

# MELVIN THOMAS VARGHESE

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Perumbavoor, Kerala, India,  
PIN: 683545

## EDUCATION

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### **Bachelor of Technology**

Aug 2016 – Sep 2020

Govt. Engineering College Thrissur, Electrical Engineering

- GPA: 8.33/10
- Relevant courses: Linear Algebra, Engineering Physics, Power Electronics
- Final Project: Mobile Low-frequency sound Fire-extinguisher

### **Higher Secondary Education**

June 2014 – March 2016

Devamatha CMI Public School, Computer Science

- Marks obtained - 94.4%

## WORK EXPERIENCE

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### **TCS –Research(Incubation)– Quantum Software developer**

Jan 2021 - Present

- Building quantum optimization tools for industry
- Quantum machine learning research

### **Artificial Brain Technologies – Intern**

Feb 2021 – June 2021

- Developing universal programming library accommodating multiple quantum languages

## RESEARCH EXPERIENCE

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### **Solving VRP using QAOA algorithm**

July 2021 – October 2021

Advisor: Prof. Pawel Gora

Organization: QWorld

- Introducing penalty hamiltonians to discard infeasible solutions
- Implementing warm-start QAOA to solve problem efficiently

## RESEARCH INTERESTS

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Quantum Optimization, Quantum Error-correction, Quantum Algorithms, Artificial Intelligence, Superconducting Qubits, Quantum Machine Learning

## CERTIFICATIONS

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### **QTM2x: The Hardware of a Quantum Computer**

DelftX, TU-Delft - 2020

Description: A comprehensive course on realizing different types of qubits such as superconducting qubits, topological qubits etc.

Link: <https://courses.edx.org/certificates/10d88596deaa432a8cdc0e182b61a291>

### **QTM3x: Architecture, Algorithms and Protocols of Quantum Computers Internet**

DelftX, TU-Delft - 2020

Description: Extensively covering micro-architecture of quantum computers, multiple quantum algorithms, methods for quantum error correction and protocols of quantum internet

Link: <https://credentials.edx.org/credentials/7d784f247c5f4e278a71a212eeda9a1f/>

### **IBM Quantum Challenge 2021**

IBM Quantum

Description: Week-long quantum challenge, involving implementation of algorithms such as Shor's algorithm, simulation of LiH molecules using VQE.

Link: [IBM Quantum Challenge 2021 Achievement - Advanced - Credly](#)

## HONORS AND AWARDS

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**QWorld Diploma**

2021

**University Chess Champion**

2018-2020

## VOLUNTEER WORK

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### **Damage assessment in aftermath of 2018 Kerala floods**

The work entailed visiting individual houses along flood-affected areas and assessing extent of electrical damage to houses, as requested by the government.

## OTHER INTERESTS

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FIDE-rated Chess player, Avid puzzle-solver, Interested in cognitive sciences and psychology, Reads history

## SKILLS

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**IBM Qiskit, Python** – Proficient

**D-Wave Ocean, Tensorflow, Pytorch, Google Cirq** - Intermediate