

# N I R A J

## KUSHWAHA

### CONTACT INFO

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### CURRENT POSITION

**RESIDENT SCIENTIST / PHD CANDIDATE** **2021-**  
**Complexity Science Hub Vienna** | Josefstädter Str. 39, 1080 Vienna  
(Supervisor: Dr. Edward D. Lee, Prof. Stefan Thurner)

- Discovering mesoscale for chains of armed conflicts
- Building dynamical models to explain population-level scaling in sessile organisms
- Joint affiliation with the Department of Physics, University of Vienna (Supervisor: Prof. Christoph Dellago)

### EXPERIENCE

**MASTER THESIS INTERN** **2019-2020**  
**Complex Systems Lab, IIT Indore** | Khandwa Rd, Simrol, Madhya Pradesh 453552  
(Supervisor: Prof. Sarika Jalan)

- Worked on my master thesis for a year

**WINTER INTERN** **2018**  
**Astrophysical Sciences Division, Bhabha Atomic Research Station** | Anushaktinagar, Mumbai - 400 094  
(Supervisor: Mr. Bitan Ghosal)

- Main project topic: "Synchrotron emission by charged particles in a non-uniform magnetic field"
- Minor project on data analysis of radiation data from "Major Atmospheric Cerenkov Experiment Telescope"

## EDUCATION

### MSc. in PHYSICS

2018-2020

*Indian Institute of Technology (IIT) Indore* | Khandwa Rd, Simrol, Madhya Pradesh 453552

- Thesis topic: "Engineering chimera and novel technique based on machine learning"
- Minor project on, "Crop classification using satellite imagery"
- Minor project on, "Credit card fraud detection"

### BSc. in PHYSICS (HONS.)

2015-2018

*Institute of Science- BHU* | Ajagara, Varanasi, Uttar Pradesh 221005

### High school diploma

2014

*Atomic Energy Central School* | Tarapur, India

## ACHIEVEMENTS

### National level exams

- Top 1% national level toppers (All India Rank=66) in National Graduate Physics Examination-2018
- All India Rank=432 in the national entrance exam for the Indian Institute of Technology in 2018

### Awards

- Gold medal in National Science Olympiad conducted by All India Science Teacher's Association

## PUBLICATIONS

### Articles

Kushwaha, Niraj and Edward D Lee (2022). "Discovering the mesoscale for chains of conflict". In: *arXiv preprint arXiv:2212.02652*.

Kushwaha, Niraj, Naveen Kumar Mendola, Saptarshi Ghosh, Ajay Deep Kachhvah, and Sarika Jalan (2021). "Machine learning assisted chimera and solitary states in networks". In: *Frontiers in Physics* 9, p. 513969.

## CONFERENCES

### CONFERENCE ON COMPLEX SYSTEMS

2022

*Palma de Mallorca, Spain*

- Gave a talk on "Multiscale causal structure in armed conflicts"
- Presented a poster

### THE GERMAN PHYSICS SOCIETY MEETING

2022

*Regensburg, Germany*

- Gave a talk on "Multiscale causal structure in armed conflicts"

### CONFERENCE ON COMPLEX SYSTEMS

2020

*Online*

- Gave a talk on "Machine Learning assisted Chimera states in Networks"

### HARVARD COLLEGE US-INDIA INITIATIVE

2017

*Mumbai, India*

- Delegate

## SCHOOLS AND WORKSHOPS

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<b>LIPARI SCHOOL ON COMPUTATIONAL COMPLEX AND SOCIAL SYSTEMS</b> <i>Lipari, Italy</i>	<b>2022</b>
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<b>BIGSSS SUMMER SCHOOL IN COMPUTATIONAL SOCIAL SCIENCE</b> <i>Groningen, Netherlands</i>	<b>2022</b>
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- Project topic: "Dynamical reciprocity in office spaces"

<b>THE GREAT RESIGNATION WORKSHOP</b> <i>Vienna, Austria</i>	<b>2022</b>
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<b>GLOBAL INITIATIVE OF ACADEMIC NETWORKS (GIAN) WORKSHOP</b> <i>Indore, India</i>	<b>2018</b>
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- Topic of workshop: "Network Science- from structure to dynamic"

## OTHER ACTIVITIES

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<b>Volunteering work</b>	<ul style="list-style-type: none"><li>• Started an NGO with college friends at BHU to educate underprivileged kids in Varanasi</li><li>• Worked as a climate counsellor for the International Centre for Culture and Education</li><li>• Volunteer at the Buddy Project, Vielmehr für Alle! in Vienna</li></ul>
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<b>Online Courses</b>	<ul style="list-style-type: none"><li>• "Network Dynamics of Social Behaviour" by University of Pennsylvania</li><li>• "From big bang to dark energy by Prof. Hitoshi Murayama" by University of Tokyo</li><li>• "Social Norms, Social change" by UNICEF</li><li>• "Digital media marketing" by Internshala</li></ul>
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