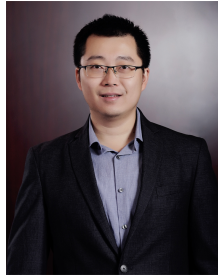




## Channing Network Science Seminar

August 11 (Friday), 2017, 11am @ 5th floor conference room



### Tao Jia, PhD

College of Computer and Information Science  
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China

### Quantifying patterns of research interest evolution

Isaac Newton famously remarked that doing science he was like ... a boy playing on the sea-shore ... finding a smoother pebble or a prettier shell than ordinary", vividly depicting how a scientist shifts the research focus as the career develops. Indeed, changing and shifting research interest is an integral part of a scientific career. Despite extensive investigations of various factors that influence a scientist's choice of research topics, quantitative assessments of mechanisms that give rise to macroscopic patterns characterizing research interest evolution of individual scientists remain limited. Here we perform a large-scale analysis of extensive publication records, finding that research interest change follows a reproducible pattern characterized by an exponential distribution. We identify three fundamental features responsible for the observed exponential distribution, which arise from a subtle interplay between exploitation and exploration in research interest evolution. We develop a random walk based model, which adequately reproduces our empirical observations. Our study presents one of the first quantitative analyses of macroscopic patterns governing research interest change, discovering a high degree of regularity underlying scientific research and individual careers.

Ref: Jia et al, Nature Human Behaviour 1, 0078 (2017), doi:10.1038/s41562-017-0078

Bio: Tao Jia is a professor at College of Computer and Information Science, Southwest University in China. He obtained his Ph.D. degree in physics at Virginia Tech in 2011. He worked as a postdoctoral researcher at Northeastern University from 2011 to 2013 and at Rensselaer Polytechnic Institute from 2013 to 2015. He is a recipient of the Chinese Government Award for Outstanding Self-Financed Students Abroad (2010) and the Thousand Young Talents Plan (2015).

Hosted by Yang-Yu Liu