

# Kai-Cheng Yang

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EDUCATION Ph.D., Informatics, Complex Systems track, Indiana University  
M.S., Theoretical Physics, Lanzhou University (China)  
B.S., Theoretical Physics, Lanzhou University (China)

August 2017—  
June 2017  
June 2014

## AWARDS

- IU School of Public Health Big Idea Challenge (\$250) 2020
- Informatics Ph.D. Student Conference Travel Awards (\$1000) 2020
- IU GISA Conference Travel Awards (\$700) 2019
- Informatics Ph.D. Student Conference Travel Awards (\$1000) 2019
- NSF Research Trainee scholarship in Complex Networks and Systems (\$5000) 2018

## RESEARCH PROJECTS

### Bad actors on social media PI: Filippo Menczer

- Social bot detection: Botometer<sup>®</sup> [C3, J5], BotometerLite [C2]
- Bot amplification detection & visualization: BotSlayer [W2, J6], BEV [W3], Hoaxy<sup>®</sup>
- Misinformation & bots [W1, J9]
- Human bias & bots [J4]
- Social media ecosystem bias [C1, J3]

### Public Health (Opioid epidemic) PIs: Brea Perry, Yong-Yeol Ahn

- High risk patients detection [J7]
- Policy effects [J2]

### Network Science

- Network embedding [C4]
- Spreading phenomena [J8, J10]

## PUBLICATIONS Journal Articles

- J1. Yang, K.-C., Aronson, B. & Ahn, Y.-Y. BiRank: Fast and Flexible Ranking on Bipartite Networks with R and Python. *In submission* (2020).
- J2. Lee, B., Zhao, W., Yang, K.-C., Ahn, Y.-Y. & Perry, B. Unintended Consequences of State Policy Interventions in the US Opioid Crisis. *In submission* (2020).
- J3. Wen, C., Pacheco, D., Yang, K.-C. & Menczer, F. Neutral Bots Reveal Political Bias on Social Media. *arXiv preprint arXiv:2005.08141* (2020).
- J4. Yan, H., Yang, K.-C., Menczer, F. & Shanahan, J. Asymmetrical Perceptions of Partisan Political Bots. *In submission* (2020).

- J5. **Yang, K.-C.**, Varol, O., Davis, C. A., Ferrara, E., Flammini, A. & Menczer, F. Arming the public with artificial intelligence to counter social bots. *Human Behavior and Emerging Technologies*, e115 (2019).
- J6. Hui, P.-M., **Yang, K.-C.**, Torres-Lugo, C., Monroe, Z., McCarty, M., Serrette, B., Pentchev, V. & Menczer, F. BotSlayer: real-time detection of bot amplification on Twitter. *Journal of Open Source Software* **4**, 1706. issn: 2475-9066 (2019).
- J7. Perry, B. L., **Yang, K.-C.**, Kaminski, P., Odabas, M., Park, J., Martel, M., Oser, C. B., Freeman, P. R., Ahn, Y.-Y. & Talbert, J. Co-prescription network reveals social dynamics of opioid doctor shopping. *PLoS one* **14**, e0223849 (2019).
- J8. Zhang, Y.-J., Wu, Z.-X., Holme, P. & **Yang, K.-C.** Advantage of Being Multicomponent and Spatial: Multipartite Viruses Colonize Structured Populations with Lower Thresholds. *Physical Reviews Letters* **123**. (Editors' Suggestion), 138101 (2019).
- J9. Shao, C., Ciampaglia, G. L., Varol, O., **Yang, K.-C.**, Flammini, A. & Menczer, F. The spread of low-credibility content by social bots. *Nature communications* **9**, 4787 (2018).
- J10. **Yang, K.-C.**, Wu, Z.-X., Holme, P. & Nonaka, E. Expansion of cooperatively growing populations: Optimal migration rates and habitat network structures. *Physical Reviews E* **95**, 012306 (2017).

#### Conference Proceedings

- C1. **Yang, K.-C.**, Hui, P.-M. & Menczer, F. *How Twitter Data Sampling Biases U.S. Voter Behavior Characterizations* in *arXiv preprint arXiv:2006.01447* (2020).
- C2. **Yang, K.-C.**, Varol, O., Hui, P.-M. & Menczer, F. *Scalable and Generalizable Social Bot Detection through Data Selection* in *Proceedings of the AAAI Conference on Artificial Intelligence* **34** (2020), 1096–1103.
- C3. Sayyadiharikandeh, M., Varol, O., **Yang, K.-C.**, Flammini, A. & Menczer, F. *Detection of Novel Social Bots by Ensembles of Specialized Classifiers* in *arXiv preprint arXiv:2006.06867* (2020).
- C4. Yoon, J., **Yang, K.-C.**, Jung, W.-S. & Ahn, Y.-Y. *Persona2vec: A Flexible Multi-role Representations Learning Framework for Graphs* in *arXiv preprint arXiv:2006.04941* (2020).

#### Workshop/Demo Papers

- W1. **Yang, K.-C.**, Torres-Lugo, C. & Menczer, F. *Prevalence of Low-Credibility Information on Twitter During the COVID-19 Outbreak* in *arXiv preprint arXiv:2004.14484* (2020).
- W2. Hui, P.-M., **Yang, K.-C.**, Torres-Lugo, C. & Menczer, F. *BotSlayer: DIY Real-Time Influence Campaign Detection* in *Proceedings of the International AAAI Conference on Web and Social Media* **14** (2020), 980–982.
- W3. **Yang, K.-C.**, Hui, P.-M. & Menczer, F. *Bot Electioneering Volume: Visualizing Social Bot Activity During Elections* in *Companion Proceedings of The 2019 World Wide Web Conference* (ACM, San Francisco, CA, USA, 2019), 214–217.

#### TALKS

- Prevalence of Low-Credibility Information on Twitter During the COVID-19 Outbreak  
International Workshop on Cyber Social Threats—CySoc 2020 (Virtual) 06/08/2020
- BotometerLite  
AAAI'20 (New York, USA) 02/10/2020

- Bot Electioneering Volume  
*The Fourth Workshop on Computational Methods in Online Misbehavior—CyberSafety 2019 (San Francisco, USA)* 05/13/2019
- 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 – Summer 2020

SERVICE

**Journal Reviewer**

- Social Network Analysis and Mining
- ACM Digital Threats: Research and Practice
- IEEE Internet Computing

**Conference Reviewer**

- ICWSM'20, '21

Last updated: June 18, 2020