Kai-Cheng Yang

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Education

Ph.D., Informatics, Complex Systems track, Indiana University	August 2017—
M.S., Theoretical Physics, Lanzhou University (China)	June 2017
B.S., Theoretical Physics, Lanzhou University (China)	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® [C3, J6], BotometerLite [C2]
- Bot amplification detection & visualization: BotSlayer [W2, J7], BEV [W3], Hoaxy®
- Misinformation & bots [W1, J10]
- Human bias & bots [J5]
- Social media ecosystem bias [C1, J4]

Opioid epidemic   PIs: Brea Perry, Yong-Yeol Ahn

- High risk patients detection [J2, J8]
- Policy effects [J3]

Network science

- Network embedding [C4]
- Spreading phenomena [J9, J11]

Publications   **Journal Articles**

J1. **Yang, K.-C.**, Aronson, B. & Ahn, Y.-Y. BiRank: Fast and Flexible Ranking on Bipartite Networks with R and Python. *Journal of Open Source Software* **5,** 2315 (2020).

J2. Aronson, B., **Yang, K.-C.**, Odabas, M., Ahn, Y. Y. & Perry, B. L. Comparing Measures of Centrality in Bipartite Social Networks: A Study of Drug Seeking for Opioid Analgesics. *SocArXiv preprint.* `osf.io/preprints/socarxiv/hazvs` (2020).

J3. 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).

J4. Wen, C., Pacheco, D., **Yang, K.-C.** & Menczer, F. Neutral Bots Reveal Political Bias on Social Media. *arXiv preprint arXiv:2005.08141* (2020).

J5. Yan, H., **Yang, K.-C.**, Menczer, F. & Shanahan, J. Asymmetrical Perceptions of Partisan Political Bots. *New Media & Society (in press).* `osf.io/preprints/socarxiv/gf7jb/` (2020).

J6. **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).

J7. 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 (2019).

J8. 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).

J9. 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).

J10. 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).

J11. **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** (New York, NY, USA, 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 *Proc. ICWSM Intl. Workshop on Cyber Social Threats (CySoc)* (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** (Virtual, 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* (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

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