Rishav Gupta

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Education

- **National University Of Singapore** — **Singapore**
  PhD, Computer Science — *2024 – Ongoing*
  Under Prof Divesh Aggarwal
- **Chennai Mathematical Institute** — **Chennai, Tamilnadu, India**
  B. Sc - Mathematics and Computer Science, CGPA-9.4 — *2021 – 2024*
- **BD. Public High School** — **Patna, Bihar, India**
  Higher Secondary (12^{th} Standard), 94.6% — *2019 – 2021*
- **St. Karen's High School** — **Patna, Bihar, India**
  Secondary (10^{th} Standard), 90% — *2006-2019*

Publications and Manuscripts

- **Mind the Gap? Not for SVP Hardness under ETH!** (arXiv)- Divesh Aggarwal, Rishav Gupta, Aditya Morolia

Projects

- **Computational Number Theroy and Algebra for Algebraic Comlexity Theory**
  Under Professor Nitin Saxena, IIT Kanpur during the winter break in Dec – Jan, 2022.
- **Finding p^{th} root of algebraic circuits in $\mathbb{F}^p$ in Algebraic Complexity Theory**
  Under Professor Nitin Saxena, IIT Kanpur during the summer break in May – July, 2023.
- **Approximation Algorithms for matchings and packings in planar graphs**
  Under Professor Samir Datta, CMI during the summer break in May – July, 2023.
- **Quantum Algorithms for Perfect Matching Sampler in Bipartite Graphs**
  Under Professor Yassine Hamoudi, Adrian Tanasa,LaBri,France in May 2024 – July 2024

Courses TAed

- Design and Analysis of Algorithms (Aug 2023 - Nov 2023) under Professor G.Phillip
- Optimisation Algorithms (Aug 2024 - Nov 2024) under Professor Divesh Aggarwal

Topics I Learned

- **Math (Bachelors):-**
  - **Semester 1**
    - Analysis on Real Line
    - Linear Algebra
  - **Semester 2**
    - Analysis on $\mathbb{R}^n$
    - Group Theory
    - Probability Theory
  - **Semester 3**
    - Ring Theory and Field Theory
    - Analysis on Metric Spaces and Fourier Series
    - Multivariable Calculus
  - **Semester 4**
    - Topology(General,Algebraic)
    - Differential Equations
    - Complex Analysis
  - **Semester 5**
    - Stochastic Processes
  - **Semester 6**
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- **CS (Bachelors):-**
  - **Semester 1**
    - Functional Programming in Haskell
  - **Semester 2**
    - Advanced Programming in Python
    - Discrete Mathematics
  - **Semester 3**
    - Theory of Computation
    - Design and Analysis of Algorithms

- **Semester 4**
  - Programming Language Concepts (OOP, Java , Lambda Calculus)
  - Complexity Theory
- **Semester 5**
  - Advanced Algorithms (Approximation , Randomized)
  - Quantum Algorithmatic Thinking
  - Fundamentals of Machine Learning
  - Parallel Algorithms
- **Semester 6**
  - Expander Graphs and its Applications
  - Combinatorial Optimization
  - Linear Programming

- **Additional Topics:-**
  - **CS**
    - Algebra and Computation
    - Algebraic Complexity Theory
    - Parametrized Algorithms
    - Lattices
    - Online Sublinear Algorithms
  - **Mathematics**
    - Graph Theory

Computer Skills

- **Programming Languages:** C , C++, Python, Haskell, Java
- **Technical Skills:** LaTeX, Shell Scripting, HTML, CSS, Markdown, Git, Basic works in terminal

Hobbies

- Drawing, Coding, Piano, Theming