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RESEARCH INTEREST

- CMOS Analog and Mixed-Signal Integrated Circuit (IC) Design
- Energy-Efficient Amplifier; Switched-Capacitor/Switched-Current (SC/SI) Circuits
- Display Driver IC (DDI) for OLED Displays with Active Non-Uniformity Compensation
- Power Management IC (PMIC): Inductive/Capacitive Switching DC-DC Converter; Linear Regulator; Energy-Harvesting Interface
- High-SNR CMOS Readout IC (ROIC) for Imaging and Touch-Sensing Applications
- Large-Area Electronics (LAE) with Poly-Si and a-Si:H TFTs on Glass/Plastic Substrates

EDUCATION

KAIST, Daejeon, Korea - *Ph.D. in Electrical Engineering*

February 2011 - February 2014

- Dissertation: "Design of Mixed-Signal CMOS Integrated Circuits for X-ray Image Sensor and LCD Column Driver"
- Academic Advisor: Prof. Gyu-Hyeong Cho

KAIST, Daejeon, Korea - *M.S. in Electrical Engineering*

February 2009 - February 2011

- Dissertation: "Design of Digital-to-Analog Converter for Current-Mode AMOLED Display Driver"
- Academic Advisor: Prof. Gyu-Hyeong Cho

Hanyang University, Seoul, Korea - *B.S. in Electronic Engineering*

March 2005 - February 2009

- Graduation with the highest rank (1/3,000) in university (GPA: 4.44/4.5)
- 본교 전체수석 졸업 (1등/3,000명)

EXPERIENCE

KAIST, Daejeon, Korea - *Assistant Professor of Electrical Engineering*

March 2019 - Present

Dankook University, Cheonan, Korea - *Assistant Professor of Display Engineering*

September 2015 - February 2019

Samsung Display Co. Ltd., Yongin, Korea - *Senior Researcher*

March 2014 - August 2015

- OLED TV Development Team / Mobile OLED Module Team / Yield Enhancement Team

HONORS AND AWARDS

Best Teaching Award (BTA) - *Dankook University* in Feb. 2017

Predoctoral Achievement Award - *IEEE Solid-State Circuits Society* in Feb. 2014

- Awarded based on academic achievements (3 ISSCC papers) in the area of solid-state circuits

Best IEEE-JSSC Student Paper Award - *IEEE-SSCS Seoul Chapter* in May 2014

Gold Medal, 19th Samsung Human-Tech Paper Award - *Samsung Electronics* in Feb. 2013

Gold Medal, 18th Samsung Human-Tech Paper Award - *Samsung Electronics* in Feb. 2012

Bronze Medal, 17th Samsung Human-Tech Paper Award - *Samsung Electronics* in Feb. 2011

Selected as one of top 10 achievements that put KAIST on the spotlight in Jan. 2012

Graduation from Hanyang University as the Campus Valedictorian in Feb. 2009

College Student Full Scholarship - *Altwell Scholarship Foundation* in 2005 - 2009

- Awarded based on university entrance exam score and outstanding academic achievements

HONORS AND AWARDS (received by advising students)

Best Paper Award - *IEEE-SSCS Seoul Chapter* in Sept. 2019

- Tae-Gyun Song (M.S. course) | 19th Workshop on RF/Analog Circuit Technology (IEIE Korea)

ACADEMIC ACTIVITY

Member of IEEE

- Solid-State Circuits Society (SSCS), Circuits and Systems Society (CAS)

IEEE Custom Integrated Circuits Conference (CICC) - *Technical Program Committee (TPC)*

2021 - Present

- **TPC** Member of Power Management Subcommittee

IEEE Asian Solid-State Circuits Conference (A-SSCC) - *Technical Program Committee (TPC)*

2017 - Present

- **TPC** Member of Analog Circuits and Systems (ACS) Subcommittee
- Power Management Session Chairs of IEEE A-SSCC in 2017, 2018, 2019

RF/Analog Circuit Workshop

IEIE Korea (대한전자공학회)

- Organizing Committee (Publication Chair) and Program Committee in 2019 - 2020
- Technical Program Committee (TPC) in 2017 - 2018

Technical Reviewer

- *IEEE J. Solid-State Circuits* (JSSC), *IEEE T. Circuits and Systems* (TCAS-I & TCAS-II), *IEEE Sensors Journal*, *IEEE/OSA J. Display Technology* (JDT), *IET Electronic Letters* (EL), *IEEE T. VLSI Systems* (T-VLSI), *IEEE T. Electron Devices* (TED), *IEEE J. Emerging and Selected*

Topics in Power Electronics (J-ESTPE), Nuclear Inst. and Methods in Physics Research A (NIM-A), J. Semiconductor Technology and Science (JSTS)

TEACHING

Teaching at KAIST

- Advanced Electronic Circuits (전자회로특론): *Spring 2020*
- Circuit Theory: *Fall 2019*

Teaching at Dankook University

- Circuit Theory I, II: *Fall 2015 - Fall 2018*
- Electronic Circuits I, II: *Fall 2018*
- Introduction to Semiconductor Engineering: *Fall 2015*
- Microprocessor: *Spring 2016, Spring 2017*
- Information Display Engineering: *Spring 2016*
- Display Driving Circuits and Systems: *Fall 2016 - Fall 2018*
- Digital Circuit Design: *Fall 2016 - Fall 2017*
- Analog Integrated Circuits: *Spring 2016 - Spring 2018*

INVITED TALKS

1. **OLED Display Driving Technique with Real-Time Pixel Nonuniformity Compensation**
December 2019
Optics & Photonics Taiwan, International Conference (OPTIC) 2019, Taichung, Taiwan
2. **Design of OLED Driver ICs for High-Quality Displays**
May 2019
Analog/Power IC Design Workshop (IEIE), Pangyo, Korea
3. **Design Innovations in CMOS Driver Integrated Circuits for LCD and OLED Displays**
November 2018
Liquid Crystal Institute (LCI), Kent State University, Kent, Ohio, USA
4. **Design of Low-Dropout (LDO) Regulator Circuits (Full-Time Tutorial)**
August 2018, August 2019, July 2020
IC Design Education Center (IDEC), KAIST, Daejeon, Korea
5. **Low Noise Design in Large-Area Optical Imager Electronics**
June 2018
HiDeep Inc., Pangyo, Korea
6. **Piezoelectric and Photovoltaic Energy-Harvesting Interface Circuits**
September 2017
Korea Institute of Energy Research (KIER), Daejeon, Korea
7. **Power Converters - ISSCC Review Workshop**
May 2017, May 2019
IEEE SSCS Seoul Chapter, Ewha Womans University, Seoul, Korea
8. **LED Control IC and Energy-Harvesting Technologies for IoT Platform**
May 2017
Korea Institute of Energy Research (KIER), Daejeon, Korea
9. **R&D Trend Seminar: Open the door to Photon-Counting Detector**
August 2016
Rayence Co. Ltd., Hwaseong, Korea

FUNDED RESEARCH PROJECT

1. **Wireless Battery Management System-on-Chip (SoC) for Electric Vehicles**
April 2020 - December 2022
Principal Investigator (PI) | Funded from Ministry of Trade, Industry and Energy (산업통상자원부)
2. **High-Power Fully-Integrated Voltage Regulator with Ultrafast DVS for Energy-Efficient High-Performance AI Computing**
March 2020 - February 2025
Principal Investigator (PI) | Funded from National Research Foundation (과학기술부 - 한국연구재단)
3. **High-Efficiency Buck-Boost DC-DC Converter with Fast Transient Response**
July 2019 - June 2020
Principal Investigator (PI) | Funded from Samsung Electronics Co. Ltd.
4. **High-Resolution OLED Source Driver IC Containing Pixel-Readout Channel**
March 2019 - February 2022
Principal Investigator (PI) | Funded from Samsung Display Co. Ltd.
5. **Low-Noise Bipolar-Output Step-Up Converter**
April 2019 - December 2020
Principal Investigator (PI) | Funded from Ministry of Trade, Industry and Energy (산업통상자원부)
6. **Low-Noise Pixel-Integrated X-ray Line Scan CMOS Sensor**
January 2018 - December 2020
Principal Investigator (PI) | Funded from Ministry of SMEs & Startups + KIAT (중소벤처기업부)
7. **Piezo/PV Multi-Source Energy Harvesting Interface IC**
March 2018 - October 2019
Principal Investigator (PI) | Funded from Korea Institute of Energy Research
8. **CMOS Touch Sensor Readout IC and System with User-Recognition**
November 2016 - October 2019
Principal Investigator (PI) | Funded from National Research Foundation (교육부 - 한국연구재단)
9. **High Power-Density LED-Array Driver for Near-Infrared Light Therapy**
January 2017 - December 2018
Principal Investigator (PI) | Funded from Ministry of SMEs & Startups (중소벤처기업부)
10. **Design of High-PSR Linear CMOS Low-Dropout (LDO) Regulator**
June 2017 - October 2018
Principal Investigator (PI) | Funded from Silicon Mitus, Inc.
11. **O/S Inspection Process Improvement using Phase Detection in TFT-LCD Fabrication**
March 2017 - February 2018
Principal Investigator (PI) | Funded from Samsung Display Co. Ltd.
12. **Optimization of Power Management and Control Circuit System for UAV-Drones**
November 2016 - October 2018
Principal Investigator (PI) | Funded from Ministry of SMEs & Startups (중소벤처기업부)
13. **Precisely Controlled Piezoelectric Inkjet Head for Inkjet Printing Process**
October 2016 - September 2017
Principal Investigator (PI) | Funded from STI Co. Ltd.
14. **Piezoelectric-Signal Readout Circuit with Pyro-Signal Rejection for 3D Touch Sensor**
July 2016 - April 2017
Principal Investigator (PI) | Funded from Daikin Industries Co. Ltd., Osaka, Japan
15. **Development of Low-Noise High-Speed CMOS Readout IC for X-Ray Detector**
October 2016 - July 2017
Principal Investigator (PI) | Funded from Rayence Co. Ltd.

16. Automatic Light Drive and Control System for Smart-Cars and Medical Applications

March 2016 - December 2016

Principal Investigator (PI) | Funded from National Research Foundation (NRF)

PUBLICATION**Journal Articles** - **corresponding authorship*

1. Dong-Kyu Kim, Se-Un Shin, and **Hyun-Sik Kim***
 "A BGR-Recursive Low-Dropout Regulator Achieving High PSR in the Low- to Mid-Frequency Range"
IEEE Transactions on Power Electronics, **Accepted** to be published.
2. **Hyun-Sik Kim***
 "High-SNR and Process-Insensitive CMOS Capacitive Transimpedance Amplifier with Finely Tunable Conversion Gain"
Journal of Semiconductor Technology and Science, vol. 18, no. 5, pp. 578-585, Oct. 2018
3. Min-Woo Kim, Dong-Kyu Kim, Tetsuhiro Kodani, Takashi Kanemura, Hui-Dong Gwon, Gyu-Hyeong Cho, Kwan-Young Han, and **Hyun-Sik Kim***
 "Thermal-Variation Insensitive Force-Touch Sensing System Using Transparent Piezoelectric Thin-Film"
IEEE Sensors Journal, vol. 18, no. 14, pp. 5863-5875, July 2018
4. **Hyun-Sik Kim*** and Dong-Kyu Kim
 "An Active-Matrix OLED Driver CMOS IC with Compensation of Non-Uniform Routing-Line Resistances in Ultra-Thin Panel Bezel"
IEEE Journal of Solid-State Circuits, vol. 53, no. 2, pp. 484-500, Feb. 2018
5. Kye-Seok Yoon, **Hyun-Sik Kim***, Wanyuan Qu, Young-Sub Yuk, and Gyu-Hyeong Cho
 "Fully-Integrated Digitally-Assisted Low-Dropout Regulator for NAND Flash Memory System"
IEEE Transactions on Power Electronics, vol. 33, no. 1, pp. 388-406, Jan. 2018
6. Woonsung Kang, Sunnam Hwang, Ho Jung Chang, and **Hyun-Sik Kim***
 "3.7-V Single Battery-Cell High-Efficiency Power Management Circuit and System for UAV-Drones"
Journal of the Microelectronics and Packaging Society, vol. 24, no. 3, pp. 63-69, Sep. 2017
7. **Hyun-Sik Kim**, Hyeon-Deuk Hwang, and Kwan-Young Han*
 "Ink-Step Adaptability and Reliability of Maleimide-functionalized UV-curable Optically Clear Adhesives"
Nanoscience and Nanotechnology Letters, vol. 9, no. 8, pp. 1146-1152, Aug. 2017
8. Sang-Hui Park, **Hyun-Sik Kim***, Jun-Suk Bang, Gyu-Ha Cho, and Gyu-Hyeong Cho
 "A 0.26 nJ/node, 400 kHz Tx Driving, Filtered Fully Differential Readout IC with Parasitic RC Time Delay Reduction Technique for 65-inch 169×97 Capacitive-Type Touch Screen Panel"
IEEE Journal of Solid-State Circuits, vol. 52, no. 2, pp. 528-542, Feb. 2017
9. **Hyun-Sik Kim***
 "Sporadically-Driven Clockless In-Pixel Multi-Bit Energy Discriminator for X-ray Spectrometry CMOS PCD Imagers"
Electronics Letters, vol. 52, no. 19, pp. 1590-1592, Sept. 2016
10. **Hyun-Sik Kim*** and Kwan-Young Han
 "Switching Power Supply Circuit with Voltage-Drop Compensation for AMOLED Displays"
IEICE Electronics Express, vol. 13, no. 12, pp. 1-6, June 2016
11. Jun-Suk Bang, **Hyun-Sik Kim***, Ki-Duk Kim, Oh-Jo Kwon, Joohyung Lee, and Gyu-Hyeong Cho*
 "A Hybrid AMOLED Driver IC for Real-time TFT Non-Uniformity Compensation"
IEEE Journal of Solid-State Circuits, vol. 51, no. 4, pp. 966-978, April 2016

12. **Hyun-Sik Kim*** and Kwan-Young Han
 “Low-noise Reset Technique of an Asynchronous Charge-pulse-detecting Pixel for Single-photon X-ray Imaging”
Journal of the Korean Physical Society, vol. 68, no. 3, pp. 456-461, Feb. 2016
13. **Hyun-Sik Kim*** and Kwan-Young Han
 “High-SNR Capacitive Multi-Touch Sensing Technique for AMOLED Display Panels”
IEEE Sensors Journal, vol. 16, no. 4, pp. 859-860, Feb. 2016
14. **Hyun-Sik Kim** and Kwan-Young Han*
 “Antimicrobial Activity of SiO₂-Deposition on Ag-Doped and ZnO-Coated Glasses”
Nanoscience and Nanotechnology Letters, vol. 8, no. 1, pp. 66-70, Jan. 2016
15. **Hyun-Sik Kim*** and Kwan-Young Han
 “High-Linearity In-Pixel Thermal Sensor Using Low-Temperature Poly-Si Thin-Film Transistors”
IEEE Sensors Journal, vol. 15, no. 2, pp. 963-970, Feb. 2015
16. **Hyun-Sik Kim** and Kwan-Young Han*
 “Discoloration Improvement of Window Black-Matrix by Control of Polymer Crosslink-Density for Mobile Phones”
Nanoscience and Nanotechnology Letters, vol. 7, no. 12, pp. 961-966, Dec. 2015
17. Sukhwan Choi, **Hyun-Sik Kim**, Seungchul Jung, Si-Duk Sung, Young-Sub Yuk, Hyuck-Sang Yim, Jun-Ho Cheon, Changyong Ahn, Taekseung Kim, Yongki Brave Kim, and Gyu-Hyeong Cho*
 “Auto-Scaling Overdrive Method Using Adaptive Charge Amplification for PRAM Write Performance Enhancement”
IEEE Transactions on Circuits and Systems I, vol. 61, no. 11, pp. 3165-3174, Nov. 2014
18. Geon-Hee Kim, **Hyun-Sik Kim**, Sang-Hui Park, Jun-Suk Bang, and Gyu-Hyeong Cho*
 “A Gamma-Type Current-Mode Digital-to-Analog Converter for Active-Matrix Organic Light-Emitting Diode Display Drivers”
Journal of Information Display, vol. 15, no. 4, pp. 163-167, April 2014
19. **Hyun-Sik Kim**, Jun-Hyeok Yang, Sang-Hui Park, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “A 10-Bit Column-Driver IC with Parasitic-Insensitive Iterative Charge-Sharing Based Capacitor-String Interpolation for Mobile Active-Matrix LCDs”
IEEE Journal of Solid-State Circuits, vol. 49, no. 3, pp. 766-782, Mar. 2014
20. **Hyun-Sik Kim**, Sang-Wook Han, Jun-Hyeok Yang, Sunil Kim, Young Kim, Sangwook Kim, Dae-Kun Yoon, Jae-Chul Park, Younghun Sung, Seong-Deok Lee, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “An Asynchronous Sampling-Based 128 × 128 Direct Photon-Counting X-Ray Image Detector with Multi-Energy Discrimination and High Spatial Resolution”
IEEE Journal of Solid-State Circuits, vol. 48, no. 2, pp. 541-558, Feb. 2013 (Best Paper Award)
21. **Hyun-Sik Kim**, Jin-Yong Jeon, Sung-Woo Lee, Jun-Hyeok Yang, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “A Compact-Sized 9-Bit Switched-Current DAC for AMOLED Mobile Display Drivers”
IEEE Transactions on Circuits and Systems II, vol. 58, no. 12, pp. 887-891, Dec. 2011

Conference Presentations - *corresponding authorship

1. Tae-Gyun Song, Dong-Kyu Kim, Jeong-Hyun Cho, Ji-Hun Lee, and **Hyun-Sik Kim***
 “A 50.7dB-DR Finger-Resistance Extractable Multi-Touch Sensor IC Achieving Finger-Classification Accuracy of 97.7% on 6.7-inch Capacitive Touch Screen Panel”
IEEE Symposium on VLSI Circuits (VLSIC), June 2020.
2. Ji-Hun Lee, Gyeong-Gu Kang, Min-Woo Ko, Gyu-Hyeong Cho, and **Hyun-Sik Kim***
 “An 8Ω, 1.4W, 0.0024% THD+N Class-D Audio Amplifier with Bridge-Tied Load Half-Side Switching Mode Achieving Low Standby Quiescent Current of 660μA”
IEEE Symposium on VLSI Circuits (VLSIC), June 2020.

3. Min-Woo Ko, Gyeong-Gu Kang, Ki-Duk Kim, Ji-Hun Lee, Seoktae Koh, Taehwang Kong, Sang-Ho Kim, Sungyong Lee, Michael Choi, Jongshin Shin, Gyu-Hyeong Cho, and **Hyun-Sik Kim***
 “A 96.8%-Efficiency Continuous Input/Output-Current Step-Up/Down Converter Powering Disposable IoTs with Reconfigurable Multi-Cell-Balanced Alkaline Batteries”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 204-205, Feb. 2020.
4. Dong-Kyu Kim and **Hyun-Sik Kim***
 “A 300mA BGR-Recursive Low-Dropout Regulator Achieving 102-to-80dB PSR at Frequencies from 100Hz to 0.1MHz with Current Efficiency of 99.98%”
IEEE Symposium on VLSI Circuits (VLSIC), pp. C132-C133, June 2019.
5. Uh-Ho Shin and **Hyun-Sik Kim***
 “Multi-Channel Phase-Demodulation Electrical Inspector in Manufacturing Process for Flat Panel Active-Matrix Array”
International Meeting on Information Display (IMID), Aug. 2018.
6. Ki-Duk Kim, Seunghyun Park, Kye-Seok Yoon, Gyeong-gu Kang, Hyun-Ki Han, Ji-Su Choi, Sangjin Lim, Hyung-Min Lee, **Hyun-Sik Kim**, Kwiro Lee, and Gyu-Hyeong Cho*
 “A 100mK-NETD 100ms-Startup-Time 80×60 Micro-Bolometer CMOS Thermal Imager Integrated with a 0.234mm² 1.89μV_{rms} Noise 12b Biasing DAC”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 192-193, Feb. 2018.
7. Dong-Kyu Kim and **Hyun-Sik Kim***
 “Low-Noise High-Speed CMOS CID Readout IC”
International SoC Design Conference (ISOC), pp. 178-179, Nov. 2017.
8. Sun-Kyu Lee, Dong-Kyu Kim, and **Hyun-Sik Kim***
 “Fully Automatic LED Light Drive and Angle Control System for Smart-Car Applications”
IEIE Summer Conference, July 2017. (Outstanding Poster Award)
9. Jun-Suk Bang, **Hyun-Sik Kim**, Kye-Seok Yoon, Sang-Han Lee, Oh-Jo Kwon, Choong-Sun Shin, Seonki Kim, and Gyu-Hyeong Cho*
 “A Load-Aware Pre-Emphasis Column Driver with 27% Settling-time Reduction in ±18% Panel-load RC Delay Variation for UHD 240Hz Flat-Panel Displays”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 212-213, Feb. 2016.
10. Jun-Suk Bang, **Hyun-Sik Kim**, Sang-Hui Park, Ki-Duk Kim, Sung-Won Choi, Oh-Jo Kwon, and Gyu-Hyeong Cho*
 “Hybrid Driver IC for Real-Time TFT Non-Uniformity Compensation of Ultra High-Definition AMOLED Display”
IEEE Symposium on VLSI Circuits (VLSIC), pp. C326-C327, June 2015.
11. Jun-Suk Bang, **Hyun-Sik Kim**, Sang-Hui Park, Geon-Hee Kim, and Gyu-Hyeong Cho*
 “A Real-time TFT Compensation through Power Line Current Sensing for High-resolution AMOLED Displays”
SID Symposium Digest of Technical Papers, pp. 724-727, June 2014.
12. Wanyuan Qu, Jong-Pil Im, **Hyun-Sik Kim**, and Gyu-Hyeong Cho*
 “A 0.9V 6.3μW Multistage Amplifier Driving 500pF Capacitive Load with 1.34MHz GBW”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 290-291, Feb. 2014.
13. Geon-Hee Kim, **Hyun-Sik Kim**, Sang-Hui Park, and Gyu-Hyeong Cho*
 “A Gamma-type Current-mode Digital-to-Analog Converter for AMOLED Display Driver”
International Meeting on Information Display (IMID), p. 180, Aug. 2013.
14. **Hyun-Sik Kim**, Jun-Hyeok Yang, Sang-Hui Park, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “A 5.6mV Inter-Channel DVO 10b Column-Driver IC with Mismatch-Free Switched-Capacitor Interpolation for Mobile Active-Matrix LCDs”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 392-393, Feb. 2013.
15. Jun-Hyeok Yang, Sang-Hui Park, Jung-Min Choi, **Hyun-Sik Kim**, Chang-Byung Park, Seung-Tak Ryu, and Gyu-Hyeong Cho*

- “A Highly Noise-Immune Touch Controller Using Filtered-Delta-Integration and a Charge-Interpolation Technique for 10.1-inch Capacitive Touch-Screen Panels”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 390-391, Feb. 2013.
16. Jin-woo Kim, Jin-Chul Lee, **Hyun-Sik Kim**, Jun-Hyeok Yang, Sang-Hui Park, and Gyu-Hyeong Cho*
 “An 8-bit Compact Hybrid DAC for Current-Mode Driving AMOLED Displays”
International Meeting on Information Display (IMID), pp. 477-478, Aug. 2012.
 17. Jun-Hyeok Yang, Sang-Hui Park, Jin-Yong Jeon, **Hyun-Sik Kim**, Chang-Byung Park, Jin-Chul Lee, Jin-Woo Kim, and Gyu-Hyeong Cho*
 “A High-SNR Area-Efficient Readout Circuit using a Delta-Integration Method for Capacitive Touch Screen Panels”
SID Symposium Digest of Technical Papers, pp. 1570-1573, May 2012.
 18. Jun-Hyeok Yang, Jin-Yong Jeon, **Hyun-Sik Kim**, Sang-Hui Park, Jin-Woo Kim, Jin-Chul Lee, and Gyu-Hyeong Cho*
 “A Novel Current-Mode Driving Technique for Real-Time Image Compensation in AMOLED Displays”
SID Symposium Digest of Technical Papers, pp. 647-650, May 2012.
 19. **Hyun-Sik Kim**, Sang-Wook Han, Jun-Hyeok Yang, Sunil Kim, Young Kim, Sangwook Kim, Dae-Kun Yoon, Jae-Chul Park, Younghun Sung, Seong-Deok Lee, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “A Sampling-Based 128×128 Direct Photon-Counting X-Ray Image Sensor with 3 Energy Bins and Spatial Resolution of 60μm/pixel”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 110-111, Feb. 2012.
 20. **Hyun-Sik Kim**, Jin-Yong Jeon, Sung-Woo Lee, Jun-Hyeok Yang, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “A 0.014mm² 9b Switched-Current DAC for AMOLED Mobile Display Drivers”
IEEE International Solid-State Circuits Conference (ISSCC), pp. 316-317, Feb. 2011.
 21. Sungwoo Lee, Ki-Duk Kim, Kyu-Sung Park, Chang-Byung Park, Byung-Hun Lee, Jin-Yong Jeon, Seung-Chul Jung, Jin Huh, Jun-Hyeok Yang, **Hyun-Sik Kim**, and Gyu-Hyeong Cho*
 “A 10 Bits Modified VCC Interpolation and DVO Correction by Drain Current Injection”
SID Symposium Digest of Technical Papers, pp. 58-61, May 2010.
 22. Jun-Hyeok Yang, Seung-Chul Jung, Young-Jin Woo, Jin-Yong Jeon, Sungwoo Lee, Changbyung Park, **Hyun-Sik Kim**, Seung-Tak Ryu, and Gyu-Hyeong Cho*
 “A Novel Readout IC with High Noise Immunity for Charge-Based Touch Screen Panels”
IEEE Custom Integrated Circuits Conference (CICC), pp. 1-4, Sep. 2010.
 23. Sungwoo Lee, Kiduk Kim, Kyusung Park, Changbyung Park, Byunghun Lee, Jinyong Jeon, Seungchul Jung, Junhyeok Yang, **Hyun-Sik Kim**, and Gyu-Hyeong Cho*
 “A 10 bit Piecewise Linear Cascade Interpolation DAC with Loop Gain Ratio Control”
IEEE Custom Integrated Circuits Conference (CICC), pp. 1-4, Sep. 2010.

PATENT

Registered U.S. Patents

1. “Organic light emitting display and driving method of operating the same”
 Patent No. US9959810 / Date of Patent: May 1, 2018
2. “Display device and driving method thereof”
 Patent No. US9734765 / Date of Patent: Aug. 15, 2017
3. “Touch display device and driving method thereof”
 Patent No. US9727192 / Date of Patent: Aug. 8, 2017

4. "Organic light emitting display device configured to measure deterioration information, and driving method thereof"
Patent No. US9691329 / Date of Patent: June 27, 2017
5. "Display device and driving method thereof"
Patent No. US9576536 / Date of Patent: Feb. 21, 2017
6. "Apparatus and method for distinguishing energy bands of photons in multi-energy radiation"
Patent No. US9239391 / Date of Patent: Jan. 19, 2016
7. "Image sensor and X-ray image sensing module including the same"
Patent No. US9086494 / Date of Patent: July 21, 2015
8. "Switching circuit, charge sense amplifier including switching circuit, and photon counting device including switching circuit"
Patent No. US8957361 / Date of Patent: Feb. 17, 2015
9. "Organic light emitting diode driver"
Patent No. US8471788 / Date of Patent: June 25, 2013