

Suhyeon Kim

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EDUCATION

- 2024 – Present Master of Science Candidate in Electronic Engineering
Seoul National University of Science and Technology, Seoul, South Korea
- 2020 – 2024 Bachelor of Science in Electronic Engineering
Seoul National University of Science and Technology, Seoul, South Korea
(Summa Cum Laude)

RESEARCH EXPERIENCES

Research Assistant, Dept. of Electronic Engineering, Seoul National University of Science and Technology. Advisor: Jae-Won Nam (2022 ~ Present)

- Direct digital frequency synthesizer & pulse shaping module for qubit controller
- Digital-to-Analog Converter (DAC) for qubit controller
- Noise shaping Analog-to-Digital Converter (ADC)
- Timing controller for CIS read-out integrated circuit (ROIC)

Tape-out

- 2023.05. NNFC 180 nm, CMOS Image Sensor (CIS) ROIC ($4.0 \times 4.0 \text{ mm}^2$).
- 2023.09. TSMC 180 nm, CMOS Image Sensor (CIS) ROIC ($7.0 \times 7.0 \text{ mm}^2$).
- 2023.12. Samsung 28 nm FD-SOI, Sigma-Delta ADC ($4.0 \times 4.0 \text{ mm}^2$).
- 2024.07. Samsung 28 nm LPP, Pulse shaping module for Qubit Controller ($3.2 \times 4.0 \text{ mm}^2$).
- 2024.09. Samsung 28 nm FD-SOI, DAC & AWG for Qubit Controller ($2.0 \times 2.7 \text{ mm}^2$).
- 2024.10. TSMC 65 nm, DAC & AWG for Qubit Controller ($2.0 \times 1.4 \text{ mm}^2$).
- 2025.09. TSMC 65 nm, DAC & AWG for Qubit Controller ($2.0 \times 1.0 \text{ mm}^2$).

HONORS / AWARDS

- Best Student Paper Bronze Award, IEEE Seoul Section Student Paper Contest, Dec. 2025.

LIST OF PUBLICATIONS

- **S.-H. Kim**, H. Yoo, G. Lee, J.-W. Nam, “A Pulse Generation Module for Frequency-Division Multiplexing Qubit Controller,” *IEEE Seoul Section Student Paper Contest 2025*, Seoul, Dec 13. 2025.
- Y. Kim, M. -H. Jeon, **S. -H. Kim**, J.-W. Nam, “Leakage-based Temperature Sensor with Incremental Analog-to-Digital Converter,” *International SoC Conference (ISOCC) 2025*, Busan, Oct. 2025.

- H. Yoo, M. F. Mauludin, Y. Kim, **S. -H. Kim**, E. Yoo, J.-Y. Park, J. Kim, J.-W. Nam, “MASH Digital Delta-Sigma Modulators for the CMOS Qubit Controller,” *IEEE International Workshop on Quantum Computing: Circuits Systems Automation and Applications (QC-CSAA)*, Jul. 2025.
- **S. -H. Kim**, I. -K. Jang, Y. Kim, J.-Y. Park, J.-W. Nam, “Implementation of Second-Order Sigma-Delta ADC and Digital Filter using Switched Capacitor Circuit,” *Summer Annual Conference of IEIE*, Jeju, Jun. 2025.
- **S. -H. Kim**, Y. Kim, E. Yoo, G. Lee, S. Lee, J.-Y. Park, J. Kim, J.-W. Nam, “Design of Pulse Shaping Module for Multiple Qubit Control Pulse Generation,” *Summer Annual Conference of IEIE*, Jeju, Jun. 2025.
- J. -Y. Park, **S. -H. Kim**, H. Yoo and J. -W. Nam, “Analysis of Quarter Method Applied ROM-Based DDFS Architecture,” *IEEE Access*, Oct. 2023.
- J.-Y. Park, **S. -H. Kim**, J.-W. Nam, “Analysis of ROM-based DDFS Architecture Employing Quarter Method,” *International Conference on Electronics, Information, and Communication (ICEIC) 2023*, Singapore, Feb. 2023.
- J.-Y. Park, **S. -H. Kim**, S.-G. Kim, J.-W. Hyun, Y.-S. Kim, J.-W. Nam, “Study on Direct Digital Frequency Synthesis,” *RF/Analog Circuit Workshop of IEIE*, Jeju, Sep. 2022.

TEACHING EXPERIENCE

Teaching Assistant, Dept. of Electronic Engineering, Seoultech.

- Integrated Circuit, Spring 2024.
- Electronic Circuit, Spring 2023, Fall 2023 and Fall 2024.

TRAINING ACTIVITIES

- 2025.08.27-08.29, [IDEC Education] Vivado based FPGA design practice
- 2024.01.22-01.31, [IDEC Education] High-speed serial link and CDR designs
- 2024.01.17-01.19, [IDEC Education] Schematic design / simulation and PCB design using OrCAD
- 2024.01.11-01.12, [IDEC Education] Intuitive interpretation of analog circuits
- 2023.11.28-11.30, [IDEC Education] CMOS based RF integrated circuits: Systems, Analog circuits, and RF theory
- 2023.08.21-08.24, [IDEC Education] Understanding SAR ADCs
- 2023.08.17-08.18, [IDEC Education] Reliability of analog and mixed-signal circuits
- 2023.08.10-08.11, [IDEC Education] Fundamentals of semiconductor process and circuit for full custom IC layout design

- 2023.07.26-07.27, [IDEC Education] Design fundamentals of PMIC(Power Management Integrated Circuit) for energy harvesting
- 2023.02.13-02.17, [KIRD Education] Advanced semiconductor design (VCO)