Ramesh Krishnan S. **Pallavoor**

PHD STUDENT

Department of Computer Science, Boston University

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Education

Boston University — *Boston, MA, USA*

PH.D. IN COMPUTER SCIENCE — *Sep. 2017 - PRESENT*

- **Advisor:** Dr. Sofya Raskhodnikova
- CGPA:3.98/4

The Pennsylvania State University (Penn State) — *University Park, PA, USA*

PH.D. CANDIDATE IN COMPUTER SCIENCE AND ENGINEERING (TRANSFERRED) — *Aug. 2014-Aug. 2017*

- **Advisor:** Dr. Sofya Raskhodnikova
- CGPA:3.82/4
- Transferred to Boston University in September 2017.

Indian Institute of Information Technology, Design and Manufacturing (IIITD&M), Kancheepuram — *Chennai, India*

B.TECH IN COMPUTER ENGINEERING — *Aug. 2010 - Jun. 2014*

- CGPA: 9.71/10 (First in the institute).
- Thesis: Search Perspective of Data Mining-Genetic Algorithms in Longest Frequent Itemset Mining.
- Thesis advisor: Dr. B. Sivaselvan.
- Recipient of the Institute's Best Project Award.

Research Interests

Sublinear Algorithms for Big Data, Differential Privacy, Machine Learning, Approximation Algorithms, Graph Algorithms.

Publications

Conference Papers

1. **Approximating the Distance to Monotonicity of Boolean Functions.**
   Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Erik Waingarten.
   To appear in ACM-SIAM Symposium on Discrete Algorithms (SODA), 2020.
2. **Optimal Unateness Testers for Real-Valued Functions: Adaptivity Helps.**
   Roksana Baleshzar, Deeparnab Chakrabarty, *Ramesh Krishnan S. Pallavoor*, Sofya Raskhodnikova, C. Seshadhri.
   International Colloquium on Automata, Languages, and Programming (ICALP), 5:1-5:14, 2017.
3. **Parameterized Property Testing of Functions.**
   Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Nithin Varma.
   Innovations in Theoretical Computer Science (ITCS), 12:1-12:17, 2017.

Journal Papers

1. **Optimal Unateness Testers for Real-Valued Functions: Adaptivity Helps.**
   Roksana Baleshzar, Deeparnab Chakrabarty, *Ramesh Krishnan S. Pallavoor*, Sofya Raskhodnikova, C. Seshadhri.
   Accepted, subject to revisions, to Theory of Computing (ToC).
2. **Parameterized Property Testing of Functions.**
   Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Nithin Varma.
   ACM Transactions on Computation Theory (TOCT), 9(4): 17:1-17:19, 2018.

Manuscripts

1. **A Lower Bound for Nonadaptive, One-Sided Error Testing of Unateness of Boolean Functions over the Hypercube**
   Roksana Baleshzar, Deeparnab Chakrabarty, *Ramesh Krishnan S. Pallavoor*, Sofya Raskhodnikova, C. Seshadhri.
   Electronic Colloquium on Computational Complexity (ECCC), 24:111, 2017.

Internships

Google *Sunnyvale, CA*

Software Engineering Intern *May 2019 - August 2019*

- Mentor: Dr. Chinmoy Mandayam
- Project: Improve Differential Privacy usability in Warp:Flow Language.

Simons Institute for Theory of Computing *Berkeley, CA*

Visiting Student Researcher *Jan 2019 - May 2019*

- Long term participant in Data Privacy: Foundations and Applications program.

Staples *Framingham, MA*

Data Science Engineer (Intern) *May 2018 - Aug. 2018*

- Worked with the Data Science team on some Optimization problems in Transportation.

Max Planck Institute for Informatics *Saarbrücken, Germany*

Research Intern, Department of Algorithms and Complexity *May 2013 - Jul. 2013*

- Supervisor: Dr. Jens M. Schmidt
- Worked on problems in vertex connectivity of Graphs.
- Funded under WISE (Working Internships in Science and Engineering) 2013 scholarship program of DAAD (German Academic Exchange Service).

Cavintek Pvt. Ltd. *Chennai, India*

Software Developer Intern *May 2012 - Aug. 2012*

- Developed an image processing application (in C++, using OpenCV libraries) that simulates trying on jewelry.

Notable Course Projects

Improving Real-Estate Price Predictions with Images *Boston University*

Course: Machine Learning *Oct. 2017-Dec. 2017*

- Instructor: Dr. Kate Saenko
- Team Size: 4
- Developed an image based house price estimation system, whose performance is close to that of the current systems used in industry.

Efficient Pattern Matching Incorporating Modifications in a Genome *Penn State*

Course: Algorithms and Data Structures in Bioinformatics *Jan. 2015-May 2015*

- Instructor: Dr. Paul Medvedev
- Team size: 2
- Developed an algorithm and an appropriate data structure to efficiently recompute pattern matchings when a genome is modified, using its old pattern matchings.

A Survey on Node Differential Privacy *Penn State*

Course: Data Privacy *Jan. 2015-May 2015*

- Instructor: Dr. Adam Smith
- Team size: 2
- Surveyed different works on node privacy in graphs, and proved the optimality of one of the works.

Computer Software and Skills

Proficient: C, C++, Python, MATLAB, R

Intermediate: Tensorflow library for Python, MySQL, Verilog, 8086 Assembly, Perl, OpenCV library for C++, Flask library for Python

Basic: PHP, HTML, Java, Javascript

Achievements

- Received conference travel grant to attend Computational Complexity Conference (CCC) 2017.
- Received *Best Project Award* from IIITD&M for B. Tech Thesis.
- Ranked 42 out of approximately 159000 applicants (99.97 percentile) in India in the Computer Science stream of Graduate Aptitude Test in Engineering(GATE) 2014.
- Part of the team classified in top 20 in MIMAMSA 2012, a science quiz conducted by IISER Pune, India.
- Secured ranks of 6523 in IIT-JEE and 5171 in AIEEE in 2010 (out of approximately 1 million applicants).

- Ranked second at Indian Cyber Olympiads in 2006 and 2007.

Conferences and Workshops

As a Presenter

- International Colloquium on Automata, Languages, and Programming (ICALP) 2017, Warsaw, Poland.
- Innovations in Theoretical Computer Science (ITCS) 2017, Berkeley, CA, USA.

As an Attendee

- Data Privacy: Foundations and Applications program (2019), Simons Institute, Berkeley, CA, USA
- Computational Complexity Conference (CCC) 2017, Latvia, Riga.
- Four Facets of Differential Privacy (2016), IAS, Princeton, NJ, USA.
- Swedish Summer School in Computer Science 2016, Stockholm, Sweden.
- DIMACS workshop on Big Data through the lens of Sublinear Algorithms 2015, New Brunswick, NJ, USA.
- MIT Sublinear Day 2015, Cambridge, MA, USA.
- IEEE Symposium on Foundations of Computer Science (FOCS) 2014, Philadelphia, PA, USA.
- National Workshop on Graph Colorings (NWGC-2013), Chennai, India.

As an External Reviewer

- RANDOM 2019, KDD 2019, ITCS 2019, FOCS 2017, STOC 2016, WABI 2015.

Teaching

Fall 2019	**Teaching Fellow**, Theory of Computation	*Boston University*
Fall 2018	**Teaching Fellow**, Theory of Computation	*Boston University*
Fall 2017	**Teaching Fellow**, Theory of Computation	*Boston University*
Spring 2017	**Teaching Assistant**, Data Stuctures and Algorithms	*Penn State*
Fall 2014	**Teaching Assistant**, Computer Organization and Design	*Penn State*

Graduate Coursework

Machine Learning, Adaptive Data Analysis, Approximation Algorithms, Probabilistic Algorithms, Graphs with Bounded Widths, Cryptography, Computational Complexity, Sublinear Algorithms, Mathematical Neuroscience, Operating Systems, Data Privacy, Quantum Computation, Algorithms and Data Structures in Bioinformatics, Design and Analysis of Algorithms, Introduction to Theory of Computation.