

# KISHORE VASAN

Boston, United States

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## OBJECTIVE STATEMENT

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I am a computational social scientist, specializing in employing data-driven methodologies to uncover the complexities of human behavior. With expertise in machine learning, causal inference, and network science, I bring a valuable skill set to interdisciplinary projects. My interests extend across diverse domains, including health sciences, blockchain, and the metaverse.

## EDUCATION

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### Northeastern University

PhD in Network Science

Research direction: networks and human behavior

Advisor: Albert-Laszlo Barabasi

*September 2020 - Present*

Boston, Massachusetts

### University of Washington

Bachelor of Science

Major: Informatics - Data Science; Minor: Quantitative Science

Advisor: Jevin West

*September 2016 - June 2020*

Seattle, Washington

## TECHNICAL STRENGTHS

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### Computer Languages

Python, R, MySQL, d3.JS, Three.JS, Java, React, HTML

### Software & Tools

RStudio, Gephi, Cytoscape, networkx, matplotlib, pandas, pytorch

## EXPERIENCE

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### Meta Inc.

*Research Scientist Intern, Computational Social Science*

May 2024 - Sep 2024

### Center for Complex Networks Research, Network Science Institute

*Graduate Research Associate*

Sept 2020 - Present

### Determining optimal career choices to increase chess performance

June 2023 - Present

- A chess player's success is influenced not only by their individual abilities but also by the interactions with their fellow players who participate in similar tournaments.
- We employ causal inference techniques on large observational data from chess tournaments. The project features a special focus on improving female participation in chess competitions.

### Human mobility in the metaverse

May 2022 - April 2024

- In contrast to mobility in the physical world, mobility in the metaverse lacks manifested geographical boundaries, calling for fresh perspectives to understand human behavior.
- I investigate how individuals build their visitation space, and how the presence of a shared virtual environment impacts macroscopic movements and mobility networks.

### Social processes underlying drug innovation in clinical trials

Sept 2020 - Sep 2022

- Drug exploration is rarely an isolated biological process. Social effects such as repeatedly testing known drug targets, affects collective drug exploration.

- The goal of the project is to identify the fundamental mechanisms that govern drug exploration and develop optimal strategies of unbiased drug exploration.

## **Networks and success in Crypto Art**

April 2021 - December 2021

- NFTs took the world by storm after Beeple sold his famous artwork for over \$69 Million. But are all artists equally successful? What is the role of collectors, and fan base in ensuring artist success?
- We identify the important variables that determine success of new artists, demonstrate the presence of taste in the collecting behavior of collectors, and measure the network effects in crypto art.

## **DataLab, Information School**

September 2017 - August 2020

*Undergraduate Research Associate*

### **Collective dynamics in co-funding of clinical trials**

July 2019 - August 2020

- Assessing the scientific impact of different funding strategies in clinical trials. The goal is to untangle the relationship between funding agencies through a co-funding network.
- Funded by the Bill & Melinda Gates Foundation and Mary Gates Research Scholarship.

### **Measuring scientific buzz using keywords**

July 2018 - June 2019

- Comparing the applicability of keywords and abstracts in describing research trends. I discovered that keywords are a powerful resource for identifying hot topics than abstracts.
- Funded through Mary Gates Research Scholarship.

### **Mapping cross-departmental collaboration at UW**

September 2017 - August 2018

- How impactful are multi-departmental collaboration at a large scale public university? We discovered an effect of compartmentalization where departments that collaborate together, also cite each other.
- I worked on disambiguation of departmental and institutional affiliations of authors over 60k papers

## **Information School, University of Washington**

Spring 2018 - Spring 2019

*Teaching Assistant, INFO 201 - Data Visualization using R.*

- As a TA for over 100 students, I conducted weekly lab sessions, answered online questions, and graded weekly assignments. The course covers source control and interactive data visualization principles.

## **Genpact Inc.**

June 2017 - August 2017

*Data Science Intern*

- Enhancing customer care analytics by automatic emotion recognition system by extracting voice features and unsupervised topic clustering of GM Financial chat transcripts using latent semantic analysis.
- Worked in a team of 4 people and presented a proof of concept to the upper management.

## **PUBLICATIONS**

### **Journal Publications**

#### **Human mobility in the metaverse**

TBA

*Kishore Vasan, Marton Karsai, and Albert-Laszlo Barabasi.*

Under review: Nature Human Behavior

**The Clinical Trials Puzzle: How network effects limit drug discovery** Nov 2023  
*Kishore Vasani, Deisy Gysi, and Albert-Laszlo Barabasi.*  
Cell iScience

**Quantifying NFT-driven networks in crypto art** Feb 2022  
*Kishore Vasani, Milan Janosov, and Albert-Laszlo Barabasi.*  
Scientific Reports

**The hidden influence of communities in collaborative funding of clinical science** Aug 2021  
*Kishore Vasani and Jevin West.*  
Royal Society Open Science

### Conference Papers

**SciSight: Combining faceted navigation and research group detection for COVID-19 exploratory scientific search** May 2020  
*Tom Hope, Jason Portenoy\*, Kishore Vasani\*, Jonathan Borchart\*, Eric Horvitz, Daniel Weld, Marti Hearst, and Jevin West.*  
Empirical Methods in Natural Language Processing (EMNLP) 2020 systems track. Online.

\* - denotes equal contribution

**Is together better? Examining scientific collaboration across multiple authors, departments and institutions.** August 2018  
*Lovenoor Aulck, Kishore Vasani and Jevin West.*  
Knowledge Discovery and Data mining(KDD): BigScholar workshop 2018. London, UK.

**Measuring scientific buzz.** March 2019  
*Kishore Vasani and Jevin West.*  
Information Schools Conference (iConference) 2019 as a poster. Washington, DC.

### MEDIA COVERAGE

**Artnet News.** Want to Succeed as an NFT Artist? Here Are 5 Things to Know, According to a New Study of One of the Biggest Crypto-Art Platforms. March 2022

**Nature News.** Artificial-intelligence tools aim to tame the coronavirus literature. June 2020

**Science.** Scientists are drowning in COVID-19 papers. Can new tools keep them afloat? May 2020

### PRESENTATIONS

**Cutting Edge Connections: Healthcare Innovation** Northeastern University. Nov 2023

**Invited talk on mobility in the metaverse** MIT Media Lab. May 2023

**Invited talk on artist communities** NFT NYC April 2023

**Whats the story with NFTs?** Cambridge Arts Association panel. May 2022

**Research Exposed!** Population Health Initiative (PHI) panel March 2020

**Undergraduate Research Symposium** Presented work on collaborative funding May 2020

## SERVICE AND ACHIEVEMENTS

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### Mary Gates Research Scholarship

2018 - 2019

- A highly selective award given to undergraduates at the University of Washington pursuing research.
- I received this award to develop techniques to map research trends and study funding mechanisms.

### Moholy-Nagy University of Art and Design (MOME)

Spring 2021

- A part-time contract to advise on emerging trends in the art world using a data driven approach

### Undergraduate Admission Committee

Spring 2019

- Helped review undergraduate applicants for Informatics, a competitive major.
- Comprehensively reviewed the applicant based on personal statement, intent to major, and grades.

### Society of Network Scientists, UW

Fall 2019 - Summer 2020

*Co-Founder, Vice President*

- A campus wide initiative with an aim to promote and encourage research in network science. The organization acts as a platform for fellow researchers to interact and collaborate.
- We host weekly reading groups on social networks, panel discussions, and invite distinguished speakers.
- The group also serves an eScience Special Interest Group (SIG) on networks, and a local chapter of *The Society of Young Network Scientists* (SYNS).

### Reviewer

- Book on cryptocurrency, Oxford University Press
- Journal article, Electronic Markets
- Journal article, BMC Bioinformatics
- Journal article, Qeios

## SELECTED CLASSROOM PROJECTS

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### In search of food

September - December 2020

*The breakdown and robustness of food flow in the United States    Complex Networks and applications*

- Food flow patterns are an essential component of society and serves as a complex system of distribution between producers, consumers, and distributors. Yet, we know little about the impact of food epidemics.
- I find that every county is highly dependent on counties for specific food commodity, indicating a complex web of connections driven by food commodity.
- Finally, I find that the network is fairly robust towards targeted removal of distribution channels primarily due to the local dependence for food supplies.

### Crawling Wikipedia Graph

April 2019 - June 2019

*Exploring the edit dynamics of users in Wikipedia*

*Statistical Analysis of Social Networks*

- Mining large graphs reveals information; temporal network of the same reveal evolution. However, performing novel algorithms on these large graphs can be computationally expensive. We need methods that can provide an un-biased sample that would be representative of the underlying large network.
- In this work, we evaluated different random walks by crawling a large online editing network, Wikipedia.
- Our *findings* include - simple random walk is ineffective when sampling graphs with high tailed distribution, and re-weighted random walk outperforms other methods for graph sampling.

## COURSEWORK

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### Northeastern University

**PHYS 5116** - Complex networks and application I  
**NETS 6116** - Complex networks and application II  
**PHYS 7332** - Graph machine learning  
**POLS 7334** - Social network analysis  
**NETS 7341** - Network economics  
**PHYS 7335** - Dynamical processes in complex networks  
**BIOT 5120** - Foundations in Biotechnology  
**BIOL 5595** - Cellular and Molecular Neuroscience  
**PHTH 6800** - Causal Inference in Public Health

**University of Washington**

**QSCI 403** - Introduction to resampling inference  
**QSCI 482** - Statistical inference in applied research I  
**QSCI 483** - Statistical inference in applied research II  
**QSCI 497** - Complex analysis using agent based models  
**STAT 567** - Statistical analysis of social networks  
**MATH 308** - Matrix algebra with applications  
**MATH 309** - Linear analysis  
**MATH 324** - Advanced multi-variable calculus I  
**INFO 371** - Advanced methods in data science  
**INFO 430** - Advanced database design and management  
**CSE 373** - Data structures and algorithms  
**CSE 415** - Introduction to artificial intelligence