



Department of Decision Sciences

Statistics Seminar

## Deep Learning Predictors for Traffic Flows

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2:30pm Room 3-E4-SR03 Via Röntgen 1 Milano

### Abstract

We develop deep learning predictors for modeling traffic flows. The challenge to modeling traffic flows arises from sharp nonlinearities due to transitions from free flow to breakdown and to congestion. Our methodology constructs a deep learning architecture to capture nonlinear spatio-temporal flow effects. We show how traffic flow data from road sensors can be predicted using deep learning. We illustrated our methodology on traffic data from Chicago's Interstate I-55 and we forecast traffic flows during two special events, a Chicago Bears football game and a snowstorm. Both examples lead to a sharp traffic flow regime which can occur very suddenly and we show how deep learning tackles short term traffic forecasting in an efficient manner. Finally, we discuss directions for future research.

Joint work with Vadim Sokolov.