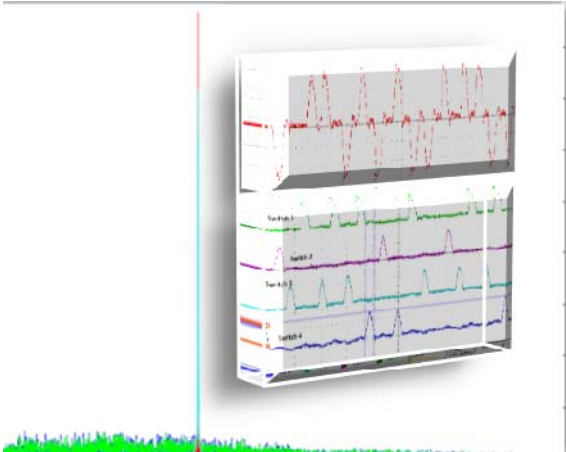


Control and Modeling of Power Electronics

(Control & Modeling Power Elec)

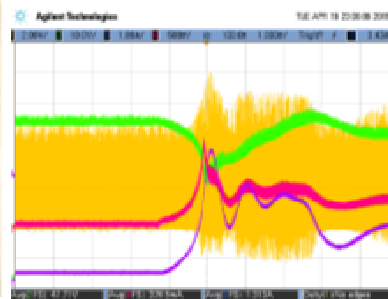
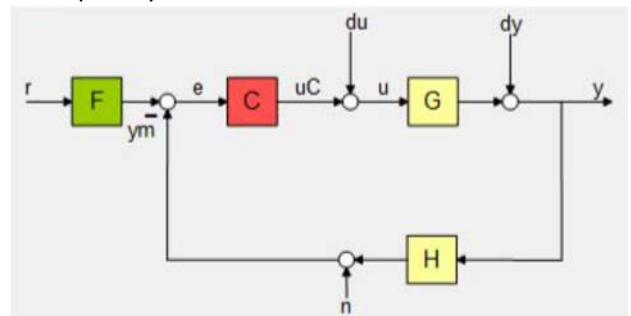
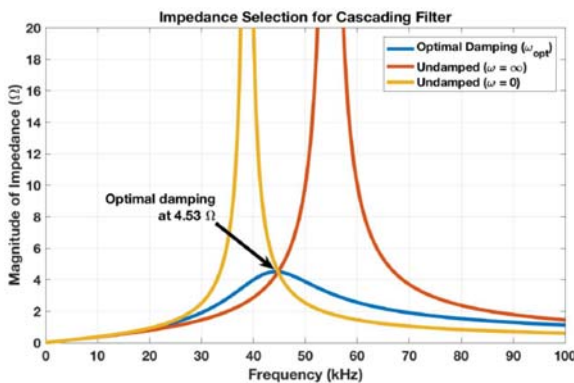
Tues/Fri 2:00—3:30 pm



Transformative technologies in energy conversion will be smarter, faster, and more reliable. This class will address the control and modeling of ac-dc, dc-ac, and dc-dc power electronic systems. Topics include small-signal models; digital and analog control; switched, sampled-data, and averaged models; large signal considerations; distributed power conversion; computer modeling in PLECS, MATLAB/Simulink, and LTSpice; and other advanced topics. Design cases may include audio switching power amplifiers, peak power point tracking for renewables and energy scavenging, resonant converters for wireless power transfer, power factor correction, and grid connected converters among others.



Grading will be based on 3-4 hw problem sets, 3-4 design problems, and a term-long final project with topics, specifications, and milestones agreed upon by the instructor.



Prerequisites: EECS 418 and familiarity with classical feedback and control.

Course Director: Al-Thaddeus Avestruz, EECS

For additional information contact avestruz-AT-umich.edu