

# Curriculum Vitae

## I. Educations

University	Degree	Study Period	Major
KAIST (Former ICU)	B.S.	02/24/2003 – 06/15/2006	Electrical Communications Engineering (IT-Engineering)
	M.S.	06/19/2006 – 02/14/2008	
University of Southern California (USC)	M.S.	08/27/2012 – 12/12/2018	Electrical Engineering
	Ph.D.	08/27/2012 – 08/06/2019	
Thesis Title	M.S.	Systematic power optimizing cyclic ADC design	
	Ph.D.	Energy-efficient design techniques and architectures for high-speed (GS/s) analog-to-digital converters	

## II. Experience and Employment

Organization	Duration	Position	Activities and Responsibility	Location
ETRI	10/18/2006 – 10/17/2007	Part-time Researcher	CMOS low-power ADC design (ADC Architecture Development)	Daejeon, South Korea
	02/01/2008 – 06/18/2018 Leave of absence for Ph.D. degree (06/19/2012 – 06/18/2018)	Full-time Researcher	Sensor interface circuit design (Image/Audio/Display AFE)	Daejeon, South Korea
USC	08/25/2014 – 12/05/2014	Teaching Assistant	Mixed-Signal Integrated Circuit Design (EE536B)	Los Angeles, CA, US
	01/08/2017 – 04/27/2017			
Intel corporation	09/18/2017 – 12/29/2017	Intern	Next generation PCIe I/O PHY transceiver development	Santa Clara, CA, US
	09/23/2017 – 07/24/2020	Analog Engineer	Design wireline I/O circuits in Intel's leading-edge technology node	Hillsboro, OR, US
SeoulTech	09/01/2020 – Present	Assistant Professor	Electronic Engineering (Mixed Signal Analog Circuit Design)	Seoul, South Korea

## III. Honor and Award

Date	Type	Organization
04/17/2019	Outstanding student paper award (3 <sup>rd</sup> place)	IEEE-CICC
08/24/2006	President award (Graduate with honor)	KAIST
04/03/2009	President award (Outstanding researcher)	ETRI
02/27/2012	Scholarship: Ph.D. Fellowship	USC Viterbi School of Engineering

## IV. Academic Achievements

### a) Journal and conference papers

	Authors, Title, journal, Vol., page and Year	# of Authors	Role	Type	Note
C 15	H.-C. Lee, H.-J. Lee, J. Yoo, * <b>J.-W. Nam</b> , "Loss analysis and modeling of asynchronous buck-converter", Summer annual conference of IEIE, Jeju, Jun. 2022.	4	Corresponding Author	Domestic Conference	Poster Presentation
C 14	D. Kim, H. Yoo, * <b>J.-W. Nam</b> , "Implementation of low-cost linear CMOS temperature sensor for biomedical application", Summer annual conference of IEIE, Jeju, Jun. 2022.	3	Corresponding Author	Domestic Conference	Poster Presentation
C 13	J. Yoo, <b>J.-W. Nam</b> , J.-P. Hong, "Study on discard-rate of SRAM-based PUF", Summer annual conference of IEIE, Jeju, Jun. 2022.	3	Co-Author	Domestic Conference	Poster Presentation
J 15	<b>J.-W. Nam</b> , J. Kim, and J.-P. Hong, "Stochastic Cell- and Bit-Discard Technique to Improve Randomness of a TRNG," MDPI Electronics, vol. 11, no. 11, June 2022.	3	First Author	SCIE (IF=2.69)	Collaboration with CNBU
J 14	<b>J.-W. Nam</b> , J.-H. Ahn, and J.-P. Hong, "Compact SRAM-based PUF Chip Employing Body Voltage Control Technique," IEEE ACCESS, vol. 10, pp. 22311-22319, Feb. 2022.	3	First Author	SCIE (IF=3.476)	Collaboration with CNBU
J 13	<b>J.-W. Nam</b> , Y.-K. Cho and Y. K. Lee, "Regression Model-Based AMS Circuit Optimization Technique Utilizing Parameterized Operating Condition," MDPI Electronics, vol. 11, no. 3, Jan. 2022.	3	First Author	SCIE (IF=2.69)	

J12	Y.-K. Cho, <b>J.-W. Nam</b> , S.-W. Lee, "A Low-Power Class-C Voltage-Controlled Oscillator with Robust Start-Up and Compact High-Q Capacitor Array," IEEE Trans. Circuits Syst. II, Exp. Briefs, Oct. 2021.	3	Co-Author	SCIE (IF=3.292)	Collaboration with KNU
J11	Y.-K. Cho, <b>J.-W. Nam</b> , "Three-Dimensional Selective Oxidation Fin Channel MOSFET Based on Bulk Silicon Wafer," Journal of Convergence for Information Technology, vol. 11, no. 11, pp. 159-165, Nov. 2021.	2	Corresponding Author	KCI	Collaboration with KNU
J10	<b>J.-W. Nam</b> , Y.-K. Cho, "5-bit FLASH A/D Converter Employing Time-interpolation Technique," Journal of Convergence for Information Technology, vol. 11, no. 9, pp. 124-129, Sept. 2021.	2	First Author	KCI	
C12	S. Park, <b>J.-W. Nam</b> , and S. K. Gupta, "HW-BCP: A custom hardware accelerator for SAT suitable for single chip implementation for large benchmarks," the 26 <sup>th</sup> Asia and South Pacific Design Automation Conf., Jan. 2021.	3	Co-Author	International Conference	Oral Presentation
C11	H. W. Kwon, <b>J.-W. Nam</b> , and Y. K. Lee, "Generative adversarial attacks on fingerprint recognition systems," the 35 <sup>th</sup> International Conf. on Information and networking (ICOIN), Jan. 2021.	3	Co-Author	International Conference	
C10	<b>J.-W. Nam</b> , and Y. K. Lee, "Machine-learning based analog and mixed-signal circuit design and optimization," the 35 <sup>th</sup> International Conf. on Information and networking (ICOIN), Jan. 2021.	2	Co-Author	International Conference	Poster Presentation
J9	<b>J.-W. Nam</b> , and M.-W. Chen, "A 12.8-Gbaud ADC-based Wireline Receiver with Embedded IIR Equalizer," IEEE J. Solid-State Circuits, vol. 55, no. 3, pp. 557–567, Mar. 2020.	2	First Author	SCIE (IF=5.013)	
C9	<b>J.-W. Nam</b> , and M.-W. Chen, "A 12.8-Gbaud ADC-based NRZ/PAM4 Receiver with Embedded Tunable IIR Equalization Filter Achieving 2.43-pJ/b in 65nm CMOS," IEEE Custom Integrated Circuits Conf., April. 2019.	2	First Author	International Conference	Outstanding Student paper Award
J8	<b>J.-W. Nam</b> , M. Hassanpourghadi, A. Zhang, and S.-W. M. Chen, "A 12-bit 1.6, 3.2, and 6.4 GS/s 4-b/cycle Time-Interleaved SAR ADC with Dual Reference Shifting and Interpolation," IEEE J. Solid-State Circuits, vol. 53, no. 6, pp. 1765-1779, May 2018.	4	First Author	SCIE (IF=5.173)	
J7	<b>J.-W. Nam</b> , and S.-W. M. Chen, "An embedded passive gain technique for asynchronous SAR ADC achieving 10.2 ENOB 1.36-mW at 95-MS/s in 65 nm CMOS," IEEE Trans. Circuits Syst. I, Reg. Papers, vol. 63, no. 10, pp. 1628 - 1638, Oct. 2016.	2	First Author	SCIE (IF=2.407)	
C8	<b>J.-W. Nam</b> , M. Hassanpourghadi, A. Zhang, and S.-W. M. Chen, "A 12-bit 1.6 GS/s interleaved SAR ADC with dual reference shifting and Interpolation achieving 17.8 fJ/conv-step in 65nm CMOS," in Proc. IEEE Symp. VLSI Circuits, Jun. 2016, pp.154–156.	4	First Author	International Conference	Oral Presentation
C7	<b>J.-W. Nam</b> , D. Chiong, and S.-W. M. Chen, "A 95-MS/s 11-bit 1.36-mW asynchronous SAR ADC with embedded passive gain in 65 nm CMOS," IEEE Custom Integrated Circuits Conf., Sep. 2013, pp. 1–4.	3	First Author	International Conference	Oral Presentation
C6	<b>J.-W. Nam</b> , M. Hassanpourghadi, A. Zhang, and S.-W. M. Chen, "Low-power High Dynamic-range ADC with over GHz Bandwidth using Cost-efficient Multi-bit/cycle SAR ADC," GOMATech 2018.	4	First Author	Government Conference	
C5	M. Hassanpourghadi, Q. Zhang, P. Sharma, <b>J.-W. Nam</b> , S. Su, S. Chowdhury, M.S.W. Chen, Sandeep Gupta, A.F.J. Levi, W. Handford, and W. Taylor, "Automated analog mixed signal IP generator for CMOS technologies," GOMATech 2019.	11	Co-Author	Government Conference	
J6	Y.-D. Jeon, <b>J.-W. Nam</b> , K.-D. Kim, T. M. Roh, and J.-K. Kwon, "A dual-channel pipelined ADC with sub-ADC based on flash–SAR architecture," IEEE Trans. Circuits Syst. II, Exp. Briefs, vol. 59, no. 11, pp. 741–745, Nov. 2012.	5	Co-Author	SCIE (IF=1.327)	
J5	Y.-K. Cho, Y.-D. Jeon, <b>J.-W. Nam</b> , and J.-K. Kwon, "A 9-bit 80 MS/s successive approximation register analog-to-digital Converter with a capacitor reduction technique," IEEE Trans. Circuits Syst. II, Exp. Briefs, vol. 57, no. 7, pp. 502–506, Jul. 2012.	4	Co-Author	SCIE (IF=1.327)	
J4	Y.-K. Cho, Y.-D. Jeon, <b>J.-W. Nam</b> , and J.-K. Kwon, "A 10-bit 30-MS/s successive approximation register analog-to-digital converter for low-power sub-sampling applications," Elsevier Microelectronics Journal, vol. 42, no. 12, pp. 1335–1342, Jul. 2011.	4	Co-Author	SCIE (IF=0.919)	
C4	<b>J.-W. Nam</b> , Y.-D. Jeon, S.-J. Yun, T. M. Roh, and J.-K. Kwon, "A 12-bit 100-MS/s pipelined ADC in 45-nm CMOS," in Proc. IEEE ISOC, 2011, pp. 405–407.	5	First Author	International Conference	Poster Presentation

J3	<b>J.-W. Nam</b> , Y.-D. Jeon, Y.-K. Cho, J.-K. Kwon, "A 12-Bit 200-MS/s pipelined A/D converter with sampling skew reduction technique," <i>Elsevier Microelectronics Journal</i> , no. 11, vol. 42, pp. 1225-1230, Nov. 2011.	4	First Author	SCIE (IF=0.919)	
C3	Y.-D. Jeon, Y.-K. Cho, <b>J.-W. Nam</b> , W.-Y. Lee, K.-T. Hong, and J.-K. Kwon, "A 9.15mW 0.22mm <sup>2</sup> 10b 204MS/s pipelined SAR ADC in 65nm CMOS," <i>IEEE Custom Integrated Circuits Conf.</i> , Sep. 2010, pp. 1-4.	6	Co-Author	International Conference	Oral Presentation
C2	<b>J.-W. Nam</b> , Y.-D. Jeon, Y.-K. Cho, S.-G. Lee, and J.-K. Kwon, "A 2.85mW 0.12mm <sup>2</sup> 1.0V 11-bit 20-MS/s algorithmic ADC in 65nm CMOS," in <i>Proc. IEEE ESSCIRC</i> , 2009, pp. 468-471.	5	First Author	International Conference	Oral Presentation
J2	Y.-D. Jeon, Y.-K. Cho, <b>J.-W. Nam</b> , S.-C. Lee, and J.-K. Kwon, "A 1.2 V 12 b 60 MS/s CMOS analog front-end for image signal processing applications," <i>Elsevier ETRI Journal</i> , vol. 31, no. 6, Dec. 2009.	5	Co-Author	SCIE (IF=1.159)	
J1	H. B. Le, <b>J.-W. Nam</b> , S.-T. Ryu, and S.-G. Lee, "Single-chip A/D converter for digital microphones with on-chip preamplifier and time-domain noise isolation," <i>Electronics Letter</i> , vol. 45, no. 3, pp. 151-153, 2009.	4	Co-Author	SCIE (IF=1.232)	
C1	H.-B. Le, <b>J.-W. Nam</b> , S.-T. Ryu, and S.-G. Lee, "A CMOS sigma-delta modulator for a digital electret microphone with a high input-impedance preamplifier," <i>15<sup>th</sup> Korean Conf. on Semiconductors</i> , Phyeong-Chang, Feb. 2008.	4	Co-Author	Domestic Conference	Poster Presentation

b) Patents (ending Patents are excluded)

	Name of the Patent, Inventor, Registration No., Date of the Registration	# of Inventors	Participation Rate (%)	Country of Registration	
				South Korea	US
19	Multi-level PAM High-speed Transmitter, <b>Jaewon Nam</b> , Changwan Kim KR10-2021-0063714, May 17, 2021.	2	50	√	PCT
18	Apparatus and method for reducing a noise in an output waveform using a multi-bit sigma-delta modulator and a three phase inverter, <b>Jaewon Nam</b> , Minki Kim, Jimin Oh, Yil suk Yang, KR101854395B1, May 8, 2018, US9350226B2, May 24, 2016.	4	40	√	√
17	Sensorless BLDC motor systems and driving methods of sensorless BLDC motor, Young Kyun Cho, Hui Dong Lee, <b>Jaewon Nam</b> , Jong-Kee Kwon, KR101803384B1, Nov. 30, 2017, US8836259B2, Sept. 16, 2014.	4	10	√	√
16	Triangular wave generator and method generating triangular wave thereof, Hui Dong Lee, <b>Jaewon Nam</b> , Young Kyun Cho, Jong-Kee Kwon, Yil suk Yang, Jongdae Kim, KR101801199B1, Nov. 24, 2017, US8604845B2, Dec. 10, 2013.	6	10	√	√
15	Motor control device and method of controlling the same, <b>Jaewon Nam</b> , Young Kyun Cho, Hui Dong Lee, Yil suk Yang, Jong-Kee Kwon, Jongdae Kim, KR101739911B1, May 26, 2017, US9490734B2, Nov. 8, 2016.	6	50	√	√
14	Pipelined analog digital convertor, <b>Jaewon Nam</b> , Young Deuk Jeon, Young Kyun Cho, Jong-Kee Kwon, US8564469B2, Oct 22, 2013.	4	40		√
13	Reference voltage supply circuit including a glitch remover, Young Deuk Jeon, Young Kyun Cho, <b>Jaewon Nam</b> , Jong-Kee Kwon, US8547081B2, Oct. 1, 2013.	4	10		√
12	Successive approximation register analog-digital converter and method for operating the same, Young Kyun Cho, Young Deuk Jeon, <b>Jaewon Nam</b> , Jong-Kee Kwon, KR101309837B1, Sept. 23, 2013, US8164504B2, Apr. 24, 2012.	4	10	√	√
11	Analog digital converter, Young Deuk Jeon, Young Kyun Cho, <b>Jaewon Nam</b> , Jong-Kee Kwon, US8531328B2, Sept 10, 2013.	4	10		√
10	Pipelined analog digital converter, <b>Jaewon Nam</b> , Young Deuk Jeon, Young Kyun Cho, Jong-Kee Kwon, US8508392B2, Aug 13, 2013.	4	70		√

9	Analog digital converting device, Young Kyun Cho, Young Deuk Jeon, <b>Jaewon Nam</b> , Jong-Kee Kwon, US8362938B2, Jan. 29, 2013.	4	10		√
8	Pipeline analog-to-digital converter, <b>Jaewon Nam</b> , Young Deuk Jeon, Young Kyun Cho, Jong-Kee Kwon, KR101224102B1, Jan. 21, 2013, US8164497B2, Apr 24, 2012.	4	70	√	√
7	Digital-to-analog converter, Young Kyun Cho, Young Deuk Jeon, <b>Jaewon Nam</b> , Jong-Kee Kwon, KR101201892B1, Nov. 16, 2012, US8059022B2, Nov. 15, 2011.	4	10	√	√
6	Read-out circuit with high input impedance, Minhung Cho, Yi Gyoung Kim, <b>Jaewon Nam</b> , Jong-Kee Kwon, KR101183986B1, Aug. 19, 2012, US8300850B2, Oct. 30, 2012.	4	5	√	√
5	Successive approximation register analog-digital converter and method of driving the same, Young Kyun Cho, Young Deuk Jeon, <b>Jaewon Nam</b> , Jong-Kee Kwon, KR101182402B1, Sept. 13, 2012.	4	10	√	
4	Band-gap reference voltage generator, Young Kyun Cho, Young Deuk Jeon, <b>Jaewon Nam</b> , Jong-Kee Kwon, US8058863B2, Nov. 15, 2011.	4	10		√
3	Multi-stage successive approximation register analog-to-digital converter and analog-to-digital converting method using the same, Young Deuk Jeon, Young Kyun Cho, <b>Jaewon Nam</b> , Jong-Kee Kwon, US7999719B2, Aug 16, 2011.	4	10		√
2	Multi-stage dual successive approximation register analog-to-digital convertor and method of performing analog-to-digital conversion using the same, Young Deuk Jeon, Young Kyun Cho, <b>Jaewon Nam</b> , Jong-Kee Kwon, US7978117B2, July 12, 2011.	4	10		√
1	Method of algorithmic analog-to-digital conversion and algorithmic analog-to-digital converter, Seung-Chul Lee, <b>Jaewon Nam</b> , Young Deuk Jeon, Jong-Kee Kwon, US7705764B2, Apr 27, 2010.	4	30		√

## V. Research Experiences

	Project Title	Program/grantor	Period	Total Expenses	Form of Participation	Note
P10	Development for Processing Software on AI Semiconductor Devices	IITP, Korea	07/2022 – 12/2029	750 (8Y)	Participant	in millions of KRW
P9	Next-Generation System Semiconductor Design Engineer Development Program	KIAT, Korea	03/2021 – 02/2026	591.2 (5Y)	Participant	
P8	Development of Cryogenic CMOS Interconnect Electronics for Large-Scale and Reliable Quantum Computer (BRL)	National Research Foundation of Korea (NRF)	06/2022 – 02/2025	500 (2.5Y)	Participant (Sub-PI)	
P7	PCIe Gen 6.0 CMOS ADC based Receiver 2021R1G1A1003326	National Research Foundation of Korea (NRF)	03/2021 – 02/2024	30 /Year	PI	
P6	PUF Hardware security SoC Development (NRF) 2021R1A2C2005258	National Research Foundation of Korea (NRF)	03/2021 – 02/2026	25 /Year	Participant	
P5	POSH (Posh Open Source Hardware) (FA8650-18-2-7853)	Defense Advanced Research Project Agency (DARPA), US	06/2018 – 08/2019	6	Participant	in millions of USD
P4	Multi-Tier Reconfigurable Transceivers for Hand-Portable Radios and Micro Base Stations in Networked Warfare (N00014-11-1-0819)	Office of Naval Research (ONR), US	08/2012 – 08/2016	3.25	Researcher	
P3	High Voltage/Current Power Module and ESD for BLDC Motor (MKE-10035171)	Ministry of Knowledge Economy (MKE), South Korea	03/2010 – 02/2015	16,750	Researcher (Supervision Institution)	in millions of KRW

P2	45nm Analog Circuit for Mixed-signal SoC (MKE-415106883)		03/2008 – 02/2010	13,650		
P1	Electrical components/module for ubiquitous terminal (MKE-415100592)		03/2006 – 02/2010	49,200		

## VI. Invited Talks

	Organization	Host	Date	Location
1	Qualcomm Atheros (Topic: Embedded Passive gain SAR ADC)	Dr. Su, David	08/2013	San Jose, CA, US
2	Dong-A University, ECE (Topic: Low-power ADC)	Dr. Kim, Chang-Wan	02/2015	Pusan, South Korea
3	Marvell Semiconductor Incorporation (Topic: ADC-based wireline receiver)	Dr. Gambhir, Manisha	10/2018	Santa Clara, CA, US
4	Georgia Tech, ECE (Faculty job interview) (Topic: Advanced High-speed ADC)	Dr. Wang, Hua	01/2019	Atlanta, GA, US
5	University of Washington Bothell, EE (Faculty job interview) (Topic: Advanced High-speed ADC)	Dr. Choi, Seungkeun	02/2019	Bothell, WA, US
6	Lawrence Berkeley National Laboratory (LBNL) (Job talk) (Topic: Low power ADC design technique)	Dr. Grace, Carl	05/2019	Berkeley, CA, US
7	Intel corporation (Job talk) (Topic: ADC-based wireline receiver)	Dr. O'mahony, Frank	06/2019	Hillsboro, OR, US
8	Dong-A University, ECE (Topic: GS/s ADC trends in high-speed transceiver)	Dr. Kim, Chang-Wan	10/2015	Pusan, South Korea
8	Electronics and Telecommunications Research Institute (Topic: 25Gbps High-speed PAM4 wireline transceiver)	Dr. Lee, Ja-Yol	10/2020	Daejeon, South Korea
9	The institute of Semiconductor Engineers (Topic: ADC-based wireline receiver)	ISE (Dr. Seung-eun Lee)	12/2020	Seoul, South Korea
10	ADC-based wireline receiver design	Dr. Jong-Phil Hong	02/2021	Chungju, South Korea
11	RF/Analog Workshop GS/s ADC Design Trends for the High-speed Links	Dr. Jae-Duk Han	09/2021	Seoul, South Korea

## VII. Academic Mentoring Activities

	Topic	Student Name	Date	Current Affiliation (Title)
S1	Analog-front-end circuits design (M.S. Direct Research at Dr. Chen's group)	Park, Jong	2014 Fall	LG Electronics, Korea (Specialist at LG-CTO) Samsung Electronics, Korea (LSI Dept. since 2021)
S2	High resolution ADC Design in 14nm FinFET (M.S. Direct Research at Dr. Chen's group)	Ravindranath, Abhilash	2017 Spring	Ansys, Inc., US (Senior Application Engineer)
S3	Mixed-signal integrated circuits for a testing (M.S. Direct Research at Dr. Chen's group)	Zhou, Ruohan	2017 Fall	Western Digital, US (Senior Engineer)
S4	CMOS VLSI EDA tutoring	Dr. Park, Soowang	2018 Fall	Apple, US (ASIC Design Engineer)
S5	CMOS circuit design and testing (USC-KAU Summer intern program)	Kwon, O-Sung	2019 Summer	Samsung Electronics, Korea
S6	High-speed PRBS generator design in 65nm	Lim, Si-Young	2020-2021	Hynix, Korea
S7	CMOS VLSI EDA tutoring	Lee, Ji-hun	2021 Summer	KU-KIST M.S. Program
S8	Wideband Amp & Active Inductor design	Lee, Hae-Chan	2021 Summer	Samsung DS (Memory Dept.) Intern

S9	CMOS Temperature Sensor	Yoo, Hyunyoung	2020 Winter ~	SeoulTech B.S. & M.S. Combined Program M.S. Program (~2023 Fall)
S10	SRAM based PUF design	Yoo, Jimin	2021 Spring ~	SeoulTech B.S. & M.S. Combined Program
S11	Regulator & Bandgap Reference circuit design	Lee, Hyun Jeong	2021 Spring ~	SeoulTech B.S. & M.S. Combined Program M.S. Program (~2023 Spring)
S12	High-speed Comparator design	Kim, Dana	2021 Winter ~	Will join SeoulTech M.S. Program (~2023 Spring)
S13	SRAM-based PUF SoC	Seungbum Baek	Ph.D. Defense Committee	Samsung Electronics (PUF Design Team)
S14	THz EM based circuit / Antenna design	Toufiq Aziz	2022 Fall ~	Will join SeoulTech M.S. Program (~2022 Fall)
S15	UWB Channel Selection Filter design	Kim, Won-Jun Park, Narin	2022 Spring ~	2022 Capstone
S16	Delay-Locked Loop for high-speed link	Kim, Jae-Yoon	2022 Spring ~	2022 Capstone
S17	Digitally assisted ADC design	Park, Jae-Yun	2022 Summer ~	M.S. Program (~2022 Fall)
S18	DAC for Quantum Computing Electronics	Kim, Soohyun	2022 Summer ~	SeoulTech B.S. & M.S. Combined Program M.S. Program (~2024 Spring)