# Md Shadnan Azwad **Khan**

## Summary

Quantum information and computer science graduate with experience in quantum algorithms, machine learning and multi-robot systems.

## Personal information

Citizenship: Bangladesh

Languages: English (Fluent), Bangla (Native), French (Beginner)

## Contact details

@ shadnan.azwad@proton.me
+33 7 51 31 47 60
shadwad
Shadnan Azwad Khan
/shadnanazwad
0000-0003-2769-6856

## Research Interests

Quantum Algorithms, Quantum Machine Learning, Neuromorphic Computing, and Bio-inspired Robotics.

## Research Skills

Academic writing, technical communication, interdisciplinary research.

## Technical Skills

Python (NumPy, TensorFlow, PyTorch), LaTeX, C/C++, CUDA, Java, MATLAB, Mathematica, and SageMath.

## Grants & Fellowships

◇ YQIS25 Fellowship, ICFO **2025**
◇ QICS Scholarship, Sorbonne **2024/25**
◇ 4EU+ Mobility Grant, Copenhagen **2024**
◇ Solidarity Scholarship, Sorbonne **2024**
◇ Erasmus+ Grant, Staffordshire **2017**

*Long CV – Available online.*

## Relevant Experience

Graduate Research Intern. *Quandela*. **Mar – Sep 2025**
◇ Research Areas: Photon-native Quantum Neural Networks, Photonic Quantum Reservoir Computing, and Quantum Perceptrons.

Research Assistant. *Independent University, Bangladesh*. **May 2019 – Aug 2023**
◇ Research Areas: Swarm Intelligence, Unsupervised Machine Learning, Network Anomaly Detection, and Health Informatics.

Substitute ICT Teacher. *The Aga Khan School, Dhaka*. **Jul – Nov 2012**
◇ Duties: Lesson planning, classroom instruction, and laboratory supervision.

## Education

MSc. Computer Science – Quantum Information.
*Sorbonne Université (Paris, France).* **Sep 2023 – Sep 2025**

◇ Master's thesis: "Photon-native Quantum Perceptron and Neural Network." Advisor: Dr Daphne Wang (*Quandela*).
◇ First-year research project: "Hidden Nonlocality."
◇ Academic exchange: External student in "Quantum Information and Quantum Many-Body Theory" (4EU+ shared course), University of Copenhagen (Denmark).

BSc. Electrical and Electronic Engineering & Computer Science.
*Brac University (Dhaka, Bangladesh).* **May 2013 – Dec 2018**

◇ Bachelor's thesis: "A New Multi-Robot Search Algorithm Using Probabilistic Finite State Machine and Lennard-Jones Potential Function." Advisors: Dr Mohammad Hasan (*University of Staffordshire*) and Dr Tarem Ahmed (*Brac University*).
◇ Academic exchange: Erasmus+ visiting student, University of Staffordshire (UK).
◇ Final-year design project: "SLAM with an Autonomous Robot."

## Peer-Reviewed Publications

*Published 4 peer-reviewed conference papers, with an h-index of 4 and 28 citations according to Google Scholar.*

◇ Qi Huang, Emanuele Mezzi, Osman Mutlu, Miltiadis Kofinas, Vidya Prasad, Shadnan Azwad Khan, Elena Ranguelova, and Niki van Stein. *Beyond the veil of similarity: Quantifying semantic continuity in explainable AI.* In *Explainable Artificial Intelligence. xAI 2024. Communications in Computer and Information Science, volume 2153, 2024.* DOI: 10.1007/978-3-031-63787-2_16. Pre-print available online.

◇ Muhammad S. A. Khan, Tarem Ahmed, and Mohammad Faisal Uddin. Multi-Robot Search Algorithm Using Timed Random Switching of Exploration Approaches. In *IEEE Region 10 Symposium (TENSYMP)*, pp. 868–871, 2020. DOI: 10.1109/TENSYMP50017.2020.9230829

◇ Muhammad S. A. Khan, Mohammad S. Hasan, and Tarem Ahmed. A New Multi-Robot Search Algorithm Using Probabilistic Finite State Machine and Lennard-Jones Potential Function. In *IEEE International Conference on Robotics and Biomimetics (ROBIO)*, pp. 850–855, 2018. DOI: 10.1109/ROBIO.2018.8665082

◇ Muhammad S. A. Khan, Shoumik S. Chowdhury, Nafis Niloy, Fatema Tuz Zohra Aurin, and Tarem Ahmed. Sonar-Based SLAM Using Occupancy Grid Mapping and Dead Reckoning. In *TENCON 2018 — IEEE Region 10 Conference*, pp. 1707–1712, 2018. DOI: 10.1109/TENCON.2018.8650124

## Conference Posters

◇ *Photon-native Quantum Perceptrons and Neural Networks.* Poster presentation (online) at the *Young Quantum Information Scientists Conference 2025 (YQIS25)*, ICFO, Spain.

◇ *Hidden Nonlocality.* Poster presentation (online) at the *4EU+ Quantum Information and Quantum Many-Body Theory Summer School*, University of Copenhagen. 2024.

◇ *Investigating Quantum Reservoir Computing for Time Series Forecasting.* Poster presentation (poster, report) at the *Paris Centre for Quantum Technologies (PCQT) Workshop*. 2024.

## Selected Projects

◇ *Resolving Photon Numbers from Superconducting Nanowire Single-photon Detector Signals by Machine Learning.* Challenge runners-up for the *QST Hack*. 2025.

◇ *Quantum Digital Payment.* Results (online) for the *Pan-European Quantum Internet Hackathon*. 2024.

*Short CV. Updated 26th November 2025.*