Spring 2024
SE 525 (CRN: 70383; Credit: 4 hours)
Control of Complex Systems

Instructor: Dušan M. Stipanović
Office hours: By appointment.
Offices: 312 TB and 147 CSL
Phone: 217-244-0907
Fax: 217-244-5705
Email: dusan@illinois.edu

Lectures: 8:00 am - 10:50 am on Tuesdays, Classroom pending and via Canvas.

Weekly Topics

Week 1	Lyapunov Stability
Week 2	Optimal Control and Control Lyapunov Functions
Week 3	Vector Lyapunov Functions and Decentralized Control
Week 4	Decentralized Overlapping Control
Week 5	Decentralized Optimal Control
Week 6	Introduction to Multi-Player Differential Games
Week 7	Decentralized Control and Multi-Player Differential Games
Week 8	Decentralized Optimal Control and Differential Games
Week 9	Lyapunov-like Functions and Differential Games
Week 10	Multi-objective and Decentralized Optimization
Week 11	Stability of Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) Neural Networks as well as their Equilibria analysis related to Machine Learning
Week 12	Special Topics and Discussions
Week 13	Project Discussions
Week 14	Project Discussions
Week 15	Project Discussions

Course Material

Lecture notes and other material will be provided in pdf format via Canvas.

Grading

The final course grade will be the project grade.