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Sensor Orientation

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Lab 7: Kalman Filtering with simulated GPS data: simple (a=0) model

# Task 1: Simulate a Noisy GPS

# Task 2: Calculate the Kalman-filtered Trajectory

# Task 3: Empirical Standard Deviation Characterization

# Task 4: Innovation Sequence

# Questions:

I. What is the true overall improvement of the positioning accuracy by the filtering (i.e. through comparing versus ).

II. How many measurements does it take to stabilize the predicted accuracy in position?

III. Does the evolution of the predicted positioning accuracy depend on the actual measurements? If yes, why is that? If no, why is that?

IV. How well does the empirically estimated position accuracy () corresponds to the anticipated/predicted accuracy () and which parameters of the filter would you suggest modifying to improve the agreement?

# Appendix A: Matlab Code