

# Harshit Garg

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## Education

- 2018–Present **B.E. Computer Science.**  
BITS Pilani Pilani Campus, India  
8.16 / 10 (4 semesters)
- 2017–2018 **Senior Secondary School, CBSE.**  
DAV Public School Pushpanjali, Delhi  
94.4%

## Experience

- May'20– **Intern, UST Global, Trivandrum.**  
Jun'20
- Worked with a team of 4 to study "quantum-safe" protocols including liboqs for openssh, openssl, etc., and Hybrid key-exchange in TLS1.3 and prepared a report.
  - Implemented Quantum Image Encryption for medical imagery in qiskit. Uses NEQR, Image Scrambling, and 2-D logistic sine-map.

## Projects

- July'20– **Sustainable network model for information communication.**  
Present
- Advisor: *Prof. Amit Dua, CSIS BITS Pilani*
- Developing a model for machine-to-machine communications using energy harvesting techniques, and edge computing, with machine learning to optimize the energy losses.
  - Currently reviewing literature relating use of edge computing and energy harvesting for IoT devices.
- Apr'20– **AFORT - Attack Tree Repository.**  
May'20
- Advisor: *Prof. Rajesh Kumar, CSIS BITS Pilani*
- Repository of attack trees and attack defense trees.
  - Developed a website with PythonAnywhere from scratch using Flask, MySQL, Bootstrap, and JS.

## Technical Skills

- Programming Languages C/C++, Python, HTML/CSS, Javascript
- Quantum Tools Qiskit, Q#, PennyLane, Strawberry Fields

## Coursework

- Computer Science Data Structures & Algorithms, Object Oriented Programming, Discrete Mathematics, Machine Learning
- Physics Quantum Information & Computation
- Mathematics Linear Algebra, Probability & Statistics, Differential Calculus

## Certificates and Workshops

- Jul'20 – **Cornerstone Models of Quantum Computing** Selected to attend a 4-week remote workshop organized by TRIUMF and University of British Columbia alongside 60 other graduate/PhD candidates. Worked with **PennyLane**, **Strawberry Fields**, D-Wave **Quantum Annealing** systems, and Xanadu's **Quantum Photonics**.
- Aug'20

- Jul'20 **Qiskit Global Summer School** Attended remote summer school organized by IBM. Learnt about Quantum Error Correction, Variation Quantum Eigensolvers (VQE), and Superconducting qubits. Final project to solve for minimum energy state of LiH molecule using VQEs.
- Jul'20 **SPCOM IISc Bangalore** A 4-day remote workshop with talks on Quantum Error Correction, Quantum Networks, and Quantum Algorithms.

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## Extra-Curricular Activities

- Aug'20 – **Vice-President**, MATRIX, *Literature and Cinema Society*.
- Present
- A community of 30-35 film and literature enthusiasts (and geeks).
  - Conducted directed discussions on philosophy, writing, art and current affairs, organised presentations and introductions of books, movies etc.
- Dec'19 – **Member**, Srishtaara, *Makerspace at BITS Pilani*.
- Present
- Working with a team of 25 to establish India's first makerspace in a library.
  - Responsible for editing videos for the club, and managing projects, amongst various other activities.