

Yong Kwon

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Bachelor of Science
PKNU, Busan, Republic of Korea

Research interests

Quantum computing (Linear optical quantum computing, Quantum verification and validation)
Quantum information (entanglement entropy, concurrence)

Education

- 2022 – Present **Pukyong National University** – Busan
M.S. in physics
Advisor: Prof. Byung-Soo Choi, [QCS Labsite](#)

Advisor: Prof. Seung Ki Baek, [Statphys Labsite](#)
(–2022.05, 08 as an official document)
- 2016 – 2022 **Pukyong National University** – Busan
B.S. in physics
Advisor: Prof. Seung Ki Baek and Prof. Jaegon Um as a co-advisor

Publications

- 2023.10 “**A Software Platform for Programmable Linear Optical Quantum Computer**”
Kwon and Choi
IEEE Access [doi](#)
- 2022.09 “**Correlation between concurrence and mutual information**”
Kwon, Baek, and Um
Journal of Statistical Mechanics: Theory and Experiment [doi](#)

Research experience

- 2022 – **EPIQUS Project**
Mentors: Prof. Byung-Soo Choi (PKNU)
 - Project Overview: [main page](#) / [CORDIS information](#)
 - Build up the optimized software for epikus project
- 2021 – Spring
2022 **Entanglement vs mutual information on two qubit system**
Mentors: Prof. Jaegon Um (POSTECH), Prof. Seung Ki Baek (PKNU)
 - Investigate on two spin-1/2 particles
 - Find correlated information entropy on classical definition and quantum definition
 - Compare two entropy values using ‘Concurrence’

Fall 2020

Quantum-like game development

Mentors: Prof. Jae-yeol Hwang (PKNU) (only for class guidance)

- The word 'Quantum-like game' means a game made by applying the phenomenon to introduce to those who are not familiar with quantum physics.
- This project worked during the one of undergraduate classes, 'Capstone Design I'
- My contributions: project idea suggestion, introducing concept of quantum-like games, GUI development
- Find more detailed information following Github team [repository](#).

Teaching experience

Fall 2022

TA, Physical Experiment II (PKNU)

A physical experiment class in general physics topics for freshman students.

Spring 2022

TA, Physical Experiment I (PKNU)

A physical experiment class in general physics topics for freshman students.

Talks and posters

2023. 07.

[T] A Universal and programmable software platform for linear optical quantum computing
International Workshop on Quantum Compilation 2023 [link](#)

2022. 04.

[T] Correlation between mutual information and concurrence
KPS Spring Meeting 2022

2021. 10.

[P] Correlation between mutual information and concurrence
KPS Fall Meeting 2021

2021. 08.

[P] Entanglement vs. mutual information
Roles of heterogeneity in non-equilibrium collective dynamics (RHINO) 2021 [link](#)

Technical skills

Programming languages

Python, C (a little bit), \LaTeX , Markdown

Software

Linux (usually Ubuntu), Git, Mathematica (a little bit)

Languages

Korean (mother language), English (intermediate level)

Activities

2022. 01.

The 19th KIAS-APCTP winter school on statistical physics

2017. 07.

PKNU-ISS (International Summer School) Program

- Officially certified program by PKNU
- Attended seasonal classes with abroad students who were enrolled to my university
- To this program, my English skill has improved and felt their cultural difference

Traveling abroad experiences

- For visiting & conference attendance: Italy, Belgium and France (2023)
- For a trip: Vietnam (2016), Taiwan (2016), Japan (2018), Italy (2020) and the Philippines (2023)