

# SUNGHYUN KANG

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## Personal Statement

A committed student who is interested in the application of computer science in the real world. Mainly interested in the intersection of these fields. Here's my GitHub in case you need them.

## EDUCATION

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<b>Gwangju Institute of Science and Technology (GIST)</b>	<i>March 2017 - August 2023</i>
Undergraduate, Senior	Overall GPA: 3.84/4.5
Major in Electrical Engineering and Computer Science (EECS)	Major GPA: 4.11/4.5
Minor in Mathematics	
<b>University of California, Berkeley</b>	<i>January 2022 - May 2022</i>
Berkeley Global Access Program, EECS major	Overall GPA: 3.85/4.0
Exchange Student of GIST	Total Credits: 16

## SKILLS

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<b>Computer Languages</b>	Python, MATLAB, R, C, JAVA, C++, Mathematica, Verilog
<b>Software &amp; Tools</b>	LaTeX, EEGLAB, Pytorch, OpenViBE, OR-tools
<b>Language</b>	Korean (native), English (fluent, iBT TOEFL score of 104)

## EXPERIENCE

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<b>BioComputing Lab at GIST</b>	September 2022 - Present
<i>Undergraduate internship</i>	<i>PI: Prof. Sung Chan Jun</i>

- Studied the relationship between facial movement and brain power contamination in the view of computer vision.
- Currently writing a graduate thesis.

<b>Software engineering and project class at GIST</b>	March 2023 - Present
<i>Teaching assistant</i>	

- Marked projects/exams and helped students during their projects.
- Provided translation service for international students.

<b>Introduction to algorithm class at GIST</b>	September 2022 - December 2022
<i>Head teaching assistant</i>	

- Marked assignments/exams and held office hours to answer students' questions.
- Established auto-grading and auto-attendance system for students.

<b>CLOUDSTONE Inc.</b>	June 2022 - August 2022
<i>Researcher</i>	

- Solved various vehicle routing problems (VRP) focused on hyper-local service.
- Made knowledge-based shop recommendation program processing large data using natural language processing (NLP).
- Participated in tech incubator program for startup (TIPS) and series-A fundraising project.

**BioComputing Lab at GIST***Undergraduate internship*

May 2021 - December 2021

*PI: Prof. Sung Chan Jun*

- Studied the relationship between transcranial direct current stimulation (tDCS) applied to the posterior parietal cortex (PPC) and vigilance.
- Participated in research to publish a conference paper in IBEC 2021.

**Republic of Korea air force (ROKAF)***Reserve sergeant*

March 2019 - January 2021

- Mandatory service. Worked as a PATRIOT missile operator
- Conducted several special missions against North Korea's tactical ballistic missiles and participated in launching sequence simulator maintenance.

**HONORS & SCHOLARSHIP**

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**GIST AI school scholarship**

March 2023 - Present

- Scholarship awarded to students who achieved specific requirements.

**GIST academic scholarship**

March 2021 - February 2023

- Scholarship awarded to students who showed high achievement in their grades.

**Government-sponsored scholarship at GIST**

March 2017 - December 2022

- Scholarship awarded to most GIST students by the Korean government.

**Scholarship for GIST study abroad program**

January 2022 - May 2022

- Scholarship with subsidies awarded to students participating in the GIST study abroad program at UC Berkeley. Only offered to 8 students per year.

**GIST summer undergraduate research fellowship (G-SURF)**

June 2021 - August 2021

- Scholarship awarded to students participating in a summer internship program in GIST.

**Award from Ministry of Culture, Sports and Tourism****Republic of Korea**

December 2019

- Received an honor for high effort during the 2018 Pyeongchang Winter Olympic period. Offered for a few selected participants who have noticeable achievements.

**Scholarship for summer session abroad, UC Berkeley**

June 2018 - August 2018

- Scholarship awarded to students studying abroad during a summer session.

**Award from GIST president**

September 2017

- Received an honor for notable contribution to local society, establishing a free lecture system for local middle school students who could not offer that kind of academic services.

**GIST academic scholarship**

September 2017 - December 2017

- Scholarship awarded to students who showed high achievement in their grades.

**ACADEMIC ACTIVITIES**

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**Neuroscience technology:** Learned from basic neuroscience to leading technologies currently leading the field, especially neuro-optometry.

**Probability and random processes:** Covered from probability schemes such as Bayes rule to various distributions/processes, information theory, Markov chain, hypothesis testing, Hilbert Space, and Kalman filter.

**Computer vision:** Implemented structure from motion (SFM) methodology using scale-invariant feature extraction (SIFT), random sample consensus (RANSAC), and triangulation with optimization techniques. Applied image harmonization using region-aware adaptive instance normalization (RAIN).

**Artificial intelligence:** Implemented various methods such as searching algorithms, simultaneous localization and mapping (SLAM), Markov decision process (MDP), and learned basic machine learning (ML) and reinforcement learning (RL).

**Computational models of cognition:** Implemented various cognitive & language models from the past to the present scheme using multidimensional scaling (MDS), Markov chain Monte Carlo (MCMC), and information theory.

## RELEVANT COURSES

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### Major courses

Computer vision  
Probability and random process  
Introduction to artificial intelligence  
Digital signal processing  
Computer networking

### Minor courses

Real analysis and applications  
Abstract algebra  
Graph theory  
Numerical analysis  
Differential equations

## EXTRACURRICULAR ACTIVITIES

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### Tech incubator program for startup (TIPS)

June 2022 - Present

*Researcher, Presentation participant*

- Successfully raised TIPS fund as a participant of CLOUDSTONE Inc. Conducted research for the company's leading technologies (VRP for many (100+) waypoints, robot-based delivery system), made a basis for global strategies, and participated in the presentation.

### Wolfram research Korean translation volunteer

October 2020 - February 2021

*Team member*

- Participated in Wolfram Research Korean translation team. Focus on translating the Mathematica user guide video, examples, and basic knowledge about overall mathematics.

### GIST orchestra AKDONG

March 2017 - November 2018

*Woodwind instrument player, concert director*

- Joined as a clarinet player and concert director. Supervised an overall 2018 orchestra program.

### 2018 Pyeongchang Winter Olympic Committee

June 2017 - February 2018

*Volunteer*

- Worked in the accreditation service team. Provided translation service for foreigners, and made line-in-queue program for efficient workflow. Received a ministry prize for these overall efforts.

### Baeummadang: knowledge-sharing volunteer program

March 2017 - December 2017

*Volunteer*

- Participated in a volunteer program that aims to provide academic experience to local elementary, middle, and high school students. Received a GIST presidential award for noticeable achievement.