Clayton A Davis

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Research interests

Network science, computational social science, social bot detection, diffusion of information and misinformation in online social media, privacy-preserving research methods, behavior-change intervention design and evaluation, social movement discourse and organization.

Academic history

Ph.D. Informatics, Indiana University, in progress.

M.A. Mathematics, Indiana University, 2011.

B.S. Mathematics, Truman State University, 2009.

Industry experience

DataPad, San Francisco, 2014.

Anaconda, Inc. (formerly Continuum Analytics), Austin, 2013.

Technical skills

Expert in Python for data processing, machine learning, and web-service workloads.

Familiar with multiple SQL and NoSQL database systems and their use in big data.

Proficient in Javascript frontend frameworks such as jQuery and AngularJS.

Competent in both frequentist and Bayesian data analysis.

Highly effective in Linux environments.

Publications

Journals, books, & proceedings

Varol, Onur, Clayton A. Davis, et al. (2018). "Feature Engineering for Social Bot Detection". In: *Feature Engineering for Machine Learning and Data Analytics*. Ed. by Guozhu Dong and Huan Liu. Boca Raton, FL: CRC Press, pp. 311–334. ISBN: 9781138744387. URL: https://www.crcpress.com/Feature-Engineering-for-Machine-Learning-and-Data-Analytics/Dong-Liu/p/book/9781138744387.

Ince, Jelani, Fabio Rojas, and Clayton A. Davis (2017). "The social media response to Black Lives Matter: how Twitter users interact with Black Lives Matter through hashtag use". In: *Ethnic and Racial Studies* 40.11, pp. 1814–1830. DOI: 10.1080/01419870.2017.1334931. eprint: https://doi.org/10.1080/01419870.2017.1334931. URL: https://doi.org/10.1080/01419870.2017.1334931.

Varol, Onur, Emilio Ferrara, et al. (2017). "Online Human-Bot Interactions: Detection, Estimation, and Characterization". In: *Proc. ICWSM*, pp. 280–289. URL: https://aaai.org/ocs/index.php/ICWSM/ICWSM17/paper/view/15587.

Davis, Clayton A., Giovanni Luca Ciampaglia, et al. (2016). "OSoMe: the IUNI observatory on social media". In: *PeerJ Computer Science* 2, e87. ISSN: 2376-5992. DOI: 10.7717/peerj-cs.87. URL: https://doi.org/10.7717/peerj-cs.87.

Davis, Clayton A., Onur Varol, et al. (2016). "BotOrNot: A System to Evaluate Social Bots". In: *Proceedings of the 25th International Conference Companion on World Wide Web*. WWW '16 Companion. **Awarded Best Presenter**. Montreal, Quebec, Canada: International World Wide Web Conferences Steering Committee, pp. 273–274. ISBN: 978-1-4503-4144-8. DOI: 10.1145/2872518.2889302. URL: https://doi.org/10.1145/2872518.2889302.

Ferrara, Emilio et al. (2016). "The Rise of Social Bots". In: *Commun. ACM* 59.7, pp. 96–104. ISSN: 0001-0782. DOI: 10.1145/2818717. URL: http://doi.acm.org/10.1145/2818717.

Wu, Tak-Lon et al. (2016). "Scalable Query and Analysis for Social Networks: An Integrated High-Level Dataflow System with Pig and Harp". In: *Big Data in Complex and Social Networks*. Ed. by My Thai, Weili Wu, and Hui Xiong. Boca Raton, FL: CRC Press. Chap. 2, pp. 37–64.

Davis, Clayton A., Julia R. Heiman, and Filippo Menczer (2015). "A Role for Network Science in Social Norms Intervention". In: *Procedia Computer Science* 51. International Conference On Computational Science, ICCS 2015, pp. 2217–2226. ISSN: 1877-0509. DOI: https://doi.org/10.1016/j.procs.2015.05.499. URL: http://www.sciencedirect.com/science/article/pii/S1877050915013071.

Gao, Xiaoming et al. (2014). "Supporting a Social Media Observatory with Customizable Index Structures: Architecture and Performance". In: *Cloud Computing for Data-Intensive Applications*. Ed. by Xiaolin Li and Judy Qiu. New York, NY: Springer New York, pp. 401–427. ISBN: 978-1-4939-1905-5. DOI: 10.1007/978-1-4939-1905-5_17. URL: https://doi.org/10.1007/978-1-4939-1905-5_17.

Conover, Michael D. et al. (2013). "The Geospatial Characteristics of a Social Movement Communication Network". In: *PLOS ONE* 8.3, pp. 1–8. DOI: 10.1371/journal.pone.0055957. URL: https://doi.org/10.1371/journal.pone.0055957.

Workshops & posters

Davis, Clayton A. et al. (2016). "Kinsey Reporter: Citizen Science for Sex Research". In: *Let's Talk About Sex (Apps) Workshop*. ACM CSCW. Vancover, BC, Canada. URL: http://arxiv.org/abs/1602.04878.

Varol, Onur et al. (2015). "Bot-or-Not: social bot detection". In: *Conference on Complex Systems*. **Awarded Best Poster**. Tempe, AZ. URL: http://www.clayadavis.net/files/BotOrNot_CCS2015.pdf.

Software and online resources

Botometer® (formerly BotOrNot): web service to detect social bots on Twitter. Includes public API, Python client library, IU software license, and SAAS (pro API) license. Also supports a browser extension (Botson) and other services, such as @probabot_ and @StattoBot.

OSoMe: Observatory on Social Media, a site and set of public tools to track, analyze, mine, classify, model, and visualize how information spreads on social media. Includes public API.

Kinsey Reporter: global mobile survey platform to collect, explore, visualize, and share anonymous data about sex. Includes website and mobile apps for IOS and Android.

IADN Data Viz: website for visualizing, analyzing, and downloading air monitoring data collected as part of the EPA's Great Lakes Integrated Atmospheric Deposition Network (IADN).

Card Codex: public website using machine-learning to find *Magic: the Gathering* cards similar to a given card or free text.

Teaching

Spring 2017	INFO-I 468: Advanced Network Science
Fall 2017, 2016, 2015, 2012, 2011	INFO-I 368/400: Introduction to Network Science
Spring 2011	MATH-T 101: Mathematics for Elementary Teachers
Fall 2010, 2009	MATH-M 014: Basic Algebra
Spring 2010	MATH-J 112: Introduction to College Math II

Mentoring

2017	Miranda Galang, undergrad/masters
Spring 2016	Keychul Chung & Kibeom Hong, undergraduates.
Spring 2014	Adam Pendleton, undergraduate
Fall 2013, Spring 2014	Paul Logan, undergraduate
Fall 2013	Clayton Sheets & Ryan Chibana, undergraduates

Poster with Keychul Chung won second prize honors in the SoIC Spring Research Symposium.

Service

Website co-chair for ACM Web Science 2014 Conference, Bloomington, IN. Spring 2014.

Co-founder and executive chair of Graduate Informatics Student Association. Fall 2013 to spring 2015.

Co-organizer of "Nodes," complex systems graduate student seminar. Fall 2012.

Organizer of Biocomplexity Graduate Student Seminar. Spring 2012.

Journals & Conferences refereed:

IC2S2 (International Conference on Computational Social Science)

ASONAM (Advances in Social Networks Analysis and Mining)

Human IT

Future Internet

CaGIS (Cartography and Geographic Information Science)

Invited talks

"Social Media Analysis with OSoMe" for Indiana Evaluation Association. Indianapolis, Fall 2016

"Exploring, Analyzing, and Visualizing Open Health Data on the Web" and "So You Think You Can App: Getting from idea to market with limited resources" for Youth + Tech + Health Conference. San Francisco, Spring 2014.

Honors and Awards

Recognized for excellent teaching and service as IU SoIC's 2016-2017 "Associate Instructor of the year."

"Best Presenter" WWW2016 Developer's Track.

"Best Poster" CCS 2015, Tempe.

"Judges' Choice, Best Non-Traditional Chili" IU SoIC's Annual Chili Contest 2013.

Amazon Web Services in Education research grant, winter 2012.

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https://www.clayadavis.net/cv.pdf