# SHIV DUTT SHARMA

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## EDUCATION

**Chennai Mathematical Institute, Chennai**  *October 2020-August 2021*
Post-doctoral Fellow in Computer Science and Engineering
**Advisor** : Prof. Partha Mukhopadhyay

**Indian Institute of Technology, Gandhinagar**  *November 2020 (Defended)*
Doctor of Philosophy in Computer Science and Engineering  Overall CGPA: 8.66
**Advisor** : Prof. Bireswar Das
**Thesis** : Space Efficient Representations for Finite Groups

**National Institute of Technology, Hamirpur**  *July 2015*
Bachelor of Technology, Computer Science and Engineering  Overall CGPA: 8.1
**Advisor** : Prof. Madhu Kumari

## RESEARCH INTERESTS

Algorithms, Theoretical Computer Science, Computational Group Theory

## PUBLICATIONS

### Manuscripts

1. Nearly Optimal Space Efficient Algorithm for Depth First Search.
   Joint work with Jayesh Choudhari (University of Warwick) and Manoj Gupta (IIT Gandhinagar).

2. Dynamic Complexity of Group Problems.
   Joint work with Samir Datta (CMI), Asif Khan (CMI), Yadu Vasudev (IIT Madras), Shankar Ram Vasudevan (CMI).

3. On the Length and Neighborhood Constraint Path Problem in Graph Classes.
   Joint work with Susobhan Bandopadhyay (NISER), Suman Banerjee (IIT Jammu), Aritra Banik (NISER), Diptapriyo Majumdar (IIIT Delhi)

### Journal Papers

1. Bireswar Das and **Shivdutt Sharma**. Nearly linear time isomorphism algorithms for some non-abelian group classes. Invited and accepted for publication in the special issue of Theory of Computing Systems (TOCS).

2. Bireswar Das, **Shivdutt Sharma**, and P.R. Vaidyanathan. Space efficient representations of finite groups. Invited and accepted for publication in the special issue of Journal of Computer and System Sciences (JCSS).

### Conference Papers

1. Bireswar Das, Anant Kumar, Shivdutt Sharma, and Dhara Thakkar, Linear Space Data Structures for Finite Groups with Constant Query-Time. Accepted in Symposium on Theoretical Aspects of Computer Science, France, 2022.

2. Bireswar Das and **Shivdutt Sharma**. Nearly linear time isomorphism algorithms for some non-abelian group classes. In International Computer Science Symposium in Russia, pages 8092. Springer, 2019.

3. Bireswar Das, **Shivdutt Sharma**, and P.R. Vaidyanathan. Succinct representations of finite groups. In International Symposium on Fundamentals of Computation Theory, pages 229242. Springer, 2019. (Best Paper and Best Student Paper Award)

4. Bireswar Das, **Shivdutt Sharma**. Compact data structures for Dedekind groups and finite rings. Published in the International Conference and Workshop on Algorithms and Computation, Myanmar, 2021.

## ACADEMIC ACHIEVEMENTS

- Best student Paper and best paper Award, University of Copenhagen (FCT'19).
- ACM-India/IARCS Travel Grant in the year 2019.
- Start Early Fellow at IIT Gandhinagar from July 2015 - July 2019.
- All India Rank 142 in Joint Entrance Screening Test.
- Ranked 1st in 4th semester, overall rank in top five out of 95 students in B.Tech.
- Received merit certificates in the 10th and 12th class.
- Best Boy Award in the School.