

# Akhil S

FARE Post-Doctoral Fellow  
Department of Computer Science and Engineering  
Indian Institute of Technology Kanpur  
Email : akhis@cse.iitk.ac.in akhilnair95@gmail.com  
Phone: +91 8921451351 DOB: 21-08-1995  
Homepage — DBLP

## Professional Experience

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**FARE Post-Doctoral Fellow** Nov 2025 – Present  
Indian Institute of Technology Kanpur

**Member Technical Staff** July 2017 – Feb 2019  
Oracle India Private Limited  
Worked on PAAS QA infrastructure projects. Technologies: Java, Linux

## Education

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**Ph.D., Computer Science and Engineering** Dec 2020 - April 2026  
Indian Institute of Technology Kanpur

**M.Tech., Computer Science and Engineering** July 2019 - Dec 2020  
CGPA: 8.3/10  
Indian Institute of Technology Kanpur

**B.Tech., Computer Science and Engineering** July 2013 - July 2017  
CGPA: 8.89/10  
National Institute of Technology Calicut

## Conference Publications

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1. Randomness Extraction Fails for Finite-State Dimension.  
(joint work with Subin Pulari)  
41st Annual Symposium on Logic in Computer Science (LICS 2026), Lisbon, Portugal (To Appear)
2. Point-to-set Principle and Constructive Dimension Faithfulness  
(joint work with Satyadev Nandakumar, Subin Pulari)  
49th International Symposium on Mathematical Foundations of Computer Science (MFCS) 2024, Bratislava, Slovakia
3. Effective Continued Fraction Dimension versus Effective Hausdorff Dimension of Reals  
(joint work with Satyadev Nandakumar, Prateek Vishnoi)  
48th International Symposium on Mathematical Foundations of Computer Science (MFCS) 2023, Bordeaux, France  
Journal: ACM Transactions on Computation Theory
4. Finite-State Relative Dimension, dimensions of A.P. subsequences and a finite-state van Lambalgen's theorem

(joint work with Satyadev Nandakumar, Subin Pulari)  
TAMC 2022, Tianjin, China  
Journal: Information and Computation, Volume 298, June 2024

## Journal Publications

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1. Effective Continued Fraction Dimension versus Effective Hausdorff Dimension of Reals  
(joint work with Satyadev Nandakumar, Prateek Vishnoi)  
ACM Transactions on Computation Theory (TOCT)
2. Finite-State Relative Dimension, dimensions of A.P. subsequences and a finite-state van Lambalgen's theorem  
(joint work with Satyadev Nandakumar, Subin Pulari)  
TAMC 2022, Tianjin, China  
Journal: Information and Computation, Volume 298, June 2024

## Preprints

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1. One-Way Functions and Polynomial-time Dimension  
(joint work with Satyadev Nandakumar, Subin Pulari, Suranjona Sarma)

## Research Interests

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- Algorithmic Information Theory
- Effective Fractal Dimension, Hausdorff Dimension
- Computational Complexity, Pseudorandomness
- Continued Fractions, Normal Numbers, Entropy

## Research Talks

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1. Resource-Bounded Kučera-Gács Theorems  
Computability, Complexity and Randomness (CCR 2025)  
LaBri, Bordeaux, France. June 2025.
2. One-way Functions and Polynomial-time Dimension  
Complexity Theory Update Meeting 2025  
IMSC, Chennai, India. January 2025.
3. Effective Continued Fraction Dimension versus Effective Hausdorff Dimension of Reals  
ACM India Annual Event (ARCS 2024)  
NISER Bhubaneswar, India. February 2024.

## Reports and Dissertations

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1. Information, Geometry and Cryptography : The Faithfulness of Constructive Dimension, and the Non-robustness of Polynomial-time Dimension.  
*PhD Thesis (IIT Kanpur)*  
Supervised by Prof. Satyadev Nandakumar and Prof. Sunil Simon.
2. Product Gales and Finite-state Dimension.  
*M.Tech. Thesis (IIT Kanpur)*  
Supervised by Prof. Satyadev Nandakumar and Prof. Sunil Simon.
3. Process and File Management in eXpOS kernel.  
*B.Tech Major Project (NIT Calicut)*  
Supervised by Prof. K. Murali Krishnan.

## Research Internships

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### Project Research Intern

May 2016 – July 2016

Indian Institute of Technology Bombay  
Rule-based Machine Translation (Anusaaraka) project.  
Guided by Prof. Ganesh Ramakrishnan

## Workshops Attended

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1. Complexity Theory Update Meeting 2025 and 2026  
IMSC, Chennai, India.
2. IMS Graduate Summer School in Logic 2024  
NUS, Singapore. 01 Jul 2024–19 Jul 2024.
3. Workshop on Spectral Methods in Algorithms  
FSTTCS 2023, IIIT Hyderabad. 21–22 December 2023.
4. IEEE Information Theory Society Summer School  
20–23 June 2022.

## Teaching Experience

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- Indian Institute of Technology Kanpur 2019–2025  
Graduate Teaching Assistantship, IIT Kanpur
  - Algorithmic Information Theory
  - Theory of Computation
  - Mathematics for Computer Science
  - Randomised Algorithms
  - Advanced Graph Algorithms
  - Advanced Data Structures and Algorithms
  - Parallel Algorithms
- NPTEL: Introduction to Programming in C 2023 – 2025  
Teaching Assistant to online course attended by over 10,000 students.

- National Institute of Technology Calicut  
Teaching Assistant, Operating Systems Laboratory 2017

## Honors and Awards

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- Oracle PAAS QA Award of Achievement (Rockstar) : April 2018
- Graduate Aptitude Test in Engineering (GATE) CSE 2018 : All India Rank of 105.
- Common Admission Test (CAT) 2018: Percentile of 93.54

## Certifications

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- Oracle Certified Associate, Java SE 8 Programmer (OCAJP) : August 2017

## Professional Services

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- Conference Referee : Computational Complexity Conference (CCC)
- Journal Referee : ACM Transactions on Computation Theory (TOCT)

## Other Services

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- Coordinator, Special Interest Group on Theoretical Aspects of Computer Science (SIGTACS), IIT Kanpur 2025 - Present
- Student Coordinator, Student Guidance Cell (SGC) NIT Calicut 2014- 2017

## References

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Available upon request.