Changseob Lee

i_seekthe_truth@kaist.ac.kr

Vision

- Science and technology for humanity, environment and next generation.
- Wise usage of AI and computing power for development of new materials.

Education

Korea Advanced Institute of Science and Technology (KAIST) **Mar. 2021 – Present**
School of Freshman *Present*
Bachelor of Engineering with double major in Computer Science and Material Engineering *Candidate*

Deajeon Dongsin Science Highschool (DDSHS) **Mar. 2018 – Feb. 2021**

KAIST Global Institute For Talented EDucation (GIFTED) **Mar. 2014 – Nov. 2017**
Global Center for Gifted Children (GC ^{2})

Research Experience

Number Theory **May. 2019 – Jul. 2020**
Individual Research *DDSHS*

- Study of the probability that random natural numbers are pairwise coprime and speed up the computation of it.
- Broaden my understand of inner structure of computer, especially multithreading and multiprocessing. Also time complexity and algorithms to speed up computing.
- Language used : C, Python

Robotics **Oct. 2019 – Jan. 2020**
I&D *KAIST - DDSHS*

- Development of RFID-based Indoor Positioning for 4WD Robots' Indoor driving and Stability Control
- 3D printing, laser cutting, electronic circuit configuration, and using Raspberry Pi OS(Raspbian, which is based on linux) were skilled.
- Language used : Python

AI, Double Deep Q-Network **Jun. 2019 – Sep. 2019**
Pre-URP *GIST*

- Solving Control Problem Using Deep Reinforcement Learning
- OpenAI gym cartpole model was used. We increased duration and training efficiency much higher than the reference by tuning parameters of DDQN.
- Language used : Python, Advisor : Prof. Jeha Ryu

Biodegradable Material **Apr. 2019 – Dec. 2019**
R&E *DDSHS-KOFAC*

- Explore biodegradable and inert polymeric compounds that dissolve only in certain target organs
- Finding few candidate materials that can be coated on edible gelatin capsule. Since this research required so much labor, it played a crucial role in establishing my vision of using AI to explore new materials.

Ferroelectric Material **Nov. 2018 – Jan. 2019**
R&E *KAIST-DDSHS*

- Fabrication of Actuator Using Relaxor Ferroelectric Polymer.
- Synthesized ferroelectric polymer and made it into thin layer to use for speaker or pressure sensor. Controled it using arduino.
- Language used : arduino(C), Advisor : Prof. Seungbum Hong

Engineering Projects

Kakaotalk theme for KAIST students | *Android Studio* **Feb. 2021**

- Designed images related to KAIST and modified Kakao's official sample theme with it. Released .apk file for every students for free. Helped me to better understand about Android developing.

Guitar auto tuner | *Python, Raspbian, arduino(C)* **Dec. 2020**

- Built a attachable machine that tune guitar with high tourque feedback(encoder) servo motor. Detected current frequency of string using Fourier transform.

Wide range RFID system for the city bus | *Python, Raspbian* **Jan. 2020**

- Using wide range RFID not to tag card anymore while getting on, off and transfer the city bus. Implimented simple Back-End system with NFS.

Statistical analysis of why handwritten lotteries are difficult to win | *Python* **Oct. 2019**

- Analyzed hundreds of handwritten lottery samples and thousands of random distribution and historical winning numbers. In conclusion, handwritten numbers are far different with random distribution in many aspects beacause of few psychological factors.

Back-End system for emergency room to manage personal information | *Python* **Aug. 2019**

- Built a pseudo-server which can show patients' personal medical information to doctor and contacting their caregivers in one-touch operation.

Leadership & Groups

Standing Member **Apr. 2021 – Present**
Freshmans' council *KAIST*

President **Mar. 2021 – Present**
Freshmans' group *KAIST*

Instructor **Jan. 2021 – Present**
Computer science for science high school juniors *Academy*

Instructor **Sep. 2019, Jul. 2020**
3D modeling and printing for science high school juniors *DDSHS*

President **Mar 2020 – Dec 2020**
CHEMIX (Chemistry and biology club) *DDSHS*

Founder & President **Mar 2019 – Dec 2020**
Maker's Group (Engineering club) *DDSHS*

Honors & Awards

The Best Research Paper of the Year **2020**
DDSHS

1^{st} prize, 2^{nd} prize **2019, 2018**
Hunam-Centered problem solving contest *University of Science and Technology (UST)*

2^{nd} prize **2018**
Senior mentor award of Junior Doctor Program *Korea Basic Science Institute (KBSI)*

Best Student of the Year **2015, 2016, 2017**
KAIST GC²

Technical Skills

Programming

- Competent : C
- Adv. Beginner : Python, Visual Studio
- Novice : LaTeX, HTML, Kotlin, Tensorflow, Numpy, Jupyter notebook

OS

- Everyday Use : Windows 10
- Adv. Beginner : Raspbian
- Novice : Ubuntu

Design & Graphics Tool

- Competent : Adobe Photoshop, Autodesk Fusion 360
- Adv. Beginner : Adove Premiere
- Novice : Adove Illustrator

Natural Language

- Native : Korean
- Fluent : English
- Novice : Chinese