# Anubhav Dhar

## IIT Kharagpur

*Curriculum Vitae*

Date of Birth : 28th November, 2001
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## Basic Information

- **Current Affiliation :** Indian Institute of Technology (IIT) Kharagpur
- **Department :** Computer Science and Engineering (CSE)
- **Enrolled Course :** 5-Year Integrated Bachelor and Master of Technology (2020-2025)

## Education

- **Integrated Bachelor and Master of Technology (Dual Degree)** *2020-2025*
  Computer Science and Engineering *Language of Instruction: English*
  *Indian Institute of Technology (IIT) Kharagpur*, Kharagpur, India
  Cumulative GPA (CGPA): **9.92/10** *Rank: **1** across all departments*
  **Prime Minister of India Gold Medalist, 2025**

- **Higher Secondary Education** *2018-2020*
  *Hijli High School*, Kharagpur, India *Language of Instruction: English*
  Percentage: **98.00%** *Rank: **1** in school, **10** in the state (West Bengal)*

- **Secondary Education** *2013-2018*
  *Hijli High School*, Kharagpur, India *Language of Instruction: English*
  Percentage: **95.71%** *Rank: **1** in school, **20** in the state (West Bengal)*

## Publications

- Anubhav Dhar, Soumita Hait, Sudeshna Kolay: **"Efficient Algorithms for Euclidean Steiner Minimal Tree on Near-Convex Terminal Sets"**. *The 34th International Symposium on Algorithms and Computation (ISAAC 2023)*, pp. 25:1–25:17.
  Link: https://doi.org/10.4230/LIPIcs.ISAAC.2023.25

- Anubhav Dhar, Eli Kujawa, Henrik Lievonen, Augusto Modanese, Mikail Muftuoglu, Jan Studený, Jukka Suomela: **"Local problems in trees across a wide range of distributed models"**. *The 28th International Conference on Principles of Distributed Systems (OPODIS 2024)*, pp: 27:1–27:17.
  Link: **https://doi.org/10.4230/LIPIcs.OPODIS.2024.27**

## Manuscripts

- Anubhav Dhar, Subham Ghosh, Sudeshna Kolay: **"Efficient Exact Algorithms for Minimum Covering of Orthogonal Polygons with Squares"**. *ArXiv Preprint – July 2024.*
  Link (arXiv): https://doi.org/10.48550/arXiv.2407.02658

- Palash Dey, Anubhav Dhar, Ashlesha Hota, Sudeshna Kolay: **"The Complexity of Minimum-Envy House Allocation Over Graphs"**. *ArXiv Preprint – May 2025.*
  Link (arXiv): https://doi.org/10.48550/arXiv.2505.00296

- Anubhav Dhar, Ashlesha Hota, Sudeshna Kolay, Pranav Nyati, Tanishq Prasad: **"Universal Solvability for Robot Motion Planning on Graphs"**. *ArXiv Preprint – June 2025.*
  Link (arXiv): https://doi.org/10.48550/arXiv.2506.18755

## Internships

- **Research Assistant**, Distributed Algorithms Group *May 2024 – July 2024*
  ***Aalto University*, Espoo, Finland** *Supervisor: Prof. Jukka Suomela*
  - Deduced the asymptotic equivalence in the locality of *locally checkable labeling* (LCL) problems on *rooted regular trees* for various classical and quantum variants of the LOCAL model of distributed computing.

- **Summer@EPFL Intern**, Processor Architecture Laboratory (LAP) *May 2023 – July 2023*
  ***EPFL*, Lausanne, Switzerland** *Supervisor: Prof. Paolo Ienne*
  - Investigated the opensource software *OpenFPGA* (used for designing, implementing and analyzing customizable *FPGA* architecture). Implemented support for *physical blocks* having arbitrary functionality, enabling the design of *Coarse Grain Reconfigurable Architecture*.

## Awards and Achievements

- **Academic:**
  - **Prime Minister of India Gold Medalist, 2025** for securing *rank* **1** *across all departments*
  - **Senior Scholar**, *Jagadish Bose National Science Talent Search (JBNSTS) scholarship, 2020*
  - *All India Rank* **489** in *JEE Advanced, 2020* amongst ∼150,000 *shortlisted candidates*
  - *All India Rank* **126** in *KVPY SA, 2018* amongst ∼100,000 candidates
  - *All India Rank* **381** in *KVPY SX, 2019* amongst ∼150,000 candidates
  - Rank **12** in *West Bengal Joint Entrance Examination 2020* amongst ∼120,000 candidates
  - Rank **10** in *Higher Secondary Examination, 2020*, amongst ∼760,000 candidates; *Felicitated* by the **Government of West Bengal** for this rank

- **Competitive Programming:**
  - **'Master'** at *Codeforces* (rating: **2189**) and **'6-star coder'** in *Codechef* (rating: **2218**)
  - **Regionalist** in *ICPC 2023*; rank **10** in *Amritapuri Regionals* and **7** in *Chennai Regionals*
  - **Regionalist** in *ICPC 2020*; rank **35** in *Amritapuri Regionals* and **80** in *Gwalior Regionals*
  - Secured **12th Position** in *ICPC 2023, Online Preliminary Round, India*
  - Secured **2nd Position** in *ICPC for Schools 2019, Amritapuri Regionals*
  - Qualified for **Round 3**, *Google Code Jam 2021*; *round 2* ranks: **418** (global), **5** (country)
  - Qualified for **Round 3**, *Google Code Jam 2022*; *round 2* ranks: **658** (global), **7** (country)
  - *Facebook Hackercup 2021*: round 2 global rank **395** (among 34584, advanced to **round 3**)
  - *Facebook Hackercup 2022*: round 2 global rank **749** (among 27604)
  - *Facebook Hackercup 2024*: round 2 global rank **929** (among 22494)
  - Best Global Ranks in **Google Kick Start** include **178** (*2022 Round C*, among 12425), **109** (*2021 Round A*, among 19841) and **325** (*2020 Round D*, among 11704)

- **Olympiads:**
  - Qualified **Indian National Olympiad in Informatics (INOI)** and selected for **International Olympiad in Informatics Training Camp (IOITC)** of India, in **2019** & **2020**
  - **Indian National Mathematics Olympiad (INMO) Merit Awardee** of the year **2019**
  - Qualified for the **Indian National Mathematics Olympiad (INMO)** in **2018, 2019** & **2020**
  - Qualified for the **Indian National Astronomy Olympiad (INAO)** in **2019** & **2020**
  - Qualified for the **Indian National Chemistry Olympiad (INChO)**, in **2020**
  - **Gold Medalist**, **Mathematics Olympiad 2024, General Championships**, *IIT Kharagpur*

## Coursework Information

- **Theoretical Computer Science:** Parameterized Algorithms, Advanced Graph Theory, Algorithmic Game Theory, Approximation & Online Algorithms, Computational Geometry, Randomized Algorithm Design, Selected Topics in Algorithms, Parallel Algorithms, Computational Number Theory, Algorithms-II, Formal Language & Automata Theory, Algorithms-I$^\star$, Discrete Structures, Foundations of Cryptography, Cryptographic Protocol Theory, Statistical Learning Theory, Cryptography & Network Security.
- **Mathematics:** Advanced Calculus, Linear Algebra, Numerical & Complex Analysis, Probability & Statistics, Operations Research.
- **Other courses in Computer Science:** Switching Circuits & Logic Design$^\star$, Compilers$^\star$, Machine Learning, Advanced Machine Learning, Artificial Intelligence, Systems Programming Laboratory, Computer Networks, Operating Systems$^\star$, Programming & Data Structures$^\star$, Computer Organisation & Architecture$^\star$, High Performance Computer Architecture, Software Engineering$^\star$.
- **Other courses:** Basic Electronics$^\star$, Signals & Systems, Physics of Waves$^\star$, Electrical Technology, DIY Laboratory, Science of Living Systems, Cell and Molecular Biology, Chemistry$^\star$, Economics, Engineering Drawing$^\star$, Basic Engineering Mechanics, Engineering Laboratory, Environmental Science, English for Communication$^\star$.

$^\star$ *marked courses include laboratory component as well*

## Other Activities, Academic Duties & Positions of Responsibility held

- **Teaching Assistant**, *Approximation Algorithms*, NPTEL, Autumn 2024
- **Teaching Assistant**, *Statistical Learning Theory*, CSE, IIT Kharagpur, Autumn 2024
- **Teaching Assistant**, *Foundations of Cryptography*, CSE, IIT Kharagpur, Spring 2025
- **Reviewer**, *Computational Geometry: Theory and Applications* (Journal)
- **Selected Representative** of *IIT Kharagpur* in *Sakura Science Exchange Program*, *Japan, 2024*
- **Author** and **Editorialist**, *Codeforces Round #819 (Div-1 + Div-2)*, *September 6, 2022*
- **Lecturer**, *Competitive Programming Workshop*, *IIT Kharagpur* in *2022 & 2023*
- **Tech Lead**, *Codeclub*, *Departmental Society, CSE, IIT Kharagpur*
- **Governor**, *Grimoire of Code*, *Official Competitive Programming Society, IIT Kharagpur*
- **Captain, Maths Olympiad**, *Lal Bahadur Shastri Hall of Residence, IIT Kharagpur.*
- **Associate Member**, *Chess Club*, *IIT Kharagpur*
- **Volunteer**, *National Service Scheme (NSS)* for social service, *IIT Kharagpur*