Cascade static feedback linearization (Cascade SFL) is a way to express solutions to some nonlinear control systems with symmetry as a “composition” of solutions to SFL systems. Since the solutions to SFL systems can be written down in terms of arbitrary functions and their derivatives then so too can solutions to the original nonlinear system. One SFL system comes from a quotient of the system by a control symmetry group. The other(s) come from a combination of an equation of Lie type and the prior SFL system together restricted to a certain submanifold of a principal G-bundle. In this talk we’ll explore various cascade SFLs of the well known planar vertical take off and landing vehicle (PVTOL) control system and see how cascade linearization also sheds light on the phenomenon of dynamic feedback linearization.
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