

## Invited Talk

### Measuring and Modeling Popularity in Social Media

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#### Abstract

Attention is a scarce resource in the modern world, understanding and predicting attention allocation in online crowd is an important open research challenge. This talk will cover a few recent results from my group on understanding and predicting popularity. I will start by describing a unique longitudinal measurement study on video popularity history, and introduce popularity phases, a novel way to describe the evolution of popularity over time. I will then introduce the methodology of stochastic point processes, with which we model tweeting behavior over time, and extend to model volumes of attention. I will then discuss a physics-inspired stochastic model that connects exogenous stimuli and endogenous responses to explain and forecast popularity. With such novel representation and new models, we can correlate video content type to popularity patterns, make better predictions, describe the endo-exo factors driving popularity, and forecast the effects of promotion campaigns.



#### Biographical Sketch

Lexing Xie is Associate Professor in the Research School of Computer Science at the Australian National University, she leads the ANU Computational Media lab (<http://cm.cecs.anu.edu.au>). Her research interests are in machine learning, multimedia, social media. Of particular recent interest are stochastic time series models, neural network for sequences, and active learning, applied to diverse problems such as multimedia knowledge graphs, modeling popularity in social media, joint optimization and structured prediction problems, and social recommendation. Her research is supported from the US Air Force Office of Scientific Research, Data61, Data to Decisions CRC and the Australian Research Council. Lexing's research has received six best student paper and best paper awards in ACM and IEEE conferences between 2002 and 2015. She is IEEE Circuits and Systems Society Distinguished Lecturer 2016-2017. She currently serves an associate editor of ACM Trans. MM, ACM TiiS and PeerJ Computer Science. Her service roles include the program and organizing committees of major multimedia, machine learning, web and social media conferences. She was research staff member at IBM T.J. Watson Research Center in New York from 2005 to 2010, and adjunct assistant professor at Columbia University 2007-2009. She received B.S. from Tsinghua University, Beijing, China, and M.S. and Ph.D. degrees from Columbia University, all in Electrical Engineering.