



1. FORMAL EDUCATION

- ▷ Ph.D. in Computer Science from Stony Brook University. Aug 2011-Dec 2016
 - ◇ State University of New York. Stony Brook. New York. USA.
 - ◇ Thesis: Automatic Discovery of Efficient Divide-&-Conquer Algorithms for Dynamic Programming Problems.
 - ◇ Advisor: Rezaul Chowdhury
- ▷ B.E. in Computer Science from Sri Jayachamarajendra College of Engineering. Sep 2005-Jun 2009
 - ◇ SJCE. Visweshwaraiah Technological University. Belgaum. Karnataka. India.

2. ENTREPRENEURSHIP EXPERIENCE

- ▷ CEO at Learning is Beautiful. Aug 2017-Present
 - ◇ Created a proof-of-concept of a high-budget high-quality animated higher educational course.
 - ◇ SmartFifty top-3000 startup to transform India, by IIM Calcutta & Govt. of India. Feb 2018

3. RESEARCH EXPERIENCE

- ▷ Research Assistant at Stony Brook University. Apr 2012-Dec 2016
 - ◇ Doctoral advisor: Rezaul Chowdhury. Funded by NSF grants CCF-1162196, CCF-1439084, & CNS-1553510.
 - ◇ Designed algorithms/frameworks to automatically/semi-automatically discover efficient DP algorithms.
 - ◇ Discovered 40+ algorithms. Coauthored 11+ published papers in top conferences/journals.
 - ◇ Specialties: Algorithms. Computer-Discovered-Algorithms. Data Structures. Automation. Dynamic Programming. Divide-and-Conquer. Parallel Algorithms. Cache-Efficient Algorithms.

4. SOFTWARE EXPERIENCE

- ▷ Software Engineer at IBM India Software Labs. Jul 2009-Jul 2011
 - ◇ Product - WebSphere Message Queue (WMQ) 7.1 .NET Clients.
 - ◇ Involved in the test development of the three important features:
 - Client channel weights. A small feature that enables the client to choose a particular channel to connect to a server among many channels depending on the weights assigned on the channels. 30+ test cases.
 - Client auto-reconnect. A huge feature that enables the client to reconnect to a server automatically when the connection gets broken. 200+ test cases.
 - Distributed transactions. A huge feature that enables the transactions involving WMQ, SQL, and others to either commit or rollback depending on the transaction's success or failure, respectively. 200+ test cases.

5. TEACHING EXPERIENCE

- ▷ Teaching Assistant at Stony Brook University. Aug 2011-Jun 2012
 - ◇ Involved in taking recitation classes, grading, holding office hours, and problem-solving for the following.
 - CSE 150: Foundations of computer science (Honors) - Assisted Leo Bachmair. Fall 2011
 - CSE 303: Theory of computation - Assisted Ker-I Ko. Fall 2011
 - CSE 160: Computer science A (Honors) - Assisted Eugene Stark. Spring 2012
 - CSE 350: Theory of computation (Honors) - Assisted Leo Bachmair. Spring 2012
- ▷ Founder & President of Stony Brook Puzzle Society. Aug 2013-Jun 2016
 - ◇ Conducted weekly sessions on algorithmic, mathematical, and logic puzzles.

6. SELECTED RESEARCH PUBLICATIONS

In mathematics and theoretical computer science, we often follow the convention of listing authors in alphabetical order of last names.

- ▷ **AUTOGEN**: Automatic discovery of cache-oblivious parallel recursive algorithms for solving dynamic programs. 2017
 - ◇ Transactions on Parallel Computing (TOPC) journal. Invited for PPOPP special issue.
 - ◇ with Rezaul Chowdhury, Jesmin Jahan Tithi, Stephen Tschudi, Charles Bachmeier, Bradley Kuszmaul, Charles E. Leiserson, Armando Solar-Lezama, & Yuan Tang
- ▷ **Provably efficient scheduling of cache-oblivious wavefront algorithms**. 2017
 - ◇ 29th ACM Symposium on parallelism in algorithms and architectures (SPAA). Washington DC. USA.

- ◇ with Rezaul Chowdhury, Yuan Tang, & Jesmin Jahan Tithi.
- ▷ **AUTOGEN: Automatic discovery of cache-oblivious parallel recursive algorithms for solving dynamic programs.** 2016
 - ◇ 20th Symposium on principles and practice of parallel programming (PPoPP). Barcelona. Spain.
 - ◇ with Rezaul Chowdhury, Jesmin Jahan Tithi, Charles Bachmeier, Bradley Kuszmaul, Charles E. Leiserson, Armando Solar-Lezama, & Yuan Tang
- ▷ **The range 1 query (R1Q) problem.** 2016
 - ◇ Theoretical computer science (TCS) journal. Invited for COCOON special issue.
 - ◇ with Michael A. Bender, Rezaul Chowdhury, Samuel McCauley, & Yuan Tang.
- ▷ **An efficient cache-oblivious parallel Viterbi algorithm.** 2016
 - ◇ 22nd International European conference on parallel and distributed computing (Euro-Par). Grenoble. France.
 - ◇ with Rezaul Chowdhury, Vivek Pradhan, Jesmin Jahan Tithi, & Yunpeng Xiao.
- ▷ **The I/O complexity of computing prime tables.** 2016
 - ◇ 12th Latin American theoretical informatics symposium (LATIN). Ensenada. Mexico.
 - ◇ with Michael A. Bender, Rezaul Chowdhury, Alex Conway, Martin Farach-Colton, Rob Johnson, Samuel McCauley, Bertrand Simon, & Shikha Singh.
- ▷ **A framework for designing external-memory GPU algorithms for dynamic programs** Under review
 - ◇ with Rezaul Chowdhury, Rathish Das, Mohammad Mahdi Javanmard, & Stephen Tschudi.
- ▷ **A framework to discover combinatorial algorithms.** Technical report
 - ◇ with Rama Badrinath & Abhiram Natarajan.
- ▷ **Premtuatoints & PAttERns.** Technical report
 - ◇ with Rezaul Chowdhury.
- ▷ **Divide-and-conquer variants of bubble, selection, and insertion sorts.** Technical report
 - ◇ with Rezaul Chowdhury.
- ▷ **Space-parallelism tradeoff for divide-and-conquer algorithms.** Under preparation
 - ◇ with Rezaul Chowdhury, Rathish Das, Mohammad Mahdi Javanmard, Isha Khanna, & Premadurga Kolli.
- ▷ **Cache-oblivious wavefront: Improving parallelism of recursive dynamic programming algorithms without losing cache-efficiency.** 2015
 - ◇ 19th Symposium on principles and practice of parallel programming (PPoPP). San Francisco. USA.
 - ◇ with Yuan Tang, Ronghui You, Haibin Kan, Jesmin Jahan Tithi, & Rezaul Chowdhury
- ▷ **High-performance energy-efficient recursive dynamic programming with MM-like flexible kernels.** 2015
 - ◇ 29th IEEE International parallel and distributed processing symposium (IPDPS). Hyderabad. India.
 - ◇ with Jesmin Jahan Tithi, Aakrati Talati, Sonal Aggarwal, & Rezaul Chowdhury
- ▷ **The range 1 query (R1Q) problem.** 2014
 - ◇ 20th International computing and combinatorics conference (COCOON). Atlanta. Georgia.
 - ◇ with Michael A. Bender, Rezaul Chowdhury, Samuel McCauley, & Yuan Tang.
- ▷ **An efficient & preventive method to solve broken links problem for internal links.** ip.com. IBM. 2011
 - ◇ with Pradeep S. Bhat.
- ▷ **A face's parent/offspring determination using geometric features and PCA.** 2009
 - ◇ International conference on signal & image processing (ICSIP). Mysuru.
 - ◇ with C. N. Ravi Kumar & Anil Kumar.

7. PATENTS

- ▷ **Balancing the loads of servers in a server farm based on an angle between two vectors.** 2014
 - IBM. Publication no. US8676983 B2.
 - ◇ with Darshan S. Palasamudram.
 - ◇ Developed an algorithm to load balance the client requests on servers with different capacities.

8. ACADEMIC PROJECTS

- ▷ **Bayesian face revisited: A joint formulation.** 2012
 - ◇ Implemented three algorithms from a research paper to check if two images are of the same person. Matlab.
- ▷ **Image deformation using moving least squares.** 2012
 - ◇ Implemented a research paper using Moving Least Squares. C++. Matlab. OpenGL.
- ▷ **N-grams.** Developed an algorithm to reconstruct chunks of a book from a multiset of n -grams. C++. 2011
- ▷ **A face's parent/offspring determination using geometric features & PCA.** 2008-09
 - ◇ Discovered an algorithm for identifying offspring from a dataset. Matlab.
- ▷ **Optical character recognition.** Implemented algorithms for recognizing Malayalam characters. C++. 2008

9. TECHNICAL SKILLS

- ▷ Software & technologies. Matlab. \LaTeX .
- ▷ Programming languages. Basic: C. C++.

10. BOOKS

- ▷ *Thrill & Joy*. A book on classic mathematical puzzles and solutions. Under preparation. 2011-Present

11. TALKS

- ▷ Provably efficient scheduling of cache-oblivious wavefront algorithms.
 - ◊ Indian Institute of Science (IISc). Bengaluru. India. 2017
 - ◊ Indian Institute of Technology (IIT). Chennai. India. 2017
- ▷ An efficient cache-oblivious parallel Viterbi algorithm.
 - ◊ 22nd Euro-Par. Grenoble. France. 2016
- ▷ AUTOGEN: Automatic discovery of cache-oblivious parallel recursive algorithms to solve dynamic programs.
 - ◊ 20th PPOPP. Barcelona. Spain. 2016
 - ◊ Indian Institute of Technology (IIT). Chennai. India. 2016
 - ◊ Institute of Advanced Computational Science (IACS). Stony Brook. USA. 2016
 - ◊ Algorithms seminar. Stony Brook. USA. 2016
 - ◊ Indian Institute of Science (IISc). Bengaluru. India. 2015
- ▷ The range 1 query (R1Q) problem.
 - ◊ 20th COCOON. Georgia State University. Atlanta. USA. 2014
 - ◊ 22nd FWCG. University of Maryland. Maryland. USA. 2012
- ▷ An algorithm to generate permutations using rotations. 2009
 - ◊ IEEE national-level fest - Cyberia. SJCE. Mysuru. India.
 - ◊ National-level competition - Anveeksha. St. Aloysius college. Mangalore. India.
 - ◊ State-level technical symposium - TechZone. JNNCE. Shimoga. India.
 - ◊ State-level competition. SDM CET. Dharwad. India.
 - ◊ State-level competition. BIT. Bengaluru. India.
- ▷ An algorithm to generate anagrams. IEEE national level fest - Cyberia. SJCE. Mysuru. India. 2008

12. AWARDS & ACHIEVEMENTS

- ▷ Selected (12 out of 20 dissertations) for Dissertation Showcase program at International Conference for High Performance Computing, Networking, Storage, and Analysis (SC). 2016
- ▷ IACS travel award. SC. 2016
- ▷ NSF travel award. 20th Symposium on principles & practice of parallel programming (PPOPP). 2016
- ▷ NSF/TCPP travel award. 29th Parallel & distributed processing symposium (IPDPS). 2015
- ▷ IACS young writer's award. For first publication. 2014
- ▷ ACM-SIGACT travel award. 46th Symposium on theory of computing (STOC). 2014
- ▷ ACM-SIAM travel award. 25th Symposium on discrete algorithms (SODA). 2014
- ▷ Best poster award for R1Q. Graduate research conference. Best out of 50+ posters. Stony Brook. 2013
- ▷ Special CS departmental fellowship, Stony Brook University. 2011-12
- ▷ State-level national talent search examination (NTSE) scholarship. Rank: 27/15000+. Karnataka. 2003-05

13. STUDENTS ADVISED

- ▷ Master's (for advanced projects): Matthew Fleishman, Nitish Garg, Anshul, Isha Khanna, Akhil Tiwari, Vivek Pradhan, Premadurga Kolli, & Yunpeng Xiao. 2014-16
- ▷ Undergrads: Stephen Tschudi & Charles Bachmeier. 2015-16

14. PROFESSIONAL SERVICE

- ▷ External reviewer. SPAA, WALCOM 2015. HiPC 2014. LATIN 2013.

15. REFERENCES

- ▷ [Rezaul Chowdhury](#). Associate Professor. CS Dept. Stony Brook University. USA. rezaul@cs.stonybrook.edu
- ▷ [Michael A. Bender](#). Professor. CS Dept. Stony Brook University. USA. bender@cs.stonybrook.edu
- ▷ [Joseph S. B. Mitchell](#). Professor. AMS Dept. Stony Brook University. USA. jsbm@ams.stonybrook.edu
- ▷ [Lohitashwa Thyagaraj](#). Architect. SIBus. IBM India Software Labs. India. lohitashwa@in.ibm.com