

Subhasree Patro



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Links: [Website](#), [Google Scholar](#), [DBLP](#)

Most recent affiliations

Postdoc at Eindhoven University of Technology (TU/e) and CWI (August 2024 – present);
Will start a tenure track position at TU/e from January 2025

Postdoc at Utrecht University and CWI (April 2023 – July 2024)

Education

PhD in Computer Science at University of Amsterdam (October 2018 – December 2022)
Supervisors: Prof. Harry Buhrman and Dr. Florian Speelman

MS by Research in Computer Science at International Institute of Information Technology,
Hyderabad, India (2015 - 2018)
Supervisors: Dr. Indranil Chakrabarty and Dr. Kannan Srinathan

BTech in Computer Science at International Institute of Information Technology,
Hyderabad, India (2006 - 2010)

Publications

[Quantum Sabotage Complexity](#)

With Arjan Cornelissen and Nikhil S. Mande
Full version available on arXiv:2408.12595

[QSETH strikes again: Finer Quantum Lower Bounds for Lattice Problem, Strong Simulation, Hitting Set Problem, and more](#)

With Yanlin Chen, Yilei Chen, Rajendra Kumar and Florian Speelman
Full version available on arXiv:2309.16431

[Teleportation of Quantum Coherence](#)

With Sohail, Arun K Pati, Vijeth Aradhya and Indranil Chakrabarty
Published in Physical Review A 108, 2023

[Matching Triangles & Triangle Collection: Hardness based on a Weak Quantum Conjecture](#)

With Andris Ambainis, Harry Buhrman, Koen Leijnse, and Florian Speelman
Full version available on arXiv:2207.11068

[Memory Compression with Quantum Random-Access Gates](#)

With Harry Buhrman, Bruno Loff, and Florian Speelman
Appeared in the proceedings of TQC 2022

[Improved Quantum Query Upper Bounds based on Classical Decision Trees](#)

With Arjan Cornelissen and Nikhil S. Mande
Appeared in the proceedings of FSTTCS 2022
Appeared in the non-proceedings track of TQC 2022
Full version available on arXiv:2203.02968

[Fine-Grained Complexity via Quantum Walks](#)

With Harry Buhrman, Bruno Loff, and Florian Speelman
Appeared in non-proceedings of track of QIP 2022
Appeared in proceedings of ITCS 2022
Also appeared in non-proceedings track of TQC 2021

[A Framework of Quantum Strong Exponential-Time Hypotheses](#)

With Harry Buhrman and Florian Speelman
Appeared in the proceedings of STACS 2021
Also appeared in the non-proceedings track of TQC 2020

[Impossibility of Cloning of Quantum Coherence](#)

With Dhruvil Patel, Chiranjeevi Vanarasa, Indranil Chakrabarty, and Arun Kumar Pati
Published in Physical Review A 103, 2021

[Non-Negativity of Conditional von Neumann Entropy and Global Unitary Operations](#)

With Indranil Chakrabarty, Nirman Ganguly
Published in Physical Review A 96, 2017

[An Overview of Quantum Algorithms: Quantum Supremacy to Shor Factorization](#)

With Alvaro Piedrafita
Published in ISCAS 2020

Talks

Invited talk on Quantum Algorithms at European Quantum Technology Summer School at Strasbourg, France (2024)

Quantum Fine-Grained Complexity

- Invited talk at the DAMTP seminar at Cambridge University 2023
- Invited talk at Fine-Grained Cryptography Workshop at FSTTCS 2022
- Invited (virtual) talk at Quantum Innovators Workshop IQC 2022

Improved Quantum Query Upper Bounds on Classical Decision Trees

- Invited talk at European Quantum Software Institute (EQSI) on October 10, 2023
- At FSTTCS on December 20, 2022

Matching Triangles and Triangle Collection

- Invited talk at Hon-Hai Research Institute on October 7, 2022

Memory Compression with Quantum Random-Access Gates

- Invited talk at IIIT-Hyderabad on August 4, 2022
- At TQC in July 2022
- Invited (virtual) talk at Stanford University on May 26, 2022
- Invited talk at IRIF, Paris in April 2022

Fine-Grained Complexity via Quantum Walks

- At QIP on March 11, 2022
- At ITCS on January 31, 2022
- At TQC on June 29, 2021 ([youtube video](#))
- Invited (virtual) talk at IRIF, Paris on June 24, 2021 ([youtube video](#))
- Invited (virtual) talk at NUS, Singapore on August 30, 2021
- Invited (virtual) talk at University of Bristol on November 10, 2021

A Framework of Quantum Strong Exponential-Time Hypotheses

-At TQC on June 12, 2020 ([youtube video](#))

-At STACS on March 9, 2021 ([youtube video](#))

-Invited (virtual) talk at CQT, Singapore on February 2, 2021 ([youtube video](#))

-Invited (virtual) talk at QuSoft, CWI on Dec 21, 2020 ([youtube video](#))

-Invited talk at IIIT-Hyderabad, India on January 7, 2020

Quantum Fine-Grained Complexity (in layperson's terms)

-At the Scientific Meeting of CWI ([link to the video](#))

Quantum Walks and its Applications

-At IIIT Hyderabad, India on October 24, 2020 ([youtube video](#))

Non-Negativity of Conditional von Neumann Entropy and Global Unitary Operations

-Invited talk at QuSoft, CWI on November 2, 2018

Supervising Experience

Co-supervised masters project of Daan Schoneveld (2024)

Co-supervised masters project of Koen Leijnse (2022)

Co-supervised bachelors project of Daan Schoneveld (2022)

Teaching Experience

Teaching Assistant

Introduction to Quantum Computing at University of Amsterdam (2019)

Discrete Mathematics and Linear Algebra at IIIT Hyderabad, India (2016-2018)

Lecturer at the CS of Department of KIIT Bhubaneswar, India (2010-2011)

Taught C programming and Data Structures to first and second year Btech students

Work Experience

Build Engineer at Microsoft IDC (2012 - 2015)

System Center - Virtual Machine Manager Team: Responsibilities included Functional Testing and Unit Test Automation

WinSE Build and Packaging Team: Responsibilities included maintaining and optimizing the build and packaging automation for the updates to be shipped for Windows operating systems like Vista, Win7

Funding, Awards and Recognitions

Approved amount of 30000 euros from CWI to co-organize a summer workshop on Quantum Algorithms and Quantum Error Correction

Received child support from [WIQD](#) for a conference and a week-long research visit abroad

Received Pat-On-The-Back award from Microsoft, IDC in the first year of joining

Received highest feedback score as a lecturer in the Computer Science Department of KIIT

Secured an all India rank of 1301 in AIEEE'06 exam, an entrance test taken by about eight hundred thousand students all over the country

Qualified State Level Maths Olympiad in Grade 11, 2004, secured an all India rank of 42 in National Cyber Olympiad in Grade 10, 2003

Professional Service

Will serve on the program committee for QIP 2025

Served on the program committee for TQC 2024

Subreviewer for FOCS, STOC, MFCS, QIP, ITCS, TQC, ICALP, SOFSEM, ESA Algo, SODA, EPJ QT

Part of the [WIQD](#) organizing committee from January 2021 to October 2021

Co-organizer for QuSoft seminars from 2019 to 2021

References

Harry Buhrman
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University of Amsterdam
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Florian Speelman
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f.speelman@uva.nl

Bruno Loff
University of Porto
bruno.loff@gmail.com