Tak Hur

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Profile

Ph.D. candidate at Yonsei University, specializing in the intersection of Quantum Computation and Machine Learning. My research includes ML-based decoding for Quantum Error Correction (Neural Decoder), ML approaches to Quantum Many-Body Physics (e.g., Neural Quantum States), and Quantum Learning Theory.

Education

Yonsei University — Korea
PhD in Statistics and Data Science — *March, 2023 –*

Imperial College London — United Kingdom
Msci Physics with Theoretical Physics — *Sept, 2021 – August, 2022*

Imperial College London — United Kingdom
Bsc Physics with Theoretical Physics — *Sept, 2017 – August, 2021*

Publications (First Author)

1. **Hur, T.** Park, D. (2024). "Understanding Generalization in Quantum Machine Learning with Margins". *arxiv.2411.06919*
2. **Hur, T.** Araujo, I. Park, D. (2024). "Neural Quantum Embedding: Pushing the Limits of Quantum Supervised Learning". *Phys. Rev. A 110, 022411*
3. **Hur, T.** Kim, L. Park, D. (2022). "Quantum convolutional neural network for classical data classification". *Quantum Machine Intelligence 4, 3.*

Publications (Others)

1. Choi, T. **Hur, T.** Park, D. Shin N. Lee, S. Lee, H. Han, S. (2024). "Early-stage detection of cognitive impairment by hybrid quantum-classical algorithm using resting-state functional MRI time-series". arXiv:2405.01554

Talks

1. "Understanding Generalization in Quantum Machine Learning with Margins" Invited talk at *2024 KIAS Quantum Information Workshop*. Aug, 2024
2. "Neural Quantum Embedding" Invited talk at *IBM Quantum Information Techinal Exchange* (IBM QITE). Apr, 2024
3. "Neural Quantum Embedding" Plenary talk at *Quantum Techniques in Machine Learning* (QTML). Nov, 2023
4. "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 *Quantum Techniques in Machine Learning* (QTML). Nov, 2024
2. ”Generative Modeling of Quantum Distribution with Functional Flow Matching” Poster presentation at *Quantum Techniques in Machine Learning* (QTML). Nov, 2024
3. ”Neural Quantum Embedding” Poster presentation at *Asian Quantum Information Science Conference* (AQIS). Aug, 2023
4. ”Neural Quantum Embedding” Poster presentation at *Joint Symposium on Quantum Computing* (JSQC). Aug, 2023

References

[1] Prof. Kyungdeock Park, dkd.park@yonsei.ac.kr

- *Assistant Professor* at Department of Applied Statistics, Department of Statistics and Data Science, Yonsei University