12.990: Problem set 2

Write code that produces linear uncertainty propagators for one map **and** one flow of your choice as found on the Tools Section of this course.

Test that your linear uncertainty propagators are correct by specifying an initial perturbation, and propagating that perturbation forward both nonlinearly (integrating the control state and the perturbed state and looking at the difference between them) and using the linear uncertainty propagator. Discuss how the linear and nonlinear final-time perturbations compare as a function of initial perturbation magnitude, , linearization time, , and initial condition, .

Hand in your code, a brief write-up of your results, and any necessary figures and/or tables.