

Nithin Varma

Assistant Professor
Chennai Mathematical Institute
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My main areas of research are algorithms for massive datasets (sublinear algorithms, property testing), randomized algorithms, and approximation algorithms.

PROFESSIONAL EXPERIENCE

Assistant Professor

Chennai Mathematical Institute, India Fall 2021 - current

Postdoctoral Researcher

University of Haifa, Israel Fall 2019 - Spring 2021
Hosts: Dr. Ilan Newman and Dr. Noga Ron-Zewi

EDUCATION

Ph.D. in Computer Science

Boston University, USA Fall 2017 - Summer 2019
Pennsylvania State University, USA Fall 2014 - Summer 2017
Thesis Title: Massive Datasets with Missing Entries: Models and Algorithms
Advisor: Dr. Sofya Raskhodnikova

M.Sc. in Computer Science

TIFR Mumbai, India August 2011 - July 2014
Thesis Title: Small Stretch Pairwise Spanners and D-spanners.
Advisor: Dr. Kavitha Telikepalli

B.Tech. in Computer Science & Engineering (Gold Medal)

NIT Calicut, India July 2007 - June 2011
GPA : 9.44/10 (Ranked First in the Institute)
Thesis Title: A Study of Matching Problems in Graphs.
Advisor: Dr. K. Muralikrishnan

AWARDS

PBC Scholarship for Outstanding Chinese and Indian Postdoctoral Fellows	2019
BU CS Teaching Fellow Excellence Award	2019
Penn State College of Engineering Fellowship	2014-2017
Penn State University Graduate Fellowship	2014-2015
Recipient of Springer Studentship at ICALP	2013
Ranked 6th (top 0.001 percentile) in India in Computer Science GATE	2011
Recipient of Indian Academy of Sciences Summer Research Fellowship	2010

PUBLICATIONS AND MANUSCRIPTS

(All publications have the **authors listed in the alphabetical order on the last names as per the convention** in theoretical computer science.)

Sublinear-Time Computation in the Presence of Online Erasures.

Iden Kalemaj, Sofya Raskhodnikova, Nithin Varma.

ITCS 2022: 90:1-90:25.

Parameterized Convexity Testing.

Abhiruk Lahiri, Ilan Newman, Nithin Varma.
Accepted to SOSA 2022.

Erasure-Resilient Sublinear-Time Graph Algorithms.

Amit Levi, Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Nithin Varma.
Accepted to ACM Transactions on Computation Theory.

New Algorithms and Lower Bounds for LIS Estimation.

Ilan Newman, Nithin Varma.
ICALP 2021: 100:1-100:20.

Erasures vs. Errors in Local Decoding and Property Testing.

Sofya Raskhodnikova, Noga Ron-Zewi, Nithin Varma.
Random Structures and Algorithms, 59: 640–670, 2021.

Erasure-Resilient Sublinear-Time Graph Algorithms.

Amit Levi, Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Nithin Varma.
ITCS 2021: 80:1-80:20.

Query Complexity Lower Bounds for Local List-Decoding and Hard-Core Predicates (even for Small Rate and Huge Lists).

Noga Ron-Zewi, Ronen Shaltiel, Nithin Varma.
ITCS 2021: 33:1-33:18.

Average Sensitivity of Graph Algorithms.

Nithin Varma, Yuichi Yoshida.
SODA 2021: 684-703.

Bipartite Graphs of Small Readability.

Rayan Chikhi, Vladan Jovičić, Stefan Kratsch, Paul Medvedev, Martin Milanič, Sofya Raskhodnikova, Nithin Varma.
Elsevier *Theoretical Computer Science*, 806: 402-415, 2020.

Erasures vs. Errors in Local Decoding and Property Testing.

Sofya Raskhodnikova, Noga Ron-Zewi, Nithin Varma.
ITCS 2019: 63:1-63:21.

Brief Announcement: Erasure-Resilience versus Tolerance to Errors.

Sofya Raskhodnikova, Nithin Varma.
ICALP 2018: 111:1-111:3.

Bipartite Graphs of Small Readability.

Rayan Chikhi, Vladan Jovičić, Stefan Kratsch, Paul Medvedev, Martin Milanič, Sofya Raskhodnikova, Nithin Varma.
COCOON 2018: 467-479.

Invited to the special issue of Theoretical Computer Science.

Erasure-Resilient Property Testing.

Kashyap Dixit, Sofya Raskhodnikova, Abhradeep Thakurta, Nithin Varma.
SIAM *Journal on Computing*, 47(2):295–329, 2018.

Parameterized Function Property Testing.

Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Nithin Varma.
ACM Transactions of Computation Theory, 9(4): 17:1-17:19, 2018.

Parameterized Function Property Testing.

Ramesh Krishnan S. Pallavoor, Sofya Raskhodnikova, Nithin Varma.
ITCS 2017: 12:1-12:17.

Erasure-Resilient Property Testing.

Kashyap Dixit, Sofya Raskhodnikova, Abhradeep Thakurta, Nithin Varma.
ICALP 2016: 91:1-91:15.

Small Stretch Pairwise Spanners and Approximate D -preservers.

Telikepalli Kavitha and Nithin Varma.
SIAM Journal of Discrete Mathematics 29(4): 2239-2254, 2015.

Small Stretch Pairwise Spanners.

Telikepalli Kavitha, Nithin Varma.
ICALP (1) 2013: 601-612.

Rainbow Connection Number and Connected Dominating Sets.

L. Sunil Chandran, Anita Das, Deepak Rajendraprasad and Nithin Varma.
Journal of Graph Theory 71(2): 206-218, 2012.

TALKS AND POSTERS**Strongly Sublinear-Time Algorithms for Testing Pattern Freeness.**

Talks at (1) Theory Seminar at Rutgers & DIMACS, (2) Theory Seminar at CMI, India.

Concise communication: A computer science perspective.

Invited outreach talk at Raising a Mathematician Foundation, February 2022.

Erasure-Resilient Sublinear-Time Graph Algorithms.

Talks at (1) ITCS 2021, (2) Theory Seminar at Portland State University (3) Mondays with Marty (University of Haifa).

Query Complexity Lower Bounds for Local List-Decoding and Hard-Core Predicates (even for Small Rate and Huge Lists).

Talks at (1) ITCS 2021.

New Sublinear Algorithms and Lower Bounds for LIS Estimation.

Talks at (1) MIT Sublinear Algorithms Seminar, (2) BU CS Algorithms and Theory Seminar, (3) ICALP 2021.

Average Sensitivity of Graph Algorithms.

Talks at (1) Technion, Israel, (2) WoLA 2020, (3) SODA 2021, (4) HALG 2021.

Erasures vs. Errors in Local Decoding and Property Testing.

Talks at (1) John Hopkins University, Baltimore (2) Dartmouth College (3) UC Santa Cruz (4) ITCS 2019.

Poster at ITCS 2019.

Erasure-Resilience Versus Tolerance to Errors.

Brief announcement at ICALP 2018.

Bipartite Graphs of Small Readability.

Talk at (1) COCOON 2018.

Erasure-Resilient Property Testing.

Talks at (1) MSR India, (2) IISc, Bangalore, (3) HALG 2016, (4) ICALP 2016, (5) IBM Research, TJ Watson, (6) IIT Madras, India (7) University of Michigan, Ann Arbor, (8) Northeastern University, Boston, (9) MIT, Boston.

Posters at BU CS Day 2017, WoLa 2016, HALG 2016, MIT Sublinear Day 2015 and, DIMACS Big Data Workshop 2015.

Parameterized Property Testing.

Poster at BU CS Day 2017.

Small Stretch Pairwise Spanners.

Talks at (1) ICALP 2013, (2) TIFR Mumbai, and (3) Penn State University.

VISITS

National Institute of Informatics, Tokyo, Japan

Host: Dr. Yuichi Yoshida

Spring 2019

Max-Planck-Institut für Informatik, Saarbrücken

Summer 2013

Indian Institute of Science, Bangalore

Host: Dr. L. Sunil Chandran

Summer 2009, 2010

TEACHING

As instructor

Approximation Algorithms (co-taught with Pranabendu Mishra)

CMI, current

Algorithm Design (co-taught with Geevarghese Philip)

CMI, current

Algorithm Design (co-taught with Prajakta Nimbhorkar)

CMI, Sep-Dec 2021

Advanced Algorithms (co-taught with Prajakta Nimbhorkar)

CMI, Sep-Dec 2021

As teaching assistant

CS 530 Advanced Algorithms

BU, Fall 2018

CS 537 Randomness in Computing

BU, Spring 2018

CSE 565 Design and Analysis of Algorithms

Penn State, Fall 2016

Guest lectures

CS 530 Advanced Algorithms

BU, Fall 2018

CS 537 Randomness in Computing

BU, Spring 2018

CSE 597 Approximation Algorithms

Penn State, Spring 2017

CSE 565 Design and Analysis of Algorithms

Penn State, Fall 2016

PROFESSIONAL SERVICE

External reviewer for ICALP 2022, ITCS 2022, FSTTCS 2021, SIAM Journal on Computing, ICLR 2021, SODA 2021, FOCS 2020, CCC 2020, STOC 2020, RANDOM 2019, ITCS 2019, RANDOM 2018, FOCS 2017, ICALP 2017, ITCS 2016, STOC 2015, CALDAM 2015, APPROX 2014, ALENEX 2013, COCOON 2012.

Student organizer of the Algorithms and Theory Seminar at the Department of Computer Science, Boston University for Fall 2017.

Student volunteer at the First EECS PSU Summer Camp: Girls Solving Societal Problems Through Computer Science 2017.