

Cheol Jun Cho

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📄 [cheoljun95.github.io](https://github.com/cheoljun95)

EDUCATION

University of California, Berkeley

Ph.D. student in Computer Science

Advisor: **Dr. Jack L. Gallant** and **Dr. Gopala K. Anumanchipalli**

Berkeley, California, United States

Aug 2021 - Present

Seoul National University (SNU)

B.S. in Computer Science and Engineering

- Summa Cum Laude & the Valedictorian for the College of Engineering (GPA: 4.2/4.3)

Seoul, Korea

Mar 2014 - Aug 2020

RESEARCH EXPERIENCE

Computational Clinical Science Laboratory

Computational Psychiatry; Cognitive Science; Computational Neuroscience

Research Assistant, Advisor: **Dr. Woo-Young Ahn**

- Developed an analytical framework combining Multi-Voxel Pattern Analysis and Bayesian analysis to get brain activation patterns correlated with latent processes of human behavior.
- Designed computational models by integrating the prospect theory and the drift-diffusion model. Conducted hierarchical Bayesian analysis on risky choice task data. (choice, reaction time and eye-gaze)

SNU, Seoul, Korea

Sep 2020 - Jul 2021

JeeLab, Center for Neuroscience, Brain Science Institute

Computational Neuroscience; Cognitive Neuroscience; System Neuroscience

Research Intern, Advisor: **Dr. Jee Hyun Choi**

- Processed and analyzed data for the wireless real-time neuro-reporting platform (CBRAIN). Developed a program to extract mouse-tracking data and neural report data from recorded videos of mouse experiments.
- Improved accuracy of automatic mouse-tracking tool by adopting digit-tagged detection system empowered by object detection model.

KIST, Seoul, Korea

Jul 2020 - Dec 2020

KAIST Interaction Laboratory (KIXLab)

Human Computer Interaction; Natural Language Processing

Summer Research Intern, Advisor: **Dr. Juho Kim**

- Participated in the speech act based chatbot project. Designed/experimented deep learning models for the speech act classification using Bi-LSTM and word embedding models. Devised a pooling method using the attention mechanism to integrate word-wise vectors into sentence-wise vectors. Tested models on the Switchboard Dialog Act (SwDA) corpus and Verbal Response Mode dataset. Enlisted as a co-inventor in the patent application.

KAIST, Daejeon, Korea

Jun 2019 - Aug 2019

Computing and Memory Architecture Laboratory (CMALab)

Computer Vision

Research Intern, Advisor: **Dr. Sungjoo Yoo**

- Experimented an online-training framework adopting the teacher-student method to improve the computing efficiency of deep learning models. Tested the framework on the video object segmentation and the video object detection task.

SNU, Seoul, Korea

Dec 2018 - Jun 2019

PUBLICATIONS

Kim, J., Kim, C.*, Han, H., **Cho, C.J.**, Yeom, W., Lee, S.Q*, Choi, J.H.* (2020), A Bird's Eye View of Brain Activity in Socially Interacting Mice through Mobile Edge Computing (MEC), *Science Advances*, 6(49), eabb9841

Lee, Y., **Cho, C.J.***, Kim, J., Kim, J.H., Han, H., Ahn, W., Choi, J.H. (2020), Investigation of hierarchy-dependency in the intragroup vigilance convergence and transmission, the 23rd annual meeting of *the Korean Society for Brain and Neural Sciences*, poster presentation. *selected as excellent poster (* equal contribution)*

PROJECTS

Bachelor's Thesis

Computer Vision; Natural Language Processing

Independent Research

SNU, Seoul, Korea

Mar 2020 - Jun 2020

- Title: Neural Symbolic Visual Question Answering System: application to real world data and limitation
- Implemented a neural symbolic system (question-to-symbols encoder, scene graph generator, and symbolic program executor). Tested the system on General Question Answering Dataset and analyzed the associated limitations of the application.

Brain-Mind-Behavior Independent Research Course

SNU, Seoul, Korea

Natural Language Processing; Interpretable AI

Sep 2019 – Dec 2019

Independent Research

- Title: Deep Neural Networks with Attention Pooling for Dialogue Act Recognition
- Conducted research as an extension of work in the summer internship at KIXLab. Devised a self-attentive pooling method and compared it with the baseline (average pooling). Interpreted model inference process by analyzing attention weights.
- Received best research award in 2019 Brain-Mind-Behavior Research Presentation.

SNU Creative Design Fair

SNU, Seoul, Korea

Robotics; Human Robot Interaction (HRI); Computer Vision

Jun 2019 – Sep 2019

Project: Interactive Robotic Vacuum

- Participated in SNU Creative Design Fair as a team of four.
- Built a unique pointed-shape body with omnidirectional wheels. Developed the embedded AI with Arduino. Developed a smartphone app. featured by the embedded hand gesture detecting model. Devised a novel HRI platform where users interact with the robot using hand gestures.
- Won 2nd place at the SNU Creative Design Fair, and attained 1st place at the International Capstone Design Fair.

Creative Integrated Design Course

SNU, Seoul, Korea

Computer Vision; Interpretable AI

Sep 2018 – Dec 2018

Project: Plant Disease Detecting Web Service

- Developed a plant disease detection web service by utilizing deep learning as a team of three.
- Trained/evaluated image classification models for the plant disease detection. Visualized the inference process utilizing Guided GRAD-CAM. Implemented the back-end server for the application.

TECHNICAL SKILLS

Programming Languages: Python, R, Stan, C, C++, Arduino,

Software Packages: Deep Learning (Pytorch, Tensorflow, Keras), Computer Vision (openCV), Natural Language Processing (Gensim, NLTK), Data Analysis (Rstan, hBayesDM), fMRI analysis (SPM12), Web Programming (Django), Machine Learning (Scikit learn)

AWARDS AND HONORS

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|---|----------------------------------|
| President's Award for 1st ranked graduation at SNU College of Engineering | Aug 2020 |
| Best research award from 2019 Brain-Mind-Behavior Research Presentation at SNU | Dec 2019 |
| 1st place of International Capstone Design Fair 2019 (Korea, China) | Nov 2019 |
| 2nd place of SNU Creative Design Fair of SNU College of Engineering | Sep 2019 |
| SNU's Tomorrow's Engineers Membership (honor society of college of engineering) | May 2016 |
| Korea National Scholarship (fully funded) | 2016 Spring, 2018 Fall-2019 Fall |
| Army Commendation Medal (ARCOM) | Jun 2018 |
| Certificate of Appreciation (CA) from US 8th Army | Jun 2018 |
| SNU Merit Scholarship (fully funded) | 2015 Spring, Fall |
| SNU Merit Scholarship (half funded) | 2014 Fall |

OTHER SERVICES AND ACTIVITIES

STEM Mini Vision Mentoring

2016, 2019

- Visited middle and high schools as a mentor.
- Introduced Engineering School, especially about Computer Science
- Shared my own learning strategies and experiences.

Korean Augmentation to the United States Army (KATUSA)

Sep 2016 - Jun 2018

- Served in 8th Army HHB IS G4 Information Management Office.
- Supported electrical automation and equipment maintenance for operations.

S20 project contest by Shinhan Bank

Mar 2016 - Jun 2016

- Won 1st place as SNU's Tomorrow's Engineers Membership team.
- Presented idea for smart banking with AI technologies.