

# Cheol-Ho Choi

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## PROFESSIONAL APPOINTMENTS

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2023.01 – Present	SoC Design Engineer	Core H/W Team, Pangyo R&D Center, Hanwha Systems, Co., Ltd., Republic of Korea
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## EDUCATIONS

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M.S. (2020 – 2022)	Electronic & Electrical Engineering	Kyungpook National University, Republic of Korea
B.S. (2013 – 2020)	Electronic Engineering	Yeungnam University, Republic of Korea

## MILITARY SERVICE

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2014 – 2016	Republic of Korea Army
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## HONORS and AWARDS

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### • NATIONAL BEST PAPER AWARDS

2021	Best Paper Award	KIPS Spring Conference
2018	Best Paper Award	KIEES Summer Conference

### • INSTITUTE AWARDS

2019	Excellence Research Award	Korean Foundation of Women in Science, Engineering and Technology & Institution of Electronic and Information Engineers
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### • SCHOOL AWARDS

2021	Scholarship for Academic Excellence	Kyungpook National University (\$4,200)
2020	Scholarship for Academic Excellence	Kyungpook National University (\$2,153)
2019	Merit-based Scholarship	Yeungnam University (\$2,446)
2019	Merit-based Scholarship	Yeungnam University (\$1,500)
2019	Scholarship for Academic Excellence	Yeungnam University (\$1,223)
2017	Scholarship for Academic Excellence	Yeungnam University (\$1,223)
2013	Scholarship for Academic Excellence for Freshmen (within Top 10%)	Yeungnam University (\$2,058)

## RESEARCH PROJECT EXPERIENCES

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\*HSC: Hanwha Systems Company

\*MOTIE: Ministry of Trade, Industry and Energy (Republic of Korea)

\*NRF: National Research Foundation (Republic of Korea)

<b>HSC</b>	<b>Title: Night Vision System Design using LWIR-based Thermal Camera Sensor</b> Role: SoC Design Engineer (for Thermal Imaging Processor Design) Year: 2023 – Present
<b>MOTIE</b>	<b>Title: Research on System of Test Equipment for High-Speed Memory (CK 8GHz DQ 16Gbps)</b> Role: Researcher (for Test Pattern Generation Algorithm Design) Year: 2022
<b>NRF</b>	<b>Title: Development for Public Safety Devices Considering Usability of On-site Police Officers</b> Role: Researcher (for Machine Learning Processor Design) Year: 2020 – 2022
<b>NRF</b>	<b>Title: An Embedded System for Real-Time Context Awareness of Smart Cars</b> Role: Researcher (for Stereo Vision Processor Design) Year: 2020 – 2022

## CERTIFICATED PROGRAMS

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2023	ISO26262:2018 Functional Safety Engineering Course: Automotive Foundation Level (FSE-AFL)	Det Norske Veritas (DNV)
2022	Deep-Learning Processing Unit Design and Implementation	IC Design Education Center (IDEC)
2022	HDL Code Generation and Verification using MATLAB	IC Design Education Center (IDEC)
2022	Automatically Code Generation Method for C and CUDA from MATLAB	IC Design Education Center (IDEC)
2022	Analog/Digital Integrated Circuit Theory and Design for Digital Circuit (RTL-to-GDSII)	IC Design Education Center (IDEC)
2022	Deep Learning Basic and Design	IC Design Education Center (IDEC)
2022	Cell-based Chip Design Flow for Samsung 28nm Fabrication	IC Design Education Center (IDEC)
2020	AMBA AXI and AXI-Stream Design and Verification	IC Design Education Center (IDEC)

## ACADEMIC TEACHING EXPERIENCES

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Spring, 2022	SoC Design and Programming	Teaching Assistant (TA)
Spring, 2022	Electronic Engineering Clinic I	Teaching Assistant (TA)
Fall, 2021	Computer Architecture	Teaching Assistant (TA)
Spring, 2021	SoC Design and Programming	Teaching Assistant (TA)
Spring, 2021	Electronic Engineering Clinic I	Teaching Assistant (TA)
Fall, 2020	Electronic Engineering Clinic II	Teaching Assistant (TA)

## SPEAKER EXPERIENCES

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May 2024	AutoSens USA – InCabin Session	<a href="#">[Link]</a>
May 2024	R&D Mentoring Program (for Graduate Student)	
Oct. 2023	R&D Mentoring Program (for Graduate Student)	
May 2023	R&D Mentoring Program (for Graduate Student)	

## PUBLICATIONS

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\*: Corresponding author

### • JOURNALS

- [J1] **Contrast Enhancement Method using Region-based Dynamic Clipping Technique for LWIR-based Thermal Camera of Night Vision Systems**  
Cheol-Ho Choi\*, Joonhwan Han, Jeongwoo Cha, Hyunmin Choi, Jungho Shin, Taehyun Kim, Hyun Woo Oh  
*Sensors*, Vol. 24, No. 12 (Jun 2024)  
[SCIE] [\[Link\]](#)
- [J2] **Cell-Based Refinement Processor Utilizing Disparity Characteristics of Road Environment for SGM-based Stereo Vision Systems**  
Cheol-Ho Choi\*, Hyun Woo Oh, Joonhwan Han, Jungho Shin  
*IEEE Access*, Vol. 11 (Dec. 2023)  
[SCIE] [\[Link\]](#)
- [J3] **Face Detection Using Haar Cascade Classifiers Based on Vertical Component Calibration**  
Cheol-Ho Choi\*, Junghwan Kim, Jongkil Hyun, Younghyeon Kim, and Byungin Moon  
*Human-centric Computing and Information Sciences (HCIS)*, Vol. 12, No. 11 (Mar. 2022)  
[SCIE] [\[Link\]](#)
- [J4] **Filtering-based Method and Hardware Architecture for Drivable Area Detection in Road Environment Including Vegetation**  
Younghyeon Kim, Jiseok Ha, Cheol-Ho Choi, Byungin Moon  
*KIPS Transactions on Software and Data Engineering (KTSDE)*, (Jan. 2022)  
[KCI (Korean Citation Index)] [\[Link\]](#)
- [J5] **Heartbeat Detection using a Doppler Radar Sensor based on the Scaling Function of Wavelet Transform**  
Cheol-Ho Choi, Jae-Hyun Park, Ha-Neul Lee, Jong-Ryul Yang  
*Microwave and Optical Technology Letters (MOTL)*, Vol. 61, No. 7 (Jul. 2019)  
[SCIE] [\[Link\]](#)

## • CONFERENCES

- [C1] **Improved Contrast Enhancement Algorithm for Night Vision Systems using Thermal Camera**  
Cheol-Ho Choi\*, Jeongwoo Cha, Joonhwan Han, Hyunmin Choi, Jungho Shin  
*International SoC Design Conference (ISOCC)*  
Sapporo, Japan (Aug. 2024)  
[Poster] [Link]
- [C2] **A Compact Real-Time Thermal Imaging System Based on Heterogeneous System-on-Chip**  
Hyun Woo Oh, Cheol-Ho Choi, Jeongwoo Cha, Hyunmin Choi, Jungho Shin, Joonhwan Han  
*IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*  
Sokcho, Republic of Korea (Aug. 2024)  
[Oral Presentation] [Link]
- [C3] **Fast Object Detection Algorithm using Edge-based Operation Skip Scheme with Viola-Jones Method**  
Cheol-Ho Choi\*, Joonhwan Han, Jeongwoo Cha, Jungho Shin, Hyun Woo Oh  
*IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS)*  
Abu Dhabi, UAE (Apr. 2024)  
[Lecture Presentation] [Link]
- [C4] **Disparity Refinement Processor Architecture utilizing Horizontal and Vertical Characteristics for Stereo Vision System**  
Cheol-Ho Choi\* Hyun Woo Oh  
*Euromicro Conference on Digital System Design (DSD)*  
Golem, Albania (Sep. 2023)  
[Long Presentation] [Link]
- [C5] **An SoC FPGA-based Integrated Real-Time Image Processor for Uncooled Infrared Focal Plane Array**  
Hyun Woo Oh, Cheol-Ho Choi, Jeongwoo Cha, Hyunmin Choi, Joonhwan Han, Jungho Shin  
*Euromicro Conference on Digital System Design (DSD)*  
Golem, Albania (Sep. 2023)  
[Long Presentation] [Link]
- [C6] **Haar Filter Hardware Architecture for the Accuracy Improvement of Stereo Vision Systems**  
Cheol-Ho Choi, Younghyeon Kim, Jiseok Ha, Byungin Moon  
*International SoC Design Conference (ISOCC)*  
Jeju, Republic of Korea (Oct. 2021)  
[Poster] [Link]
- [C7] **Hardware Architecture of a Haar Classifier Based Face Detection System using Skip Scheme**  
Jongkil Hyun, Junghwan Kim, Cheol-Ho Choi, Byungin Moon  
*IEEE International Symposium on Circuits and Systems (ISCAS)*  
Daegu, Republic of Korea, (May 2021)  
[Oral Presentation] [Link]