

MINSUK JUN

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RESEARCH INTERESTS

Continuous-variable photonic quantum computing, generation of GKP states through cat state breeding, and low-loss $\chi(2)$ photonic integrated circuits on thin-film lithium tantalate (LTOI).

EDUCATION

2020 - 2027	B.S. in Electrical and Electronic Engineering <i>Sungkyunkwan University (SKKU), expected graduation Feb 2027</i> GPA 4.20 / 4.5 Coursework: Quantum Mechanics, Electromagnetics, Optics, Linear Algebra	Suwon, KR
08/25 - 12/25	Exchange Student, Nanyang Technological University (NTU) GPA 5.0 / 5.0 - Top of class in Semiconductor Devices and Processing - Coursework in semiconductor physics, optoelectronics and device fabrication	Singapore

RESEARCH EXPERIENCE

06/26 - Present	Research Intern, Q-SPIN Lab <i>Seoul National University, Advisor: Prof. Donguk Nam</i> - Work on the theory side of the lab's LTOI chip (cat state generation, cat breeding, GKP), setting the loss and squeezing each component on the chip must reach. - Design beam splitters and pump filters for the tape-out, comparing MMI, directional and adiabatic couplers and 775/1550 nm pump rejection with eigenmode (FDE) simulation in Ansys Lumerical MODE. - Simulate photonic quantum circuits, including photon-pair sources and MZI networks in Perceval and loss-aware Gaussian-state models of GKP generation. - Presented graph-designed quantum photonics (Bao et al., Nature Photonics 2023) at the lab group meeting.	Seoul, KR
02/26 - 06/26	Undergraduate Research Assistant <i>Prof. Juwon Lee's Lab (Semiconductor Device & Materials Lab), Sungkyunkwan University</i> - Studied 2D transition metal dichalcogenides (TMDs) for optoelectronics and presented a review of MoS₂-based memory devices. - Took part in weekly group seminars on device fabrication and characterization (Raman spectroscopy, photoluminescence).	Suwon, KR
03/25 - 07/25	Undergraduate Research Assistant (URP) <i>Prof. Tae-wook Kang's Lab, Department of Semiconductor and Display Engineering, SKKU</i> - Selected for the Undergraduate Research Program and worked in a four-person team on an integrated circuit for real-time noise cancellation in voice signals. - Designed the FFT core of an 8-bit STFT module in Verilog, choosing the fixed-point quantization from Python statistics of the signal values.	Suwon, KR

LEADERSHIP AND SERVICE

12/24 - 07/25	Vice President, SIOR (SKKU Institute of Robot) - Ran technical seminars for club members and mentored students in robotics fundamentals. - Organized an Arduino outreach program at Yeongbok Girls' High School, teaching assembly and programming.	Suwon, KR
2022 - 2024	Military Service, Republic of Korea Air Force Honorably discharged as Sergeant.	

SKILLS

Simulation: Ansys Lumerical MODE (FDE), Perceval, The Walrus, PSpice

Programming: Python (NumPy, SciPy), Verilog, C/C++, MATLAB, Arduino

Languages: Korean (native), English, Japanese (JLPT N2)