Sanghoon **Lee**

Electronics Engineer · Hardware

CARNAVICOM Co. Ltd., 13-25, Songdogwahak-ro 16beon-gil, Yeonsu-gu, Incheon, Republic of Korea, 21984

(+82) 10-9494-5115 | shlee@carnavi.com, tonightparty82@gmail.com | sites.google.com/site/tonightparty82/

Bio Sketch

Mr. Lee received the B.S degree in Electronics Engineering at Dong-A University, Busan, Korea in 2009 and M.S degree in Electronics Engineering at Kyungpook National University, Daegu, Korea in 2011. His research interests include analog ICs, ASIC design and analysis. His current fields of interest is development and implementation of LiDAR sensor. He was a research engineer at GITC(Gyeongbuk of IT Convergence Industry Technology) from 2015 to 2018, and have worked on signal processing and circuit design for various sensors included LiDAR sensor. Since 2018, he is now a senior researcher in CARNAVICOM Co., Ltd., and working on circuit design of LiDAR sensor.

Education

Dong-A University — *Busan, S.Korea*

B.S. in Electronics Engineering — *Mar. 2005 – Feb. 2009*

Kyungpook National University — *Daegu, S.Korea*

M.S. in Electronics Engineering — *Mar. 2009 – Feb. 2011*

Kyungpook National University — *Daegu, S.Korea*

Ph.D. in Electronics Engineering — *Mar. 2011 – Present*

Job Carrier

Gyeongbuk Institute of IT Convergence Industry Technology — *Gyeongsan, Gyeongsangbuk, S.Korea*

LiDAR Sensor Hardware Engineer (Researcher) — *Nov. 2015 – May. 2018*

- Hardware Design of Circuit & PCB
- Application Test of LiDAR Sensor

CARNAVICOM Co. Ltd. — *Incheon, S.Korea*

LiDAR Sensor Hardware Engineer (Senior Researcher) — *Jun. 2018 – Present*

- Hardwar design of LiDAR sensor
- Verification of LiDAR sensor

Skills

Design	PCB & Artwork, ASIC Simulation & Layout
Programming	C/C++, LaTeX, Verilog
Languages	Korean, English

Extracurricular Activity

ASIC (Application Specific Integrated Circuit) Lab. — *S.Korea*

Member — *Mar. 2009 - PRESENT*

- Analog Circuit & A/D Converter design
- Write several paper about A/D Converter

AI-SoC (AI-Embedded System-Software-on-Chip Platform) Lab. — *S.Korea*

Member — *Jun. 2019 - PRESENT*

- LiDAR sensor in Hardware design & Algorithm
- Write several paper about LiDAR sensor

Publications

International Journal Paper

Accuracy-Power Controllable LiDAR Sensor System with 3D Object Recognition for Autonomous Vehicle — *Sensors*

S. H. Lee, D. K. Lee, P. Choi, and D. J. Park — *2020*

- SCI(E)
- Under review

Domestic Journal Paper (KCI)

Algorithm of Modified Single-slope A/D Converter with Improved Conversion Time for CMOS Image Sensor System — *Journal of Sensor Science and Technology (JSST)*

S. H. Lee, J. T. Kim, J. K. Shin, and P. Choi — *2015*

Design of 8-bit Single Slope ADC for Signal Processing of Multiple Image Sensors — *Journal of Sensor Science and Technology (JSST)*

J. C. Lee, S. H Lee, J. T. Kim, J. R. Park, J. K. Shin, and P. Choi — *2015*

Preliminary study of Angle sensor module for Vehicle Steering System Based on Multi-track Encoder — *Journal of Sensor Science and Technology (JSST)*

S. T. Woo, C. S. Han, J. B. Baek, S. H. Lee, M. W. Jung, S. J. Choo, J. R. Park, J. H. Yoo, S. H. Jung, and J. Y. Kim — *2017*

Efficient Power Reduction Technique of LiDAR Sensor for Controlling Detection Accuracy Based on Vehicle Speed — *IEMEK Journal of Embedded Systems and Applications*

S. H. Lee, M. W. Jung, D. K. Lee, P. Choi, and D. J. Park — *2020*

- Under review

Presentation

International Conference

APCOT2014 (The 7th Asia-Pacific Conference on Transducers and Micro/Nano Technologies) — *Daegu, S.Korea*

Poster Presentation — *Jul. 2014*

- MODIFIED SINGLE-SLOPE A/D CONVERTER WITH IMPROVING CONVERSION TIME FOR CIS SYSTEM

The 14th International Conference on Electronics, Information, and Communication (ICEIC 2015) — *Singapore*

Poster Presentation — *Jan. 2015*

- Clock-Less 8-bit Pipeline-Like Novel A/D Converter

AWAD2015 (2015 Asia-Pacific Workshop on Fundamentals and Applications of Advanced Semiconductor Devices) — *Jeju Island, S.Korea*

Oral Presentation — *Jun. 2015*

- Modified Single-slope A/D Converter with Improving Conversion Time for CIS System

BIC2020 (The International Conference on Big data, IoT, and Cloud Computing) — *Jeju Island, S.Korea*

Oral Presentation — *Aug. 2020*

- Accuracy-Power Controllable LiDAR Sensor for Autonomous Vehicles using an Algorithm of Variable Resolution

Domestic Conference

2011 IEEK Fall Conference — *Daejeon, S.Korea*

Poster Presentation — *Nov. 2011*

- Design of the Hybrid 8-bits A/D Converter

2014 IEEK Summer Conference — *Jeju Island, S.Korea*

Oral Presentation — *Jun. 2014*

- Development of Ultraviolet Signal Processing Circuit System for Ultraviolet Image

ISOCCC2014 (2014 IDEC SoC Congress Chip Design Contest) *Jeju Island, S.Korea*

Poster Presentation *Nov. 2014*

- Design of Clock-Less 8-bit Pipeline A/D Converter

ISET2016 (2016 IEMEK Symposium on Embedded Technology) *Daejeon, S.Korea*

Poster Presentation *May. 2016*

- Algorithm of Clock-less 8-bit Pipeline-like Novel A/D Converter for Bead Detection Image Sensor
- Best Paper AWARD

ISET2017 (2017 IEMEK Symposium on Embedded Technology) *Busan, S.Korea*

Poster Presentation *May. 2017*

- Automatic Recognition System for Weld Bead Detection

ISET2017 (2017 IEMEK Symposium on Embedded Technology) *Busan, S.Korea*

Poster Presentation *May. 2017*

- Design of InGaAs quantum well laser diode for LiDAR application

2017 IEIE FALL CONFERENCE *Incheon, S.Korea*

Poster Presentation *Nov. 2017*

- Object Perception Algorithm based on LiDAR for Autonomous Vehicle

Honors & Awards

Domestic

2015 **Best Paper AWARD**, ISET2016 (2016 IEMEK Symposium on Embedded Technology) *Daejeon, S.Korea*

National Project

MEMS Research Center for National Defense *Agency for Defense Development (ADD), S.Korea*

Role: Circuit design for sensor (KNU) *Mar. 2009 – Dec. 2012*

Development of Intelligence Fusion Visual Sensor Module *Ministry of Education and Science Technology (MEST), S.Korea*

Role: Circuit design for image, UV and IR sensor (KNU) *Mar. 2012 – Feb. 2015*

The Development of the 8-channel 15f/s grade scanning LiDAR Sensor for autonomous car *Ministry of Trade, Industry & Energy (MOTIE), S.Korea*

Role: Verification of LiDAR sensor (GITC) *Aug. 2015 – Jul. 2017*

System development of automated sensing of hazardous objects for construction safety and precise location tracking of workers *Ministry of Land, Infrastructure and Transport (MOLTI), S.Korea*

Role: Circuit design for sensor (GITC) *Apr. 2016 – Dec. 2017*

Development of negative-ion air purification device for vehicles with indoor pollution detection function *Ministry of SMEs and Startups(MSS), S.Korea*

Role: Circuit design for sensor (GITC) *Jun. 2016 – May. 2018*

Development of paper document management system with smart cabinet based on IoT technology *Ministry of Trade, Industry & Energy (MOTIE), S.Korea*

Role: Circuit & module design for IoT (GITC) *Mar. 2017 – May. 2018*

Open Platform Development for Remote Management on Embedded Software *National Research Foundation of Korea (NRF), S.Korea*

Role: Embedded software test (CARNAVICOM) *Jun. 2018 – Present*

The Development of low-cost LiDAR Sensor including Laser Diode and Semiconductor for Autonomous Car

Ministry of Trade, Industry & Energy (MOTIE), S.Korea

Role: Circuit design of LiDAR Sensor (CARNAVICOM)

May. 2017 – Present

Development of low price 3D LiDAR for measurement of service robots in indoor and outdoor environment

Ministry of Trade, Industry & Energy (MOTIE), S.Korea

Role: Circuit design of LiDAR Sensor (CARNAVICOM)

Apr. 2019 – Present

Development of Selfdriving Parts and Vehicle Mounting Technology for Large Bus

Ministry of Trade, Industry & Energy (MOTIE), S.Korea

Role: Circuit design of LiDAR Sensor (CARNAVICOM)

Jun. 2019 – Present