecture : Wed. 08:00 ~ 10:00
* Tutorial: divide two teams. “matlab” simulation
* HA : submit and be graded as a team (at most 4 members)

1. Course materials : https://github.com/snkim0701/2022\_stochastic
2. Prerequisite

* :Linear algebra (SVD, Basis in function space)
* Calculus : Vector derivatives
* Probability : Gaussian R.V.

1. Prof:

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