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Sunho Kim

GitHub: sunho001215

Education

Seoul National University **Mar 2018 - Aug 2022**
B.S. in Mechanical Engineering (Major)
B.S. in System Semiconductor Engineering for AI (Interdisciplinary Major)
GPA: 3.94/4.3 (cumulative), 3.8/4.3 (major), 3.98/4.3 (interdisciplinary major)
Degree Honors: Summa Cum Laude

Sejong Science High School **Mar 2016 - Feb 2018**
High school for gifted students in mathematics and science
Early graduation

Honors and Awards

Deep Learning Hardware Design Competition 2022 **Feb 2022 - Jul 2022**
Polaris, Korea
2nd Place out of 111 Teams, won $2,000 (Nationwide Competition)

Industrial Scholarship **Mar 2020 - Jun 2022**
Samsung Electronics Device Solutions
Full tuition support for undergraduate studies

KCC Undergraduate Thesis Award 2022 **Jul 2022**
Korea Computer Congress 2022
Participation Award

X-Corps Project 2020 **Jul 2020 - Dec 2020**
Practical Problem Research Group, Seoul National University
Excellence Prize, won $1,000

Academic Excellence Scholarship **Aug 2018 - Jun 2021**
Seoul National University
Tuition support for undergraduate studies

Work Experience

Software Engineering Intern **Jan 2022 - Sep 2022**
RUBIS Lab. in Seoul National University *Seoul, Korea*
- Developed autonomous driving algorithms based on Autoware
- Participated in data collection for adolescent emotional AI tutors
- Conducted research on how to improve the overall response time of ROS (Robot Operating System)

Hardware Engineering Intern **Jul 2021 - Aug 2021**
Samsung Electronics (System LSI) *Hwaseong, Gyeonggi-do, Korea*
- Analyzed transformer-based deep learning model and designed accelerator hardware specialized in language processing.

Autonomous Driving Intern **Jan 2020 - Feb 2020**
DYROS Lab. in Seoul National University *Seoul, Korea*
- Participated in creating datasets for lane detection and traffic light detection.
- Designed path planning algorithms for vehicle parking.

Project

Deep Learning Hardware Design Competition 2022 **Feb 2022 - Jul 2022**
AI Accelerator Design Competition for Undergraduate Students

- Designed an adder-tree-based computational unit tailored to Tiny-YOLO v3 model that computes convolutions in parallel and the datapath to minimize the buffer usage.
- Organized presentation for special session in IEEE AICAS 2022.

HMG Autonomous Driving Challenge 2021 **Aug 2020 - Feb 2021**
Hyundai Motor's Autonomous Driving Competition for Undergraduate/Graduate Students

- Developed software to perform missions in CarMaker simulation.
- Participated in developing object detection (modified version of YOLO v3), tracking (Kalman Filter) using lidar and camera, and a path planning algorithm (Optimal Frenet Planning). (GitHub)

K-Startup Maker Project 2020 **Jul 2020 - Dec 2020**
Maker Project hosted by the Korean Government (K-Startup)

- Developed a robot software that can drive autonomously with only remote cameras without attached sensors as a team leader. $5,000 in support.
- Participated in developing driving area detection (U-Net) and robot position detection (DOPE). (GitHub)

X-Corps Project 2020 **Jul 2020 - Dec 2020**
Undergraduate Project hosted by Seoul National University

- The project is on the same subject as K-Startup Maker Project 2020. $5,000 in support.

International Student Car Competition 2020 **Mar 2020 - Aug 2020**
Autonomous Driving Competition for International Students

- Developed autonomous driving software, especially in real-time parking slot detection (modified version of YOLO v3), traffic light detection (YOLO v3), and lane detection (LaneNet) algorithm. (GitHub, YouTube)

Autonomous Delivery Project **Jan 2020 - Feb 2020**
Autonomous Delivery Project conducted by ARI Lab.

- Participated in the initial phase of the project. (YouTube)

DYROS Robotics Boot Camp **Jan 2019**
DYROS Lab. Bootcamp for ROS (Robot Operating System) and Linux

Publication (first author)

- Sunho Kim, Hayeon Park and Chang-Gun Lee, **Optimizing the Response Time for ROS Tasks in Multi-Core Processors**, IEEE/ACM International Symposium on Distributed Simulation and Real-Time Applications, 2023 (Accepted)
- Sunho Kim, Dongmin Shin and Chang-Gun Lee, **Autoware Controller Interface for Actual Vehicle Driving**, Korea Computer Congress, 2022 (Participation Award, Google Scholar)

Skills

Programming	Git, LaTeX, Matlab, MarkDown, Python, C, C++
Hardware Design	Verilog, Bluespec, ModelSim, Vivado, Cadence Virtuoso
Communication	Korean (native), English (103/120 TOEFL)