

# AA 174A: Principles of Robot Autonomy I

## Paper Review

### Due: December 15th

Students enrolled for 4 units in this class are required to submit a final paper report. This assignment is designed to assess your understanding and critical analysis of a selected research paper.

Your submission should consist of a paragraph (roughly half a page) that summarizes the key contributions of the paper.

The report must be submitted by **December 15th**. Late submissions will not be accepted.

Select a paper from the following list:

#### **Trajectory Tracking and Control**

1. [Real Time Trajectory Generation for Differentially Flat Systems](#). M. van Nieuwstadt, R.M. Murray.
2. [Contributions to the Theory of Optimal Control](#). R.E. Kálmán.

#### **Motion Planning**

1. [Optimal and Efficient Path Planning for Partially-Known Environments](#). A. Stentz.
2. [Probabilistic Roadmaps for Path Planning in High-Dimensional Configuration Spaces](#). L.E. Kavraki, P. Svestka, J.-C. Latombe, M.H. Overmars.
3. [Sampling-based Algorithms for Optimal Motion Planning](#). S. Karaman, E. Frazzoli.

#### **Perception (Computer Vision and Deep Learning)**

1. [Object Recognition from Local Scale-Invariant Features](#) D.G. Lowe.
2. [Random Sample Consensus: A Paradigm for Model Fitting With Applications to Image Analysis and Automated Cartography](#). M.A. Fischler, R.C. Bolles.
3. [ImageNet Classification with Deep Convolutional Neural Networks](#) A. Krizhevsky, I. Sutskever, G.E. Hinton.

#### **State Estimation and Filtering**

1. [Novel approach to nonlinear/non-Gaussian Bayesian state estimation](#). N.J. Gordon, D.J. Salmond, A.F.M. Smith.
2. [The Unscented Kalman Filter for Nonlinear Estimation](#) E.A. Wan, R. van der Merwe
3. [New Results in Linear Filtering and Prediction Theory](#). R.E. Kalman, R.S. Bucy.