

Jonghyun Kim

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EDUCATION

Carnegie Mellon University

Pittsburgh, PA, USA

Ph.D in Electrical and Computer Engineering

2024 – Present

- **Advisor: Professor Vanessa Chen**

Konkuk University

Seoul, South Korea

B.S. & M.S. in Electrical Engineering(Admission with top-honors)

2016 – 2023

- **B.S GPA: 4.05/4.5, B.S Major GPA: 4.22/4.5, M.S GPA: 4.37/4.5**
- **Thesis: “A High-Performance True Random Number Generator for Next-Generation Secure Systems”**
- **Advisor: Professor Hyungil Chae**

PUBLICATIONS

Journal Papers(SCI/SCIE)

- [j3] **Jonghyun Kim** and Hyungil Chae, “A 10-Gb/s True Random Number Generator Using ML-Resistant Middle Square Method”, IEEE Journal of Solid-State Circuits(JSSC), July. 2024.
- [j2] **Jonghyun Kim**, Younggyun Oh and Hyungil Chae, “An IF Reconfigurable Bandpass Noise-Shaping SAR ADC for IoT and Mobile Application”, Electronics Letters(EL), Sep. 2022.
- [j1] Kihyun Kim, Jihyun Baek, **Jonghyun Kim** and Hyungil Chae, “Time-interleaved Noise-shaping SAR ADC based on CIFF Architecture with Redundancy Error Correction Technique”, Journal of Semiconductor Technology and Science(JSTS), Oct. 2021.

International Conference Proceedings

- [c2] **Jonghyun Kim** and Hyungil Chae, “A 10-Gbps, 0.121-pJ/bit, All-Digital True Random-Number Generator Using Middle Square Method”, in Proceedings of IEEE Asian Solid-State Circuits Conference(ASSCC), Nov. 6-9, 2022.
- [c1] Jihyun Baek, **Jonghyun Kim**, Gyuchan Cho, Jintae Kim, and Hyungil Chae, “A 7-Bit 4-GS/s Quad-Channel Time-Interleaved SAR ADC With 2-Then-1-Bit Cycle Conversion,” in Proceedings of IEEE Asian Solid-State Circuits Conference(ASSCC), Nov. 6-9, 2022.

RESEARCH EXPERIENCE

Energy-Efficient Circuits and Systems Lab

Pittsburgh, PA

Research Assistant

Present

- Hardware security.
- Mixed-signal domain high-efficiency machine learning accelerator.
- In sensor computable image sensor.

Circuit and System Design Laboratory

Seoul, South Korea

Student Researcher

Jan 2020 – Dec 2023

- Chip-lead tape-out project on 2.5-GS/s pipelined SAR ADC in Jun 2022.
- Chip-lead tape-out project on 40-GS/s, 32-Channel TI-SAR ADC for PAM-4 SerDes Rx in Dec 2022.
- Chip-lead tape-out project on full-custom SRAM for high-speed analog-to-digital converter(ADC) in Sep 2020.
- Chip-lead tape-out project on high-performance true random number generator(TRNG) in Sep 2021.

WORK EXPERIENCE

ARTEC IT Solutions APAC

Part-time R&D Intern

Seoul, South Korea

Oct 2018 – June 2020

- Developed applications using C#(.NET) in a Windows WPF(xaml) environment.
- Managed an secure E-Mail archiving system.
- Built an secure unstructured data archiving system for SAP, based on SAP Archive Link.
- Experience in Debian-based Linux server management.

ARTEC IT Solutions AG

Fulltime R&D Intern

Frankfurt am Main, Hessen, Germany

Nov 2018 — Mar 2019

- C#(.NET) development based on Windows WPF(xaml) application development environment.
- SAP unstructured data archiving system build based on SAP Archive Link.
- Microsoft Exchange and Hyper-V based server management.

FELLOWSHIPS

Carnegie Mellon University, Carnegie Institute of Technology Dean's Fellowship(2024): Ph.D program fellowship from electrical and computer engineering department of Carnegie Mellon University.

Konkuk University, Graduate Fellowship(2022-2023): This fellowship is granted for excellent undergraduate students. Tuition is granted for 2-year full semesters.

Konkuk University, Sang-Huh Undergraduate Fellowship(2016, 2019-2021): Admission with top-honors in engineering department. Tuition is granted for 4-year full semesters.

PROJECTS

- **PIM(Process-In-Memory) Semiconductor Design Research Center** , Ministry of Science and ICT, South Korea, 2022 – 2023
- **Ultra-high Speed Analog-Digital Converter with Configurable Passband for Low Power/Small Beyond-5G Wireless Receiver** , Ministry of Science and ICT, South Korea, 2020 – 2023
- **Multi-band Receiver Architecture using Bandpass ADC for Low-power and Small-size 5G Mobile Applications** , Samsung Research Funding & Incubation Center for Future Technology, 2020 – 2022

SKILLS

Programming Languages: Python, Linux, C#, C, C++, MATLAB, Tcl, L^AT_EX, Skill, Tensorflow, Rust

Hardware Description Languages: Verilog, System Verilog

EDA Tools: Cadence Virtuoso ADE-L, Cadence Virtuoso ADE-XL, Cadence Virtuoso Maestro, Cadence Virtuoso Layout Editor, Synopsys VCS, Synopsys Design Compiler, Synopsys IC Compiler, Synopsys IC Compiler2, Synopsys Primetime, Synopsys Formality, Mentor Calibre DRC, Mentor Calibre LVS, Mentor Calibre xRC

Languages: Korean(Native), English(Professional, TOEFL:103), German(Elementary)

HOBBIES

French Horn, Violin, Trombone, Baseball