Index and references

Guidance Navigation and Control course

I. Introduction to GNC

- Wikipedia provides a decent definition: https://en.wikipedia.org/wiki/Guidance,_navigation,_and_control

II. Discrete Kalman Filter

- Notes from my website: https://dobratech.com/courses/kalman-filtering/
- Python simulation: https://github.com/noether/kalman

III. Lyapunov stability

- Summary: https://en.wikipedia.org/wiki/Lyapunov_stability
- More detailed but still accesible: http://www.cds.caltech.edu/~murray/courses/cds101/fa02/caltech/mls93-lyap.pdf

IV. Guidance Vector Field

Papers:

- https://www.researchgate.net/publication/308980999_Guidance_algorithm_for_smooth_trajectory_tracking_of_a_fixed_wing_UAV_flying_in_wind_flows
- https://www.researchgate.net/publication/309191959_A_guiding_vector_field_algorithm_for_path_following_control_of_nonholonomic_mobile_robots

V. Assigment: Kalman + Lyapunov + GVF

- https://www.dropbox.com/s/9r0lvgxqusk8tih/kalman.pdf
- https://www.dropbox.com/s/ba5lvf0a06vnfxz/localization_kalman_assignment.py

VI. Multi-agent systems

- Consensus, distance- and displacement-based formation control: https://www.sciencedirect.com/science/article/pii/S0005109814004038 (you can download it from the SDU network)

VII. Final project

- Simple Lyapunov controllers for rotorcraft and final assigment(s): https://www.dropbox.com/s/3poanmyxxj4rkmv/projects.pdf

- Pycopter simulator: https://github.com/noether/pycopter