Cheol-Ho **Choi**

• **Address** 188, Pangyoyeok-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea (13524)
• **E-MAIL** cheoro1994@hanwha.com • **HOMEPAGE** https://cheoro.github.io/cv/

PROFESSIONAL APPOINTMENTS

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

EDUCATIONS

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

2014 – 2016	Republic of Korea Army

HONORS and AWARDS

• 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

• 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

*HSC: Hanwha Systems Company
*MOTIE: Ministry of Trade, Industry and Energy (Republic of Korea)
*NRF: National Research Foundation (Republic of Korea)

HSC **Title: Night Vision System Design using LWIR-based Thermal Camera Sensor**
Role: SoC Design Engineer (for Thermal Imaging Processor Design)
Year: 2023 – Present

MOTIE **Title: Research on System of Test Equipment for High-Speed Memory (CK 8GHz DQ 16Gbps)**
Role: Researcher (for Test Pattern Generation Algorithm Design)
Year: 2022

NRF **Title: Development for Public Safety Devices Considering Usability of On-site Police Officers**
Role: Researcher (for Machine Learning Processor Design)
Year: 2020 – 2022

NRF **Title: An Embedded System for Real–Time Context Awareness of Smart Cars**
Role: Researcher (for Stereo Vision Processor Design)
Year: 2020 – 2022

CERTIFICATED PROGRAMS

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

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

May 2024	AutoSens USA – InCabin Session	Speaker (Oral Presentation) [Link]
May 2024	R&D Mentoring Program (Graduate Student)	Speaker (Oral Presentation)
Oct. 2023	R&D Mentoring Program (Graduate Student)	Speaker (Oral Presentation)
May 2023	R&D Mentoring Program (Graduate Student)	Speaker (Oral Presentation)

PUBLICATIONS

***: 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]

Updated: 06/10/2024

• 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]