

## **CCEC Seminar**

# **Linear Quadratic Performance Criteria for Cascade Control**

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**4:00 - 5:00 pm**

**Engineering I Room 2162**

### **ABSTRACT:**

We consider the problem of linear quadratic regulator (LQR) performance for cascade control structures of series coupled systems. The necessary and sufficient condition for the linear quadratic performance of a cascade control structure to achieve the same performance as any given centralized LQR is obtained. The cascade problem could be seen as a special case of the network control problem with a special network structure. The results presented show that decentralized control is possible with some natural fundamental limitations in this particular case. Also, a constructive proof is given for the inverse LQR problem that can be used to calculate the decentralized LQR from a given centralized one.