Curriculum Vitae

Personal Information

- Nationality: Korea, Republic of (= South Korea, 대한민국)
- Homepage: https://hyunseong-kim.github.io
- Personal Identifier
  - Orcid: 0000-0002-4876-7820
  - Krid: 12673381
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Education

Degree and institutes

- 2019-Present: **Bachelor of Phyiscs**, *School of Physics and Photonics*, Gwangju Institute of Science and Technology(GIST), Gwangju.
  - GPA: 3.95/4.5(total), - Grade: Distinction, Highest: 4.25/4.5
- 2015-2017: **High School Education**, High school attached to school of education of Hanyang University, Seoul.

Programs

- July-Aug/2023: Special Summer Internship on Quantum WokForce Center of Korea University, Seoul
  - Learned VQE and various quantum algorithms and challenges.
  - Verval presented "TROTTER CIRCUIT OPTIMIZATION THROUGH ADIABATIC COMPUTATION", DOI:10.5281/zenodo.8434889.
- July/2023-Present: Bachelor intership on Quantum Field and Gravity Theory Group, GIST

Research Experiences

Conference

- July/2022: **Poster**, "Design methods of uniform illumination light device with LEDs: boundary center matching and distribution approximation", Optics and Photonics Congress 2022 ICC JEJU, Optics Society of Korea, TPP-II-09.

Projects

- 2020-2021: TPMS, Design of Table size PCB Manufacturing System, funded by GIST Bachelor Project Support Program(무한도전). *Finished*.
  - Related works
    - Patent: Machine ofr manufacturing printed circuit boards using photopolymerization ffe and metal nano ink
    - Poster: Design methods of uniform illumination light device with LEDs: boundary center matching and distribution approximation

Publication

Preprint

- May/2023: Properties of Gauss Hypergeometric function, 2F1, of special parameters
    - DOI: 10.5281/zenodo.8025131

Patent

- Nov/2020: Machine for manufacturing printed circuit boards using photopolymerization effect and metal nano ink, Korean Intellectual Property Office.
    - Roll: Conceptualization, Project administration, Resources, Software, Supervision
    - DOI: 10.8080/1020200151660
    - GOOGLE_PATENT_CODE: KR20210003063A

Experience

Tutor

- 2021: **Teaching Assistant**, Gwangju Insititute of Science and Technology, Gwangju, "GS1001 Single Variable Calculus and application"

Developer

- Sep/2021-Oct/2021: **Internship**, Quantum information Lab, Hanyang university, Seoul.
    - Project: Quantum computer and infomatics handbook, *Finished*.
    - Roll: Document converting program implement, Server environment develope and management, and Reviewing contents.
- Dec/2020–Aug/2021: **Internship**, Bioinformatics Lab, GIST, Gwangju.
    - Project: Development of preprocessed data for machine learning model indicates side effects of chemical compounds. *Finished*.
    - Roll: Data labeling and preprocessing
    - Learned about data processing for large scale data, communication between server and automatic data pip line system.
- 2019: Makerton (GIST 2019). Mobility unified black-box system using IOT

Translator

- Jan/2021-Aug/2021: (English -> Korean) Wolfram Inc, Wolfram U team education contents translation team activity. See a Certification.

Miscelleneous

- 2019: Volunteer, Junction X 2019 Hackerton
- Mar/2019: Reviewer, Ikarus 2020 mock exam of high school physics II reviewer

Awards and Funds

- Government-Sponsored full tution scholarship including residency stipends (2019~Present)
    - Gwangju Institude of Science and Technology

    - Received a scholarship and residency stipends for the entire duration of the bachelor's degree probram.
- Institutional Scholarship for a grading semester for performing academic excellence
    - Gwangju Institude of Science and Technology
    - Spring 2020

Skills & Background Knowledge

Tools

- Programming Language:
    - Python: Intermediate-Advanced, scientific module, program including gui build and deployment. Proficient in Python with experience in designing and implementing basic packages, plugins for other programs, and standalone applications. Skilled in scientific libraries like NumPy, SciPy, and scikit-learn for research and project applications.
    - C: Intermediate.
    - Wolfram Language: Basic
- Publishing tools:
    - Latex: Basic
- Quantum Computing Frameworks
    - Pennylane: Proficient in the usage of the Pennylane framework, including circuit construction, connection to real quantum devices, and utilization of the Pennylane database.
    - Qiskit: Same with Pennylane

Language

- **Korean**: Mothertongue
- **English**: Intermediate

Interests

- Numerical calculation
- Computer Algebraic system
- Optimization
- Simulation
- Quantum computing and algorithm
- Education in Physics
- Bookbinding