

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
- Informatics Ph.D. Student Conference Travel Awards (\$1000) 2019
- IU GISA Conference Travel Awards (\$700) 2019

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](https://doi.org/10.1002/hbe2.115).
- [J2] Pik-Mai Hui, **Kai-Cheng Yang**, Christopher Torres-Lugo, Zachary Monroe, Marc McCarty, Benjamin Serrette, Valentin Pentchev, and Filippo Menczer. “BotSlayer: real-time detection of bot amplification on Twitter”. In: *Journal of Open Source Software* 4.42 (2019), p. 1706. issn: 2475-9066. doi: [10.21105/joss.01706](https://doi.org/10.21105/joss.01706).
- [J3] Brea L Perry, **Kai-Cheng Yang**, Patrick Kaminski, Meltem Odabas, Jaehyuk Park, Michelle Martel, Carrie B Oser, Patricia R Freeman, Yong-Yeol Ahn, and Jeffery Talbert. “Co-prescription network reveals social dynamics of opioid doctor shopping”. In: *PLOS ONE* 14.10 (2019), e0223849. doi: [10.1371/journal.pone.0223849](https://doi.org/10.1371/journal.pone.0223849).
- [J4] Harry Yan, **Kai-Cheng Yang**, Filippo Menczer, and James Shanahan. “Asymmetrical Perceptions of Partisan Political Bots”. In: *In submission* (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: *Physical Reviews Letters* 123 (2019). (Editors’ Suggestion), p. 138101. doi: [10.1103/PhysRevLett.123.138101](https://doi.org/10.1103/PhysRevLett.123.138101).
- [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](https://doi.org/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](https://doi.org/10.1103/PhysRevE.95.012306).

Conference Proceedings

- [C1] **Kai-Cheng Yang**, Onur Varol, Pik-Mai Hui, and Filippo Menczer. “Scalable and Generalizable Social Bot Detection through Data Selection”. In: *In submission* (2019).

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. San Francisco, CA, USA: ACM, 2019, pp. 214–217. DOI: [10.1145/3308560.3316499](https://doi.org/10.1145/3308560.3316499).

RESEARCH PROJECTS **Social bots** PI: [Filippo Menczer](#)

- [Botometer](#)[®], popular bot detection tool [J1]
- BotometerLite, a scalable bot detection tool that scales up to Firehose volume and yields accurate results [C1]
- [Bot Electioneering Volume](#), visualization of bot-like activity during elections [W1]
- Revealing how social bots amplify the spread of misinformation [J6]
- Characterizing human bias in political social bot identification task [J4]

Bad actors on social media PI: [Filippo Menczer](#)

- [Hoaxy](#)[®], visualization of information spreading on Twitter
- [BotSlayer](#), a free, customizable and distributed tool that detects potential coordinated manipulation on Twitter in real time [J2]
- [BotSlayer-CE](#), open source version BotSlayer [J2]

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

- Bot Electioneering Volume
The Fourth Workshop on Computational Methods in Online Misbehavior (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 – Fall 2019
RELEVANT COURSES	Machine learning <ul style="list-style-type: none"> • 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: October 29, 2019