

# Vikram Saraph

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CONTACT INFORMATION	Brown University Box 1910 Providence, RI 02912	Email: vsaraph@cs.brown.edu Homepage: cs.brown.edu/~vsaraph
RESEARCH INTERESTS	Distributed computing, concurrent data structures, applied topology, blockchain technology, computational biology, complex networks, computability theory.	
EDUCATION	<b>Brown University</b> , Providence, RI  Ph.D., Computer Science, <i>Expected</i> : May 2019 <ul style="list-style-type: none"><li>• Advisor: Maurice Herlihy</li></ul> Sc.M., Computer Science, May 2015  M.A., Mathematics, <i>Expected</i> : May 2019  <b>University of Notre Dame</b> Notre Dame, IN  B.Sc., Computer Science and Honors Mathematics, May 2013 <ul style="list-style-type: none"><li>• <i>Magna Cum Laude</i></li><li>• Member of Engineering Honors Program</li><li>• Honors Thesis: <i>A Genetic Algorithm for Network Alignment</i></li><li>• Advisor: Tijana Milenković</li><li>• Member of Seminar for Undergraduate Mathematical Research (SUMR)</li><li>• Honors Thesis: <i>Index Sets of Computable Groups</i></li><li>• Advisor: Julia Knight</li></ul>	
CONFERENCE PUBLICATIONS	<ol style="list-style-type: none"><li>1. <b>Saraph, V</b>, Herlihy, M, and Gafni, E (2016), “Asynchronous Computability Theorems for t-Resilient Systems,” DISC 2016.</li><li>2. <b>Saraph, V</b> and Herlihy, M (2015), “The Relative Power of Composite Loop Agreement Tasks,” OPODIS 2015.</li></ol>	
JOURNAL PUBLICATIONS	<ol style="list-style-type: none"><li>1. Knight, J and <b>Saraph, V</b> (2017), “Scott Sentences for Certain Groups,” <i>Archive for Mathematical Logic</i> (issue and volume to be assigned).</li><li>2. Vijayan, V, <b>Saraph, V</b>, and Milenković, T (2015), “MAGNA++: Maximizing Accuracy in Global Network Alignment via both node and edge conservation,” <i>Bioinformatics</i> 31(14): 2409-2411.</li><li>3. <b>Saraph, V</b> and Milenković, T (2014), “MAGNA: Maximizing Accuracy in Global Network Alignment,” <i>Bioinformatics</i> 30(20): 2931-2940.</li></ol>	
UNDER REVIEW	<ol style="list-style-type: none"><li>1. Agarwal, A, Liu, Z, Rosenthal, E, and <b>Saraph, V</b> (2017), “Linearizable Iterators for Set Implementations,” submitted to OPODIS 2017, arXiv:1705.08885.</li><li>2. Saraph, V, Herlihy, M, and Gafni, E (2017), “An Algorithmic Approach to the Asynchronous Computability Theorem,” submitted to <i>Journal for Applied and Computational Topology</i>, arXiv:1703.08525.</li></ol>	

HONORS AND AWARDS	Brown University	
	<ul style="list-style-type: none"> <li>• <b>Honorable Mention, NSF Graduate Research Fellowship,</b> National Science Foundation</li> </ul>	2013-2014
	University of Notre Dame	
	<ul style="list-style-type: none"> <li>• <b>Senior G.E. Prize for Honors Mathematics Majors,</b> Department of Mathematics</li> </ul>	2012–2013
	<ul style="list-style-type: none"> <li>• <b>Robert P. Balles Honors Mathematics Scholar,</b> Department of Mathematics</li> </ul>	2012–2013
	<ul style="list-style-type: none"> <li>• <b>Upsilon Pi Epsilon Scholarship,</b> Upsilon Pi Epsilon</li> </ul>	2012–2013
	<ul style="list-style-type: none"> <li>• <b>NSF Scholarship,</b> Seminar for Undergraduate Mathematical Research</li> </ul>	2010–2013
RESEARCH EXPERIENCE	<b>Graduate Research Assistant</b>	Aug 2013 –
	Department of Computer Science, Brown University	
	<ul style="list-style-type: none"> <li>• Researching the computational power of certain fault-tolerant communication models by via methods from combinatorial topology.</li> <li>• Implementing nonblocking iterators for various concurrent data structures.</li> </ul>	
	<b>Research Assistant</b>	Jun–Aug 2012
	Department of Computer Science and Engineering, University of Notre Dame	
	<ul style="list-style-type: none"> <li>• Designed and implemented MAGNA, a genetic algorithm for network comparison. Software is publicly available and has been made open source.</li> <li>• Analyzed centrality measures of E. coli protein structure networks.</li> </ul>	
	<b>Research Assistant</b>	Jun–Aug 2011
	Department of Mathematics, University of California, Santa Barbara	
	<ul style="list-style-type: none"> <li>• Researched number-theoretic properties of generating subsets of <math>\mathbb{Z}_n</math>.</li> <li>• Programmed in MATLAB and C++ to gather empirical data.</li> </ul>	
CONFERENCES AND SEMINARS	<b>Conference Talks</b>	
	Symposium on Distributed Computing, Paris, France	Sept 2016
	<i>Asynchronous Computability Theorems for t-Resilient Systems</i>	
	Conference on Principles of Distributed Systems, Rennes, France	Dec 2015
	<i>The Relative Power of Composite Loop Agreement Tasks</i>	
	Young Mathematicians Conference, Columbus, OH	Aug 2011
	<i>On the Consecutive Attainable Orders of <math>\mathbb{Z}_n</math></i>	
	<b>Conference Posters</b>	
	Intelligent Systems for Molecular Biology, Boston, MA	July 2014
	<i>MAGNA: Maximizing Accuracy in Network Alignment</i>	
Joint Mathematics Meetings, Baltimore, MD	Jan 2014	
<i>Combinatorial Optimization in Network Alignment</i>		
Joint Mathematics Meetings, San Diego, CA	Jan 2013	
<i>On the Computability of Groups</i>		
<b>Graduate Seminars Attended</b>		
<ul style="list-style-type: none"> <li>• Geometry and Topology Seminar, Brown University</li> </ul>	December 8, 2014	
<ul style="list-style-type: none"> <li>• Midwest Computability Seminar, University of Chicago</li> </ul>	Nov 14, 2012	
<ul style="list-style-type: none"> <li>• MidWest Model Theory Day, University of Illinois–Chicago</li> </ul>	Oct 23, 2012	
<ul style="list-style-type: none"> <li>• Graduate Student Conference in Logic, University of Notre Dame</li> </ul>	Apr 28-29, 2012	

TEACHING EXPERIENCE	<b>Guest Lecturer</b>	
	<ul style="list-style-type: none"> <li>• Distributed Computing through Combinatorial Topology (CSCI 2951-S), Brown University, Spring 2016, two lectures.</li> <li>• Multiprocessor Synchronization (CSCI 1760), Brown University, Fall 2014, 2015, three lectures.</li> </ul>	
	<b>Teaching Assistant</b>	
	<ul style="list-style-type: none"> <li>• Multiprocessor Synchronization (CSCI 1760), Brown University, Fall 2014, 2015</li> <li>• Logic for Hackers (CSCI 1950-Y), Brown University, Spring 2014</li> <li>• Computer Architecture (CSE 30321), Notre Dame, Fall 2012</li> <li>• Honors Analysis (MATH 30850/60), Notre Dame, Fall 2011, Spring 2012</li> </ul>	
SUMMER SCHOOLS	Summer School on Formal Methods and Networks	Jun 10–14, 2013
	Department of Computer Science, Cornell University	
	Thematic Program on Motivic Invariants and Singularities	May 21–25, 2013
	Center for Mathematics, University of Notre Dame	
	Summer School in Logic	Jun 24–Jul 12, 2012
	Logic Center, University of California, Los Angeles	
	Thematic Program on Topology and Field Theories	May 21–26, 2012
	Center for Mathematics, University of Notre Dame	
	Differential Geometry and Abstract Algebra	Jun–Aug, 2010
	Notre Dame REU, University of Notre Dame	
WORK EXPERIENCE	<b>Computer Consultant</b>	Jul–Aug 2013
	Office of Information Technology, University of Notre Dame	
	<ul style="list-style-type: none"> <li>• Processed massive amounts of user account data, interfacing Python with a PostgreSQL database. Code used to tabulate activity over recent years.</li> </ul>	
	<b>Computer Consultant</b>	Jun 2009–May 2013
	Engineering and Science Computing, University of Notre Dame	
	<ul style="list-style-type: none"> <li>• Administered the engineering computer cluster.</li> <li>• Documented software installation and aided faculty with installations.</li> </ul>	
COMPUTING SKILLS	Programming:	
	<ul style="list-style-type: none"> <li>• Research: C/C++, Python, Java</li> <li>• From courses: MATLAB, PostgreSQL, Julia, Pyret</li> </ul>	
	Markup:	
	<ul style="list-style-type: none"> <li>• Advanced proficiency: <math>\LaTeX</math></li> <li>• Intermediate proficiency: HTML, CSS</li> </ul>	
SERVICE	<b>Referee</b>	
	Journal of Applied and Computational Topology	2016
	Bioinformatics	2016
	<b>Professional Membership</b>	
	International Society for Computational Biology	2014 – 2015
	Association for Symbolic Logic	2013 – 2015
Upsilon Pi Epsilon	2012 –	
	Invited to Tau Beta Pi	