

# Prof. Panagiotis Metaxas, Wellesley College, USA

## *“Why Prediction is Hard: Progress and Obstacles in Computational Social Science”*

### Abstract

Computational Social Science is a new field at the crossroads of Informatics, Sociology, Political Science, Economics, and Psychology. It tries to solve hard problems using computational models and analysis of observational and experimental (“big”) data. The creation of the Web and the Social Web have changed dramatically our daily routines. Search engines, such as Google and Bing, are used by practically all users online. Social-networking sites, such as Twitter, Facebook, and YouTube, are being used by billions daily, generating terabytes of data. The flow of users’ opinions expressed in social media, and their interests when searching the Web, has led to greater insights about what and how people think. It is also helping segments of the world population to be informed, organize and react at speeds never imagined before.

Data from social networking sites have been credited with a number of achievements, such as aiding revolutions, allocating resources during disasters, and detecting flu epidemics as soon as they appear. They have also been credited with the ability to predict future events such as movie box-office revenues, product sales, stock market fluctuations and even election results. A common explanation for these successes refers to the magic of “Big Data.” Given enough data and computing power, the claim goes, almost anything can be predicted, much can be accomplished. However, some researchers warn that assigning complete trust and infallibility characteristics to data, no matter how big, could lead to errors and lack of true understanding of the reasons that produce them. We will examine how social processes influence the digital footprints we leave on search engines and the Social Web, and will discuss some principles to observe as we collect and analyze social data.