Gorav Jindal

₩ Born 05.01.1986 in Sangrur, Punjab, India

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Profile

Experienced Research and Development professional with a strong background in theoretical computer science and mathematics, seeking a Professorship in "Theoretical Computer Science" at a reputable institution. Proven expertise in pioneering algorithms and leading development projects, with a focus on teaching and research in Theoretical Computer Science.

Education

PhD in Computer Science

i 01/2014 - 11/2019

i Saarland University, Saarbrücken, Germany

♀ Grade: Magna cum laude

Thesis: On Approximate Polynomial Identity Testing and Real Root Finding.

M.Sc. in Computer Science

iii 10/2011 - 11/2013

i Saarland University, Saarbrücken, Germany

Q GPA: 1.0/1.0

> Thesis: Randomness Efficient Testing of Sparse Black Box Polynomials and Related Tests.

> Recipient of the Günter-Hotz-Medaille, only awarded to the top 1-3 students per semester. B. Tech in Computer Science and Engineering

i 08/2004 - 08/2008

indian Institute of Technology Delhi, New Delhi, India

Q GPA: 7.044/10

> Thesis: Managing Secured Documents Over Long Periods.

Teaching Experience as Teaching Assistant

S-E4530 - Computational Complexity Theory at Aalto University

iii 01/2020-04/2020

S-E4530 - Computational Complexity Theory at Aalto University

iii 01/2019-04/2019

<u>♣□ Geometric Complexity Theory 2</u> at Saarland University

■ WS 2017-2018

Complexity Theory of Polynomial-Time Problems at Saarland University ് SS 2017 ് SS 2016

Algorithms and Data Structures at Saarland University

™ WS 2012-2013

Professional Experience

Researcher in Computer Science

iii 10/2022 - Present

m Max Planck Institute for Software Systems

Saarbrücken, Germany

- > Engaged in research on the renowned Skolem problem, notable for its practical applications in program termination analysis and probabilistic verification.
- > Demonstrated the #P-hardness of the counting version of the Skolem problem.

Researcher in Computer Science

iii 10/2020 - 09/2022

institut für Mathematik, Technische Universität Berlin

Berlin, Germany

- > Conducted research on the PosSLP problem, relevant to numerical algorithms and floating-point computations, resulting in a publication at SODA 2024.
- > Demonstrated leadership by supervising a student, leading to a publication in ISSAC 2023.

Researcher in Computer Science

11/2019 - 09/2020

1 Department of Computer Science, Aalto University

Sepoo, Finland

- > Developed the first polynomial time deterministic algorithm for rank approximation of matrices with polynomial entries, published at SODA 2019. Resolved a longstanding open problem on real roots of random sparse polynomials, leading to a publication at ISSAC 2020.
- > Used experimentation to propose conjectures, later substantiated through mathematical proofs.

Lisiting Doctoral Candidate in Computer Science

iii 09/2018 - 11/2019

1 Department of Computer Science, Aalto University

Sepoo, Finland

> Presented a class of simple but computationally intractable problems, published in ITCS 2019.

Doctoral Candidate in Computer Science

iii 01/2014 - 09/2018

m Max Planck Institut für Informatik

Saarbrücken, Germany

- > Developed the first polynomial time deterministic algorithm for approximating the rank of symbolic matrices, with practical applications in graph theory.
- > Designed the first polynomial time algorithm to compute the real roots of sparse polynomials.

Senior Software Developer in Electronic Design Automation (EDA)

iii 06/2008 - 10/2011

m Mentor Graphics, India (Now Siemens)

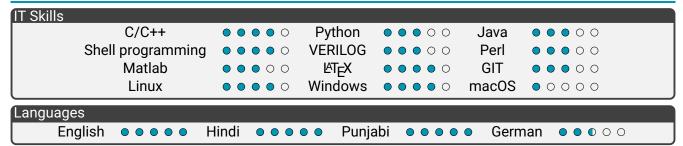
Noida, India

- > Developed key features of "Design for testing (DFT)" front end library in C++ on Linux.
- > Runner-up prize in C++ code contest during fresher training.
- > Optimized memory and time usage resulting in around 20% decrease in memory consumption.
- > Developed test framework for unit regression testing and memory profiling of DFT library.
- > Managed regression infrastructure for the library using shell scripting (bash, Perl, C-shell).

Selected Publications

- 1. Peter Bürgisser and Gorav Jindal. "On the Hardness of PosSLP". In: *Proceedings of the 2024 Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*.
- 2. Louis Gaillard and Gorav Jindal. On the Order of Power Series and the Sum of Square Roots Problem. In: *Proceedings of the 48th International Symposium on Symbolic and Algebraic Computation*. 2023.
- 3. Markus Bläser, Gorav Jindal, and Anurag Pandey. A Deterministic PTAS for the Commutative Rank of Matrix Spaces. In: *Theory of Computing*. 2018.

Skills



Interests

- > Algorithms: Data structurs, Approximation algorithms, efficient algorithms, algorithmic complexity
- > Mathematics: Discrete mathematics, number theory
- > Sports: Tennis, cricket, cycling (Completed a 200km ride in a single day)
- > Reading Books: Non-fiction, spirituality, philosophy

Referees

- > Markus Bläser (Professor) at Saarland University ☑ mblaeser@cs.uni-saarland.de
- > Joël Ouaknine (Scientific Director) at Max Planck Institute for Software Systems ☑ joel@mpi-sws.org
- > Peter Bürgisser (Professor) at Technische Universität Berlin ☑ pbuerg@math.tu-berlin.de
- > Parinya Chalermsook (Professor) at Aalto University D parinya.chalermsook@aalto.fi
- ➤ Christian Ikenmeyer (Professor) at *University of Warwick* ☑ christian.ikenmeyer@warwick.ac.uk
- ➤ Michael Sagraloff (Professor) at Hochschule Landshut ☑ michael.sagraloff@haw-landshut.de