









# 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


 <b>PhD in Computer Science</b>  Saarland University, Saarbrücken, Germany ➤ Thesis: <i>On Approximate Polynomial Identity Testing and Real Root Finding.</i>	 <b>01/2014 - 11/2019</b>  Grade: Magna cum laude
 <b>M.Sc. in Computer Science</b>  Saarland University, Saarbrücken, Germany ➤ Thesis: <i>Randomness Efficient Testing of Sparse Black Box Polynomials and Related Tests.</i> ➤ Recipient of the <i>Günter-Hotz-Medaille</i> , only awarded to the top 1-3 students per semester.	 <b>10/2011 - 11/2013</b>  GPA: 1.0/1.0
 <b>B. Tech in Computer Science and Engineering</b>  Indian Institute of Technology Delhi, New Delhi, India ➤ Thesis: <i>Managing Secured Documents Over Long Periods.</i>	 <b>08/2004 - 08/2008</b>  GPA: 7.044/10





## Teaching Experience as Teaching Assistant





 CS-E4530 - Computational Complexity Theory at Aalto University	 <b>01/2020-04/2020</b>
 CS-E4530 - Computational Complexity Theory at Aalto University	 <b>01/2019-04/2019</b>
 Geometric Complexity Theory 2 at Saarland University	 <b>WS 2017-2018</b>
 Introduction to Geometric Complexity Theory at Saarland University	 <b>SS 2017</b>
 Complexity Theory of Polynomial-Time Problems at Saarland University	 <b>SS 2016</b>
 Algorithms and Data Structures at Saarland University	 <b>WS 2012-2013</b>

## Professional Experience

 <b>Postdoctoral Researcher in Computer Science</b>  Max Planck Institute for Software Systems ➤ 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.	 <b>10/2022 - Present</b>  Saarbrücken, Germany
 <b>Postdoctoral Researcher in Computer Science</b>  Institut für Mathematik, Technische Universität Berlin ➤ 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.	 <b>10/2020 - 09/2022</b>  Berlin, Germany
 <b>Postdoctoral Researcher in Computer Science</b>  Department of Computer Science, Aalto University ➤ 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.	 <b>11/2019 - 09/2020</b>  Espoo, Finland

 Visiting Doctoral Candidate in Computer Science  09/2018 - 11/2019  
 Department of Computer Science, Aalto University  Espoo, Finland  
 > Presented a class of simple but computationally intractable problems, published in ITCS 2019.

 Doctoral Candidate in Computer Science  01/2014 - 09/2018  
 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)  06/2008 - 10/2011  
 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

IT Skills											
C/C++	● ● ● ● ○	Python	● ● ● ○ ○	Java	● ● ● ○ ○						
Shell programming	● ● ● ● ○	VERILOG	● ● ● ○ ○	Perl	● ● ● ○ ○						
Matlab	● ● ● ○ ○	L <sup>A</sup> T <sub>E</sub> X	● ● ● ● ○	GIT	● ● ● ○ ○						
Linux	● ● ● ● ○	Windows	● ● ● ● ○	macOS	● ○ ○ ○ ○						

Languages											
English	● ● ● ● ●	Hindi	● ● ● ● ●	Punjabi	● ● ● ● ●	German	● ● ● ○ ○				

### Interests

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