Ashok Rajaraman

Experience

January 2016– **Postdoctoral Research Associate**, *Computational Biology Department, Carnegie Mellon University*.
Postdoctoral researcher working with Jian Ma.

May 2015– January 2015 **Postdoctoral Research Associate**, *College of Engineering, University of Illinois at Urbana-Champaign*.
Postdoctoral researcher working with Jian Ma.

January 2011– August 2012 **Research Assistant**, *Department of Mathematics, Simon Fraser University*.
Research on combinatorial models in genomics and phylogenetics with Cédric Chauve.

Education

2015 **Doctor of Philosophy**, *Department of Mathematics, Simon Fraser University*, Burnaby, British Columbia.

Supervisor Cédric Chauve

Thesis title *Variants of the Consecutive Ones Property: Algorithms, Computational Complexity and Applications in Genomics.*

2011 **Master of Science**, *Department of Mathematics, Simon Fraser University*, Burnaby, British Columbia.

2009 **Bachelor of Technology**, *Department of Metallurgical and Materials Engineering, Indian Institute of Technology*, Roorkee, Uttarakhand, India.

Publications

2016 Rajaraman, A. and Ma, J. Reconstructing ancestral gene orders with duplications guided by synteny level genome reconstruction. *BMC Bioinformatics*, 17(14):201–212, 2016. ISSN 1471-2105.

Rajaraman, A., Zanetti, J.P.P., Maňuch, J., and Chauve, C. Algorithms and complexity results for genome mapping problems. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, PP(99):1–1, 2016. ISSN 1545-5963.

2015 Neafsey, D.E., Waterhouse, R.M. et al. Highly evolvable malaria vectors: The genomes of 16 anopheles mosquitoes. *Science*, 347(6217), 2015.

Rajaraman, A., Chauve, C., and Ponty, Y. Assessing the robustness of parsimonious predictions for gene neighborhoods from reconciled phylogenies. In *Bioinformatics Research and Applications - 11th International Symposium, ISBRA 2015, Norfolk, VA, USA, June 7-10, 2015 Proceedings*, pages 260–271. 2015.

+1 (217) 417 9746
ashok.rajaraman@gmail.com, ashokr@andrew.cmu.edu
ashokrajaraman.github.io • ashokrajaraman • ashokrajaraman

2013 Chauve, C., Patterson, M., and Rajaraman, A. Hypergraph covering problems motivated by genome assembly questions. In *Combinatorial Algorithms - 24th International Workshop, IWOCA 2013, Rouen, France, July 10-12, 2013, Revised Selected Papers*, pages 428–432. 2013.

Rajaraman, A., Tannier, E., and Chauve, C. FPSAC: Fast Phylogenetic Scaffolding of Ancient Contigs. *Bioinformatics*, 29(23):2987–2994, 2013.

Rajaraman, A., Tannier, E., and Chauve, C. The genome of the medieval Black Death agent, 2013.

2012 Jones, B.R., Rajaraman, A., Tannier, E., and Chauve, C. ANGES: Reconstructing ANcestral GEnomeS maps. *Bioinformatics*, 28(18):2388–2390, 2012.

Talks

2015 **International Symposium on Bioinformatics Research and Applications**, *Norfolk, Virginia*.
Assessing the robustness of parsimonious predictions for gene neighbourhoods from reconciled phylogenies.

PIMS Discrete Mathematics Seminar, Simon Fraser University, *Burnaby, British Columbia*.
Vertex ordering problems for hypergraphs: Connections to the consecutive ones property.

2014 **Centre for Systems Genomics, Pennsylvania State University**, *State College, Pennsylvania*.
A simple scaffolding pipeline, with application to ancient genomes.

2013 **PIMS IGTC in Mathematical Biology Summit**, *Banff, Alberta*.
Scaffolding the genome of the Black Death agent.

Workshops

2012 **ENUMEX**, *Bertinoro, Italy*.
School on enumeration algorithms and exact methods for exponential problems in computational biology.

2011 **IPAM Genomics Workshop**, *Los Angeles, California*.
Workshop on mathematical and computational approaches in evolutionary genomics.

Software Collaborations

- MultiRes: Software for inferring ancestral gene orders using extant gene and synteny orders.
- DeClone: Software for the prediction of ancestral adjacencies in reconciled gene trees, with Cédric Chauve, Yann Ponty and João Zanetti.
- FPSAC: Fast Phylogenetic Scaffolding of Ancient Contigs, with Cédric Chauve and Eric Tannier.
- ANGES: Reconstructing ANcestral GEnomeS maps, with Cédric Chauve, Bradley Jones and Eric Tannier.

Academic Honours

- Michael Stevenson Graduate Scholarship, awarded for 2014–2015.
- SFU President's PhD Scholarship, awarded for Spring 2014.
- PIMS International Graduate Training Centre Fellowship in Mathematical Biology, awarded for 2012–2014.
- Faculty of Science Graduate Fellowship, awarded for Summer 2010, 2012–2014.
- Travel and Minor Research Award, awarded for Fall 2011 and 2012.

Relevant skills

Experienced
- Python
- C++
- LaTeX

Used occasionally
- shell script
- MATLAB

Used sporadically
- perl
- R

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