

Tak Hur

takh0404@yonsei.ac.kr

 Google Scholar

 GitHub

 LinkedIn

 Website

Education

Yonsei University

PhD in Statistics and Data Science

Korea
March, 2023 – August, 2026

Imperial College London

Msci Physics with Theoretical Physics

United Kingdom
Sept, 2021 – August, 2022

Imperial College London

Bsc Physics with Theoretical Physics

United Kingdom
Sept, 2017 – August, 2021

Experiences

University of Waterloo

Postdoctoral Researcher

Canada
Sept, 2026 –

École Polytechnique

Visiting Intern

France
Oct, 2025 – May, 2026

Publications

(* indicates first author)

1. Kim, Y. Im, C. Kim, T. Hur, T. Park, D. (2025). "Multi-channel convolutional neural quantum embedding". [Advanced Quantum Technologies, e00575 \(2025\)](#)
2. Liu, H. Hur, T.* Zhang, S. et al. (2025). "Neural Quantum Embedding via Deterministic Quantum Computation with One Qubit". [Phys. Rev. Lett. 135, 080603 \(2025\)](#)
3. Hur, T.* Park, D. (2025). "Understanding Generalization in Quantum Machine Learning with Margins". [ICML \(2025\)](#)
4. Choi, T. Hur, T. Park, D. Shin N. Lee, S. Lee, H. Han, S. (2025). "Early-stage detection of cognitive impairment by hybrid quantum-classical algorithm using resting-state functional MRI time-series". [Knowledge-Based Systems 310 112922 \(2025\)](#)
5. Hur, T.* Araujo, I. Park, D. (2024). "Neural Quantum Embedding: Pushing the Limits of Quantum Supervised Learning". [Phys. Rev. A 110, 022411 \(2024\)](#)
6. Hahm, J. Hur, T.* Lee, J. Park, D. (2024). "Generative Modeling of Quantum Distribution with Functional Flow Matching". [QTM \(2024\)](#)
7. Hur, T.* Kim, L. Park, D. (2022). "Quantum convolutional neural network for classical data classification". [Quantum Machine Intelligence 4, 3 \(2022\)](#)

Preprints

1. Hur, T.* (2026). "Stochastic Reconfiguration as Spectral Filters for Overparameterized Neural Quantum States". [arXiv.2609.23334](#)
2. Lee, C. Hur, T. Jae, J. Park, D. (2026). "Machine Learning Approaches to Decoding Topological Quantum Codes". [arXiv.2608.15760](#)

3. Lee, C. **Hur, T.***, Park, D. (2025). "Scalable Neural Decoders for Practical Real-Time Quantum Error Correction". [arXiv.2510.22724](https://arxiv.org/abs/2510.22724)
4. Choi, J. **Hur, T.**, Jeong, S. et al. (2025) "Optimizing Quantum Data Embeddings for Ligand-Based Virtual Screening". [arXiv.2512.16177](https://arxiv.org/abs/2512.16177)

Talks

1. "Scalable Neural Decoders for Practical Real-Time Quantum Error Correction" contributed talk at *Machine Learning to Advance Quantum Technologies (ML4QT)*. September, 2026
2. "Scalable Neural Decoders for Practical Real-Time Quantum Error Correction" short talk at *Quantum Techniques in Machine Learning (QTML)*. Nov, 2025
3. "Understanding Generalization in Quantum Machine Learning with Margins" Invited talk at *Jens Eisert's Group Seminar*. March, 2025
4. "Understanding Generalization in Quantum Machine Learning with Margins" Invited talk at *2024 KIAS Quantum Information Workshop*. Aug, 2024
5. "Neural Quantum Embedding" Invited talk at *IBM Quantum Information Technical Exchange (IBM QITE)*. Apr, 2024
6. "Neural Quantum Embedding" short talk at *Quantum Techniques in Machine Learning (QTML)*. Nov, 2023
7. "Quantum Kernel Optimization via Deep Learning." *Electronics and Telecommunications Research Institute (ETRI)*. Jan, 2023

Poster Presentations

1. "Understanding Generalization in Quantum Machine Learning with Margins" Poster presentation at *International Conference on Machine Learning (ICML)*. July, 2025
2. "Understanding Generalization in Quantum Machine Learning with Margins" Poster presentation at *Quantum Techniques in Machine Learning (QTML)*. Nov, 2024
3. "Generative Modeling of Quantum Distribution with Functional Flow Matching" Poster presentation at *Quantum Techniques in Machine Learning (QTML)*. Nov, 2024
4. "Neural Quantum Embedding" Poster presentation at *Asian Quantum Information Science Conference (AQIS)*. Aug, 2023
5. "Neural Quantum Embedding" Poster presentation at *Joint Symposium on Quantum Computing (JSQC)*. Aug, 2023

Grants & Awards

- NVIDIA Academic Grant (2026). 30k H100 GPU hours for "Mixture-of-Experts Decoders for Large-Scale Real-Time Quantum Error Correction"
- NVIDIA Academic Grant (2025). 30k A100 GPU hours for "Scalable Neural Decoders for Practical Real-Time Quantum Error Correction"
- Quantum Education and Training Support Program Grant 2025 (20 nationwide, funded by the Ministry of Science and ICT, Republic of Korea)

- IBM Quantum Leadership Program 2023 (15 nationwide)
- Third Place – IBM Qiskit Hackathon Taiwan (2023)
- Top 4 – Pennylane QHACK Coding Challenge (2022, out of 800+ teams)
- Top 10 – Pennylane QHACK Coding Challenge (2021, out of 800+ teams)

Technical Skills

- **Quantum SDKs:** PennyLane, CUDA-Q, Qiskit
- **Machine Learning Frameworks:** PyTorch, JAX
- **High-Performance Computing:** CUDA programming, GPU-accelerated simulation
- **Programming Languages:** Python, Julia

Professional Service

1. **Journal Reviewer:** *PRX Quantum*, *Physical Review E*, *Quantum Information Processing*
2. **Conference Reviewer:** *Neurips 2026*
3. **Teaching Assistant:** Statistical Methods, Quantum Machine Learning (Yonsei University)

References

- [1] Prof. Kyungdeock Park, dkd.park@yonsei.ac.kr
- *Associate Professor* at Department of Applied Statistics, Department of Statistics and Data Science, Yonsei University
- [2] Dr. Maria Schuld, maria@xanadu.ai
- *Senior Researcher and Software Developer* at Xanadu Quantum Technologies Inc.
- [3] Prof. Youngseok Kim, kim.10017@osu.edu
- *Assistant Professor* at Department of Electrical and Computer Engineering, Ohio State University