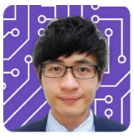

Shek Lun Leung

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Summary

A strategic CTO and Co-founder with a Master's in Engineering Physics from KTH, specializing in commercializing deep technologies like quantum and AI. Proven experience leading the full venture lifecycle, from translating initial research into a viable product to defining business strategy, building teams, and securing partnerships. Eager to leverage founder experience and a deep technical background to help build the next generation of impactful companies from KTH research as a Venture Builder.

Core Competencies & Technical Skills

Venture Building & Leadership

Business Strategy, Market Validation, Product Management, Fundraising & Pitching, Team Leadership & Mentorship, Stakeholder Management, Project Management

Languages

Cantonese (Native), English (Fluent), Swedish (Beginner)

Libraries & Frameworks

NumPy, Pandas, Scipy, Matplotlib, TensorFlow/PyTorch, Scikit-learn, Qiskit

Core Competencies

Machine Learning, Statistical Modeling, Probabilistic Systems, Predictive Analytics, Monte Carlo Simulation, Algorithm Design & Implementation, Data Analysis

Professional Experience

Metvibee | Chief Technology Officer and Co-founder **2023-2024**

- Co-founded the venture and led the technology strategy, translating complex data models into a viable commercial prototype for sustainable urban planning.
- Drove the end-to-end product development lifecycle, from initial concept and market validation to building a reliable, performant application ready for user engagement.
- Pitched innovative ideas and presented app demonstrations to external partners and at conferences, translating complex technology into clear use cases and defining project roadmaps.
- Recruited, led, and mentored a cross-functional team, fostering a collaborative environment to align technology development with overarching business goals and SDGs.

Education Leader/ EIB | Online Tutor **2020-2022**

- Tutored students in advanced IB Physics and Mathematics, simplifying complex scientific concepts using digital simulation tools.

CCC MK Church KaiOi School | Teacher **2018-2019**

- Taught Mathematics, CL, and ICT and led a S.T.E.M. class, culminating in a public exhibition of student projects.

Academic Projects

Master Project: Machine Learning for BB84 QKD Network Optimization | KTH **2024-2025**

- Addressed the computational bottleneck of real-time QKD by designing a PyTorch neural network to predict optimal system parameters.
- Achieved a **~270x performance speedup** over conventional Dual Annealing methods while maintaining a final secret key rate error of less than 6%, **demonstrating a clear path towards commercial viability for real-time secure communication products.**
- Validated the model's ability to generalize to unseen channel conditions, proving its viability for dynamic, real-world quantum networks on resource-constrained devices.
- Technologies: PyTorch, JAX, Python, Scipy, Pandas

Master Thesis: Communication & Error Correction via Polarisation and Time Ordering | Ericsson **2023**

- Authored and published a thesis **analyzing** a novel protocol, "Beyond Pulse Position Modulation" (BPPM), for energy-efficient secure communication.
- **Demonstrated the protocol's viability** via Python simulation, proving BPPM achieves a superior information density (bits/photon) over standard protocols (PPM, OOK, General) in noisy, long-distance channels, **highlighting its potential for developing next-generation, energy-efficient communication hardware.**
- Conducted an in-depth analysis of channel capacity using mutual information to **evaluate its robustness** against photon loss and addition errors.

Professional Development

Health Tech System Deployment (Collaborative Project) | 2025

- Led the technical deployment of an OpenMRS (Open Medical Record System) platform in collaboration with a medical professional.
- Engineered the system's architecture to manage sensitive patient data securely, demonstrating expertise in delivering robust solutions for the regulated Health Tech industry.
- This project provided hands-on experience in translating clinical needs into functional software, a critical skill for building ventures in the Life Science sector.

Quantum Error Correction with Google AI Quantum | 2025 Coursera

- Gained hands-on experience implementing the surface code using Google's high-performance Stim simulator.
- Simulated code performance under various noise models to analyze error propagation and estimate the physical error rate threshold required for robust error suppression. [Github link]

Introduction to Post-Quantum Cryptography | 2025 Edx

- Hands-on project experience implementing and analyzing the NIST-standardized Kyber KEM, including building a secure chat application using AES encryption.
- Developed network security tools for vulnerability scanning and analysis (Nmap, socket). [Github link]

Quantum Computing Projects

Qiskit-Hackathon-Taiwan (2021): Being a mentor in QPong

Quantum Optimization (2021): Developed and benchmarked generalized Python code to solve the Max-Cut problem using weighted-graph optimization heuristics.

Quantum Machine Learning (2020): Implemented and optimized quantum circuit parameters by applying classical gradient descent algorithms, demonstrating a hybrid quantum-classical ML approach.

Quantum Game (2020): Built and installed "QPong" on Raspberry Pi via lexaloffie & procedural generation in Unity.

Education

Engineering Physics (Quantum Technology) | Royal institute of Technology (KTH) **Expected 2026**
Master of Science

Key Coursework: Advanced Quantum Mechanics, Quantum Technology, Quantum Information & Algorithms, Quantum Photonics & Entanglement, Fiber-Optical Communication, Quantum Materials

Physics (Honor) |The Chinese University of Hong Kong **2018**
Master of Science

The Chinese University of Hong Kong **2016**
Postgraduate Diploma of Education

Information and Communication Technology (Major), Liberal Studies (Minor)

The Education University of Hong Kong **2014**
Bachelor of Science Education

Science and Web Technology

Awards, Certifications and License

IBM Qiskit Community Award Winner IBM Qiskit Hackathon Global 2020 **2020**

- Developed a novel system to translate complex, high-dimensional probabilistic quantum states into structured data (musical compositions).
- Implemented algorithms in Python to perform transformations and statistical analysis on state vectors, mapping real and imaginary components to discrete outputs.
- Engineered a data pipeline that processed quantum circuit outputs, generated a predictive sequence, and automated the final production of an audio file and sheet music.
- **Result:** Awarded the Community Choice Award at the IBM Qiskit Global Hackathon for innovative application of quantitative principles. [link]

International Physicist Tournament 2022 (Win National Selection) IPT **2022**

IBM Qiskit Badges of Engagement **IBM |2020-2021**

- Qiskit Advocate, IBM Quantum Challenge - Fall 2020, IBM Certified Associate Developer -Quantum Computation using Qiskit v0.2X, Qiskit Localization Contributor -Platnum Level Translator - 2021 [link]

QTM1x, QTM4x **Delft University of Technology | 2022**

- QTM1x: The Quantum Internet and Quantum Computers & QTM4x: Fundamentals of Quantum Information

Getting Started with Quantum Machine Learning **Coursera | 2021**

Machine Learning Stanford University **Standord University | 2020**

IOT1x: Introduction to the Internet of Things (IoT) (T2 2018) **Curtin University | 2018**

Relevant Coursework

Advanced training in Business Analysis, Process Management, and Financial Modeling for venture assessment.