

# Daniel Kaiser

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Luddy Center for Artificial Intelligence  
1015 E 11th St, Bloomington, IN 47408

## 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

- 2020– Research Assistant, [Raddicchi-Fortunato Lab](#), Indiana University - Bloomington, (Advisor: [Dr. Filippo Radicchi](#))
- 2019-2020 Research Assistant, Indiana University - Bloomington, (Advisor: [Dr. Santo Fortunato](#))

## Awards & Honors

- 2024-2025 Luddy Ph.D. Teaching Fellowship  
*Awarded to Ph.D. students for excellence in teaching.  
Starts a year-long intensive teaching mentorship with faculty.*
- 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. **Kaiser, Daniel**, Patwardhan, S., Kim, M. & Radicchi, F. Reconstruction of Multiplex Networks via Graph Embeddings. *Physical Review E* **109**, 024313. (2024) (Feb. 2024).

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\*Expected.

- J2. 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).
- J3. **Kaiser, Daniel**, Patwardhan, S. & Radicchi, F. Multiplex Reconstruction with Partial Information. *Physical Review E* **107**, 024309. (2023) (Feb. 2023).

## Working papers

- W1. Sultan, B., Kim, M., **Kaiser, Daniel** & Radicchi, F. *Optimal transportation network construction through the lens of human mobility* In Preparation. Oct. 2024.
- W2. Yeung, J., **Kaiser, Daniel** & Radicchi, F. *Efficient multi-reactive ranking computations* In preparation. Oct. 2024.

## Tools & Software

### Multiplex Reconstruction Code-bases

multilayer-hypergraph-reconstruction: Julia source code and package for reconstructing higher-order multiplexes (*in progress*).

[naive-embedded-reconstruction](#): Python source code for [reconstructing multiplexes](#).

## 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–	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)
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## Workshops & Camps

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– Jack Yeung, Indiana University - Bloomington

### Undergraduate

2024– Brian Cabral, Indiana University - Bloomington  
2024– Jaden Grossbaum, Indiana University - Bloomington  
2022– 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

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)

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Last updated: October 15, 2024