

# Curriculum Vitae

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**Current Position:** National Post-doctoral Fellow, Centre for modeling and simulation, S.P. Pune University, Pune, India

## Research Areas:

- Ph.D. in the field of ‘Dynamical systems’ and ‘complex networks’ (2016).  
**Title of the Ph.D. thesis:** Structure, dynamics and control of complex networks  
**Thesis Supervisor:** Prof. G. Ambika, IISER Pune, India.
- Under DST-DAAD exchange program, worked with Prof. Jürgen Kurths’ group in the area of “Interacting networks” at the Potsdam Institute of Climate Impact Research, Germany in 2013 and 2014.
- Worked on the complexity measures of ECG time series using multifractal analysis with Prof. Ambika, IISER Pune, India as a Post-doctoral Research Associate

## Publications:

1. Importance of initial conditions in the polarization of complex networks, **Snehal M. Shekatkar** and Sukratu Barve, *Europhys. Lett.* **122**(3) (2018) 38002.
2. “Detecting abnormality in heart dynamics from multifractal analysis of ECG signals”, Shekatkar et al, *Sci. Rep.* **7** (2017) 15127.
3. A random interacting network model for complex networks, Bedartha Goswami, **Snehal M. Shekatkar**, Aljoscha Rheinwalt, G. Ambika and Jürgen Kurths, *Sci. Rep. (Nature)*, (2015) **5** 18183.
4. Divisibility Patterns of natural numbers on a complex network, **Snehal M. Shekatkar**, Chandrasheel Bhagwat and G. Ambika, *Sci. Rep.*, (2015) **5** 14280.
5. Complex networks with scale-free nature and hierarchical modularity, **Snehal M. Shekatkar** and G. Ambika, *Eur. Phys. J. B.* (2015) **88** 227.
6. Novel Coupling Scheme to Control Dynamics of Coupled Discrete Systems, **Snehal M. Shekatkar** and G. Ambika, *Commun. Nonlinear . Sci. Numer. Simulat.* **25** (2015) 50-65.
7. On the sum of the  $r$ 'th roots of first  $n$  natural numbers, **Snehal M. Shekatkar** *arXiv:1204.0877*

## Computational and computer related skills

- **Computer languages and packages:** Fortran95, Python, C++, bash
- **Network analysis tool:** graph-tool (preferred) and networkx
- **Data analysis:** Python based package Pandas
- **Others:** Scikit-learn, matplotlib, seaborn, beautifulsoup, vim, 45-50 wpm typing speed

## Research Interests:

- Structure and function of complex networks
- Data science and Machine learning
- Nonlinear dynamics

## Education:

Degree	Board/University	Grade/Percentages	Year
Ph.D. (Physics)	Indian Institute of Science Education and Research, Pune, India	-	2016
M.Sc.	University of Pune, India	B	2010
B.Sc.	University of Pune, India	82%	2008
H.S.C.	Maharashtra State Board, Pune	83%	2005
S.S.C.	Maharashtra State Board, Pune	80%	2003

## Fellowships and achievements:

- UGC-CSIR Junior Research Fellowship through NET (Physics) (2009)
- National Post-doctoral Fellowship (2017)

## Teaching Experience:

- Worked as a teaching assistant for the following undergraduate courses at IISER Pune: Basic Physics Lab, Interdisciplinary Scientific Computing (with Fortran 95 and Python), The World of Physics (introductory physics course), The World of Physics (introductory physics course), Nonlinear Dynamics, Numerical Analysis.
- Taught a short course on ‘The large-scale structure of complex networks’ in the SERB school 2018 on Nonlinear Dynamics at the SP Pune University.
- Worked as a teaching assistant for the course on ‘Statistical Inference’ at CMS, SP Pune University (2018).

## Conferences and Schools attended:

- Summer school 2017: Probabilistic and statistical methods for networks organized by the Berlin Mathematical Society, TU Berlin (2017).
- 2015 India Complex Systems Winter School at IISER Mohali. Cosponsored by IISER Mohali and Santa Fe Institute, USA (7-21 December 2015).
- Conference on Nonlinear Systems and Dynamics 2015, IISER Mohali, Mohali, India (13-15th March 2015).
- Dynamics Days Asia-Pacific 08, IIT Madras, Chennai, India (21-24 July 2014).
- 8th Conference on Nonlinear Systems and Dynamics, IIT Indore, Indore, India (11-14 December 2013).
- Nonlinear Data Analysis and Modeling: Advances, Applications, Perspectives, PIK, Potsdam, Germany (21-22 March 2013).
- 7th National Conference on Nonlinear Systems and Dynamics, IISER Pune, Pune, India (12-15 July 2012).
- Complex Dynamical Systems and Applications (CDSA II), Presidency University, Kolkata, India (9-11 January 2012).
- DST-SERC School on Nonlinear Dynamics, IISER Pune, Pune, India (4-24 December 2011).
- 2nd RRI School on Statistical Physics, Raman Research Institute, Bangalore, India (7-19 March 2011).