

Kai-Cheng Yang

CONTACT INFORMATION

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EDUCATION

Ph.D., Informatics, Complex Systems track, Indiana University August 2017,—
• Minor in computer science with focus on machine learning
M.S., Theoretical Physics, Lanzhou University (China) June 2017
B.S., Theoretical Physics, Lanzhou University (China) June 2014

HONORS AND AWARDS

Awards

- NSF Research Trainee scholarship in Complex Networks and Systems (\$5000), 2018

PUBLICATIONS

Journal Articles

- [J1] **Kai-Cheng Yang**, Onur Varol, Clayton A Davis, Emilio Ferrara, Alessandro Flammini, and Filippo Menczer. “Arming the public with artificial intelligence to counter social bots”. In: *Human Behavior and Emerging Technologies* (2019), e115. DOI: 10.1002/hbe2.115.
- [J2] **Kai-Cheng Yang**, Onur Varol, Pik-Mai Hui, and Filippo Menczer. “Botometer-Lite: A lightweight, scalable and interpretable bot detector”. In: *In preparation* (2019).
- [J3] Brea Perry, **Kai-Cheng Yang**, Patrick Kaminski, Jaehyuk Park, Michelle Martel, Carrie Oser, Patricia Freeman, Yong-Yeol Ahn, and Jeffery Talbert. “Co-prescription network reveals social dynamics of opioid doctor shopping”. In: *Under review* (2019). DOI: 10.31235/osf.io/5v2z4. SocArXiv: 5v2z4.
- [J4] Harry Yan, **Kai-Cheng Yang**, and Filippo Menczer. “Human biases affect efficacy of social bot identification task”. In: *In preparation* (2019).
- [J5] Yi-Jiao Zhang, Zhi-Xi Wu, Petter Holme, and **Kai-Cheng Yang**. “Advantage of being multicomponent and spatial: Multipartite viruses colonize structured populations with lower thresholds”. In: *Under review* (2019).
- [J6] Chengcheng Shao, Giovanni Luca Ciampaglia, Onur Varol, **Kai-Cheng Yang**, Alessandro Flammini, and Filippo Menczer. “The spread of low-credibility content by social bots”. In: *Nature communications* 9.1 (2018), p. 4787. DOI: 10.1038/s41467-018-06930-7.
- [J7] **Kai-Cheng Yang**, Zhi-Xi Wu, Petter Holme, and Etsuko Nonaka. “Expansion of cooperatively growing populations: Optimal migration rates and habitat network structures”. In: *Physical Reviews E* 95 (2017), p. 012306. DOI: 10.1103/PhysRevE.95.012306.

Workshop Papers

- [W1] **Kai-Cheng Yang**, Pik-Mai Hui, and Filippo Menczer. “Bot Electioneering Volume: Visualizing Social Bot Activity During Elections”. In: *Companion Proceedings of the 2019 World Wide Web Conference (WWW '19 Companion)*. Accepted as short presentation. San Francisco, CA, USA, May 2019. arXiv: 1902.02339.

RESEARCH PROJECTS **Spread of misinformation on social media** PI: Filippo Menczer

- Hoaxy[®], visualization of fake news on Twitter
- Revealing how social bots amplify the spread of misinformation [J6]
- Using machine learning and network science approach to identify new misinformation sources

Social bots PI: Filippo Menczer

- Botometer[®], popular bot detection tool [J1]
- BotometerLite, a scalable bot detection tool that is 200 times faster than Botometer, but still yields comparable results [J2]
- [Bot Electioneering Volume](#), visualization of bot-like activity during elections [W1]
- Characterizing human bias in social bot identification task [J4]

Opioid doctor shopping PIs: Brea Perry, Yong-Yeol Ahn

- Building a pipeline that manages, wrangles the large scale dataset for the whole team
- Proposing new network based indicators for opioid doctor shopping [J3]
- Using machine learning to predict opioid overdoses

Spread of population Past project PI: Zhi-Xi Wu

- Modeling cooperatively growing populations' expansion on networked habitats [J7]
- Modeling epidemic process of multipartite viruses on networks [J5]

TALKS

- Expansion of Cooperatively Growing Populations on Networks
Chinese Physical Society Fall Meeting (Beijing, China) 09/04/2016

TEACHING **Associate Instructor, Indiana University**
I590 Applied Data Science Fall 2017, Spring 2018

APPOINTMENTS **Research Assistant, Indiana University**
Doctor shopping project Fall 2018, Spring 2019

RELEVANT COURSES **Machine learning**

- CSCI-B 555 Machine Learning
- CSCI-B 659 Applying Machine learning Techniques in Computational Linguistics
- CSCI-B 659 Learning Theory & Graphical Models

SKILLS **Computational**
Frequent user of Python (Pandas, Matplotlib, Scikit-learn, NetworkX, etc), SQL for data analysis.
Familiar with HTML, CSS, JavaScript and Flask for web applications.

Last updated: March 11, 2019