

# Curriculum Vitae

**Name:** Snehal M. Shekatkar

**Mobile Number:** +919673847472

**Email:** [snehalshekatkar@gmail.com](mailto:snehalshekatkar@gmail.com), [snehal.s@iiserpune.ac.in](mailto:snehal.s@iiserpune.ac.in)

**Website:** [www.snehalshekatkar.com](http://www.snehalshekatkar.com)

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

## Research Areas:

- Ph.D. in the broad and interdisciplinary topic of “ The Physics of Complex Systems” (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 and machine learning with Prof. G. Ambika at IISER Pune

## Publications:

1. 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
2. Complex networks with scale-free nature and hierarchical modularity, **Snehal M. Shekatkar** and G. Ambika, *Eur. Phys. J. B.* (2015) **88**:227
3. Divisibility Patterns of natural numbers on a complex network, **Snehal M. Shekatkar**, Chandrasheel Bhagwat and G. Ambika, *Scientific Reports*, (2015) **5**:14280
4. A random interacting network model for complex networks, Bedartha Goswami, **Snehal M. Shekatkar**, Aljoscha Rheinwalt, G. Ambika and Jürgen Kurths, *Scientific Reports*, (2015) **5**:18183
5. On the sum of the  $r$ 'th roots of first  $n$  natural numbers, **Snehal M. Shekatkar** *arXiv*:1204.0877
6. Detecting abnormality in heart dynamics, **Snehal M. shekatkar**, Yamini Kotriwar, K.P. Harikrishnan, G. Ambika, *Scientific Reports*, (2015) **7**:15127

## Computational and computer related skills

- **Computer languages and packages:** Well versed in **Fortran95**, **Python** and related packages **numpy**, **scipy** etc. Have a working knowledge of C++ and bash.
- **Network analysis tool:** Expert in using Python based efficient network analysis libraries **graph-tool** (preferred) and **networkx**
- **Data analysis:** Proficient in Python based package **Pandas** for the analysis of data
- **Machine learning:** Good knowledge of using **Scikit-learn** and algorithms related to supervised and unsupervised learning.
- **Data visualization:** Proficient in using **matplotlib**, pandas visualization tools and statistical visualization library **seaborn**
- **Web crawling:** Experience in crawling web for collecting data using **beautifulsoup**
- **Operating systems:** Linux (preferred), Windows
- **Text editors:** **vim** (preferred), gedit
- **Typing speed:** 45-50 wpm

## Research Interests:

- Structure and function of complex networks
- Data science and Machine learning
- Complex adaptive systems and Genetic algorithms

## 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:

- Cleared UGC-NET in Physics with an upper rank
- Received the UGC Junior Research Fellowship to pursue the doctorate degree

**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)
- Nonlinear Dynamics
- Numerical Analysis

## Conferences and Schools attended:

- 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).