Narmada Sambaturu

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New Biological Sciences Building,
Indian Institute of Science,
Bangalore - 560012, Karnataka, India

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Research Interests

Computational Biology, Systems Biology, Epidemiology, Immunotherapy, Multi-scale Modelling, Immune Response, Cancer Genomics, Host-pathogen Interactions.

Education

PhD, Interdisciplinary Mathematical Sciences, 2015 - ongoing
Mathematical and Computational Biology Stream,
IISc Mathematics Initiative,
Indian Institute of Science, Bangalore, India.
Supervisors: Prof. Nagasuma Chandra, Prof. N. Srinivasan.

Master of Science, School of Computing, 2012 - 2015
National University of Singapore, Singapore.
Supervisor: Prof. Wing-Kin Sung.

Bachelor of Engineering, Computer Science and Engineering, 2005 - 2009
M.S.Ramaiah Institute of Technology, Bangalore, India.
Visvesvaraya Technological University.

Research Experience

- **PhD Fellow,** 2015 - ongoing
  Interdisciplinary Mathematical Sciences, IISc Mathematics Initiative,
  Indian Institute of Science, Bangalore, India.
  Supervisors: Prof. Nagasuma Chandra, Prof. N. Srinivasan.
- **Visitor,** Winter 2016
  Department of Applied Mathematics,
  School of Mathematics,
  University of Leeds, Leeds, UK
  Research advisors: Prof. Carmen Molina-París, Prof. Grant Lythe.
- **Junior Research Fellow,** Summer 2015
  Indian Institute of Science, Bangalore, India.
  Research advisor: Prof. Nagasuma Chandra.
- **Intern,** 2006
  Bioinformatics Centre,
  Indian Institute of Science, Bangalore, India.
  Research advisor: Prof. K. Sekar.

Work Experience

Developer, Tata Consultancy Services 2009 - 2011
Technology Excellence Group,
Bangalore, India.

Teaching Experience

- Teaching Assistant for course *Current trends in drug discovery.* Summer 2018
  Indian Institute of Science, Bangalore, Karnataka, India.
- Learning Enabler, Tata Consultancy Services. 2010
  Common Initial Learning Program. Bidadi, Karnataka, India.

Awards

- Best Student Paper Award, 2015 IEEE International Conference on Bioinformatics and Biomedicine (BIBM).
- One of 50 students selected from all over India for participation in a summer camp in Biotechnology at M.S.Swaminathan Research Foundation, Chennai, India (2003).
- All India Rank 25 in Secondary School Certificate (Std X) (2003).

Publications

1. **Narmada Sambaturu**, Vaidehi Pusadkar, Sridhar Hannenhalli, Nagasuma Chandra, "PathExt: a general framework for path-based mining of omics-integrated biological networks." *Bioinformatics* 2020, doi:10.1093/bioinformatics/btaa941
2. **Narmada Sambaturu**, Sumanta Mukherjee, Martín López-García, Carmen Molina-París, Gautam I. Menon, and Nagasuma Chandra. "Role of genetic heterogeneity in determining the epidemiological severity of H1N1 influenza." *PLoS Computational Biology* 14, no. 3 (2018): e1006069.
3. **Narmada Sambaturu**, Madhulika Mishra, and Nagasuma Chandra. "EpiTracer-an algorithm for identifying epicenters in condition-specific biological networks." *BMC genomics* 17, no. 4 (2016): 543.
4. **Narmada Sambaturu**, Madhulika Mishra, and Nagasuma Chandra. "EpiTracer-an algorithm for identifying epicenters in condition-specific biological networks." *Proceedings of the 2015 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*. IEEE Computer Society, 2015. (Best Student Paper)
5. **Narmada Sambaturu**. "Towards handling repeats in genome assembly." *MSc dissertation.*, 2014.
6. Sridhar, Jayavel, **Narmada Sambaturu**, Radhakrishnan Sabarinathan, Hong-Yu Ou, Zixin Deng, Kanagaraj Sekar, Ziauddin Ahamed Rafi, and Kumar Rajakumar. "sRNAscanner: a computational tool for intergenic small RNA detection in bacterial genomes." *PLOS ONE* 5, no. 8 (2010): e11970.
7. Annapurna P. Patil, **Narmada Sambaturu**, and Krittaya Chunhaviriyakul. "Convergence time evaluation of algorithms in MANETs." *International Journal of Computer Science and Information Security*, Vol. 5, No. 1, pp. 144-149, September 2009.

Workshop and Conference Presentations

- **Narmada Sambaturu**, Sumanta Mukherjee, Martín López-García, Carmen Molina-París, Gautam I Menon, and Nagasuma Chandra. (Talk) *Incorporating genetic heterogeneity into epidemic models for H1N1 influenza.* Mathematical and Statistical Explorations in Disease Modelling and Public Health, International Centre for Theoretical Sciences (ICTS), Bangalore, India, Jul 1 - 11 2019.
- **Narmada Sambaturu**, Madhulika Mishra, Rahul Metri and Nagasuma Chandra. *An Algorithm for Identifying Druggable Targets Among Influential Mutations in Individual Cancer Patients.* (Poster) Indo-US conference on Sculpting the future of medicine - Gateway to the post-proteogenome era, at Advanced Centre For Treatment, Research And Education In Cancer (ACTREC), Mumbai, India, Dec 10 - 11 2018.
- **Narmada Sambaturu** and Nagasuma Chandra. *OptiNeo – an algorithm to optimise the number of neo-antigenic peptides for cancer immunotherapy.* (Poster) Nature Big Data and Cancer Precision Medicine, Boston, Massachusetts, Oct 1 - 2 2018.
- **Narmada Sambaturu**, Sridhar Hannenhalli, and Nagasuma Chandra. (Poster) *Cutting through the complexity of genomic data: A general method to identify candidate genes.* RECOMB/ISCB Conference on Regulatory and Systems Genomics with DREAM Challenges, New York, NY, Nov 19 - 21 2017.

- **Narmada Sambaturu**, Sumanta Mukherjee, Martín López-García, Carmen Molina-París, Gautam I. Menon, and Nagasuma Chandra. (Talk) *Role of genetic heterogeneity in determining the epidemiological severity of H1N1 influenza.* Discussion meeting on Mathematical Models of Infection, Immunity and Inflammation, Indian Institute of Science, Bangalore. April 2017.

Invited Talks

- **Data Science in Bioinformatics.** Women in Data Science (WiDS) Mysuru, India, Sep 2020.
- **Network Algorithms and their Applications in Biology.** Sanjay Ghodawat University, Kolhapur, India, Dec 2018.
- **Statistical Thinking in Biomedical Research.** KLE College of Pharmacy, Bangalore, India, Apr 2018.

Graduate Coursework

- PhD (IISc): Current Trends in Drug Discovery, Special Topics in Theoretical Biology.
- MSc (NUS): Advanced Combinatorial Methods in Bioinformatics, Advanced Algorithms, Knowledge Discovery and Data Mining, Modeling and Analysis Techniques in Systems Biology, Advanced Topics in Data Mining.