

Daniel Kaiser
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University of Virginia Department of Biology
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Education

2019-25 **Ph.D.**, Complex Networks and Systems under supervision of Dr. Filippo Radicchi, Indiana University - Bloomington.
2015-19 **B.Sc.** Mathematics, University of Michigan - Ann Arbor.

Research Experience

2025– Post-doctoral researcher, [Landry Lab](#), University of Virginia
2020-2025 Research Assistant, [Raddichi-Fortunato Lab](#), Indiana University - Bloomington, (Advisor: [Dr. Filippo Radicchi](#))
2019-2020 Research Assistant, Indiana University - Bloomington, (Advisor: [Dr. Santo Fortunato](#))

Awards & Honors

2023 Luddy Excellence in Teaching Award
 Awarded to instructors as nominated and voted on by students.
2022 Luddy Excellence in Teaching Award
2019 Leon P. Zukowski Award of Outstanding Service
 Awarded to math tutors/instructors as nominated and voted on by students.

Publications

 [Google Scholar](#)

† → Equal contribution

Journal Articles

- J1. Yeung, J., Kaiser, D. & Radicchi, F. Efficient Inference of Rankings from Multibody Comparisons. *Physical Review E* **112**, 014305. (2025) (June 2025).
- J2. **Kaiser, Daniel**, Patwardhan, S., Kim, M. & Radicchi, F. Reconstruction of Multiplex Networks via Graph Embeddings. *Physical Review E* **109**, 024313. (2024) (Feb. 2024).
- J3. Kritschgau, J., **Kaiser, Daniel**, Alvarado Rodriguez, O., Amburg, I., Bolkema, J., Grubb, T., Lan, F., Maleki, S., Chodrow, P. & Kay, B. Community Detection in Hypergraphs via Mutual Information Maximization. *Nature: Scientific Reports* **14**, 6933. ISSN: 2045-2322. (2024) (Mar. 2024).
- J4. **Kaiser, Daniel**, Patwardhan, S. & Radicchi, F. Multiplex Reconstruction with Partial Information. *Physical Review E* **107**, 024309. (2023) (Feb. 2023).

Working papers

- W1. **Kaiser, Daniel** & Radicchi, F. *Reconstructing higher-order multiplexes from layer-aggregated observations* In Preparation. Jan. 2025.
- W2. Sultan, B., Kim, M., **Kaiser, Daniel** & Radicchi, F. *Optimal transportation network construction through the lens of human mobility* In Preparation. 2025.

Tools & Software

Article Code-bases

- (J1) ‘[naive-embedded-reconstruction](#)’: Python source code for [reconstructing multiplexes via graph embeddings](#).
- (J3) ‘[parametric-dyadic-multiplex-reconstruction](#)’: Python source code for [reconstructing multiplexes](#).
- (W1) ‘multilayer-hypergraph-reconstruction’: Julia source code and package for reconstructing higher-order multiplexes (*in progress*).
- (W3) ‘[proj_higher-order-ranking](#)’: C source code and Python analyses for [efficient evaluation of rankings from arbitrarily-sized competitions](#).

Scientific Open Source Contributions

‘xgi’: Contributions to patch v0.9.5 and release v0.10.0.

Posters

- P1. Sultan, B., **Kaiser, Daniel** & Kim, M. *Investigating Human Mobility Patterns with Field Theory and Open Data Sources* NetMob 2024 (Washington DC, USA). Oct. 2024.

Teaching

Indiana University - Bloomington

2021-2024	Instructor of Record, Mathematical Foundations of Informatics (INFO 201)
2021	Assistant Instructor, Information Infrastructure II (INFO 211)
2021	Assistant Instructor, Mathematical Foundations of Informatics (INFO 201)
2021	Assistant Instructor, Usable Privacy and Security (INFO 590)
2020	Assistant Instructor, Performance Analytics (INFO 369)
2019-2020	Assistant Instructor, Legal and Social Informatics of Security (INFO 330)

University of Michigan - Ann Arbor

2018	Guest lecturer, Transformation Groups in Geometry (MATH 433)
2018	Course assistant, Transformation Groups in Geometry (MATH 433)

Workshops & Camps

2025	Assistant Instructor, Art and Mathematics (Michigan Math and Science Scholars Program - University of Michigan, Ann Arbor)
2024	Assistant Instructor, Introduction to Network Science (The Network Science Society)
2022-2024	Instructor, Luddy Pre-College Summer Camp (Indiana University - Luddy School of Informatics, Computing, and Engineering)

Research with Students

Graduate

2024-2025	Jack Yeung, Indiana University - Bloomington
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Undergraduate

2024-2025	Brian Cabral, Indiana University - Bloomington
2024-2025	Jaden Grossbaum, Indiana University - Bloomington
2022-2025	JT Underhill, Indiana University - Bloomington
2023-2024	Jack Yeung, Indiana University - Bloomington
2022-2024	AJ Slowey, Indiana University - Bloomington
2022	Matei Cloteaux, Indiana University - Bloomington, Undergraduate Research Opportunity in Computing
2022	William Cesaretti, Indiana University - Bloomington, Undergraduate Research Opportunity in Computing
2021	Emma Delph, Indiana University - Bloomington, Undergraduate Research Opportunity in Computing
2021	Cass Kestle, Indiana University - Bloomington
2021	David Majercak, Indiana University - Bloomington, Undergraduate Research Opportunity in Computing
2020	Jason Esquivel, Indiana University - Bloomington, Undergraduate Research Opportunity in Computing
2020	Jesse Greenspun, Indiana University - Bloomington, Undergraduate Research Opportunity in Computing

Academic Service

Journal Reviewer

2025	Physical Review E
2025	Nature: Scientific Reports
2024	ACM Transactions on Cyber-Physical Systems
2024	Physical Review E
2022-2024	IEEE Transactions on Network Science and Engineering

Other Experience

2023 Statistics Consultant, [Sniffer Robotics](#), Ann Arbor, Michigan (Part-time geospatial statistics analyst & consultant)

Last updated: September 8, 2025