ABHISHEK MISHRA

Kolkata, West Bengal, 741246 ■ 7735185022 ■ abhisheksoloabh@gmail.com ■

ABOUT ME

I am a human being who cannot solve Captcha most of the time. Presently, I am working on quantum information,especially in Quantum Error correction and Cryptography. Since 6th grade, I have had a deep love for both computer science and physics which, motivated me to pursue quantum information as my research field. The discussion with the research group at ISI and colleagues keeps me motivated. These days I am occupied with research projects at IISER and ISI Kolkata. In my free time, I gym or goof around with my incredible friends or can be seen doing various geek stuffs like programming low-level systems or doing app development, learning and testing network protocols (yes, I have had some success), or developing blockchain contracts. I am interested in reliable and safe quantum communication. I am happy to see how I can contribute professionally to this blooming field by doing what I have always loved to do.

EDUCATION

BS-MS: Physics, **Expected in 06/2022**
Indian Institute of Science Education and Research - Kalyani, West Bengal
Apart from basic undergraduate courses, I have taken courses in **Quantum Information Processing, Atomic and optical Physics, Computational Physics, Advanced QM and Quantum Field Theory(I & II)**.

12th Grade: Science, **08/2017**
D.A.V Chandrasekharpur - Bhubaneshwar
93.6% aggregate with more than 95% in PCM.

WORK HISTORY

RESEARCH INTERN 05/2019 to 07/2019
IIIT Hyderabad, Hyderabad,Telangana, India

Study of Mesoscopic systems using stochastic thermodynamics
Done under **Dr. Prabhakar Bhimlapuram IIIT Hyderabad**.
Modeled stochastic systems at mesoscopic level using Langevin dynamics.Studied various stochastic models and thermodynamics properties of mesoscopic systems using Markov chain.

RESEARCH INTERN 05/2018 to 07/2018
IIT Kharagpur, Kharagpur, India

Study of Nano-scale properties of Gold-Colloid
Done under **Prof. Anushree Roy, IIT Kharagpur.**
Studied colloid growth using protein folding models. Learned about Surface Plasmon Resonance and Raman Spectroscopy. Analyzed growth patterns for fractal parameters using ImageJ.

QIP PROJECTS

MASTER THESIS IN QUANTUM INFORMATION:
Doing Under Prof. Guruprasad Kar. I analyzed the security proof of BB84 protocol by Shor and Preskill and have proved their arguments in a more simpler way than what I found in current literature. I will extend it to security proofs of other Quantum Cryptography protocols and look more into the connection between Cryptography and Error Correction.

INDEPENDENT STUDY IN QUANTUM OPTICS:
Done Under Prof. Chiranjib Mitra. Here I studied about Universal Quantum Computation using Continuous Variables after a background study in Quantum Optics and Open Quantum Systems.

PROJECT IN QUANTUM CRYPTOGRAPHY:
Doing Under Dr. Ramij Rahaman. I am studying about Device Independent Cryptography and Random Number Generator. Violation of Bell Inequalities is a sign of Quantum Randomness which is intrinsic unlike classical randomness which arises from lack of knowledge.

PROJECT IN QUANTUM COMPUTING:
Started under Prof. Chiranjib Mitra. I will study about microwave squeezing and its applications to Quantum Computation .

SKILLS

C
Python
Matlab
Mathematica
Machine Learning
Computational Physics
Java
Javascript
Origin Software
ImageJ
Full-stack App Development
Blockchain

LANGUAGES

Odia: Native language
Hindi: Full professional
English:
C1
Advanced