

## EDUCATION

### SIMON FRASER UNIVERSITY

Doctorate in Mathematics

April 2015 | Burnaby, BC

Supervisor: Cedric Chauve

Thesis topic: *Algorithms and complexity results for variants of the consecutive ones property.*

### IIT ROORKEE

B.Tech in Metallurgical and Materials Engineering

June 2009 | Roorkee, Uttarakhand, India

## PROJECTS

MultiRes: 2016

DeClone: 2015

FPSAC: 2013

ANGES: 2012

## WORKSHOPS

PIMS IGTC Mathematical Biology Summit

November 2013 | Banff, Alberta

### ENUMEX

September 2012 | Bertinoro, Italy

IPAM Evolutionary Genomics

November 2011 | Los Angeles, CA

## AWARDS

Michael Stevenson Scholarship: 2014

SFU President's PhD Scholarship: 2014

PIMS IGTC Fellowship: 2012-2014

SFU Travel Awards: 2011, 2012

SFU Graduate Fellowship: 2010, 2012

## SKILLS

Programming:

(Most used first)

Python ■ C++ ■ shell ■ perl

Mathematical software:

MATLAB ■ R

Typesetting/markup:

L<sup>A</sup>T<sub>E</sub>X ■ HTML

## REFERENCES

On request

## EXPERIENCE

### CARNEGIE MELLON UNIVERSITY

Postdoctoral Research Associate, Computational Biology Department, School of Computer Science

January 2016 - | Pittsburgh, PA

### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Postdoctoral Research Associate, Department of Bioengineering, College of Engineering

May 2015 – December 2015 | Urbana, IL

Host: Jian Ma. Research on mathematical models in computational genomics.

## RESEARCH

### COMPUTATIONAL MODELS IN COMPARATIVE GENOMICS

- Developed techniques for integrated ancestral genome reconstruction at multiple resolutions.
- Developed a hypergraph model for genome mapping problems.
- Extended dynamic programming algorithms in phylogenetics.
- Devised approximations for generalized vertex ordering problems.

## PUBLICATIONS

Accept Rajaraman, A. and Ma, J. Towards recovering allele-specific cancer genome graphs. *Accepted for RECOMB 2017*,

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 neighbourhoods 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.

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. In *JOBIM 2013 (Extended abstract)*.

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