

Soomin Chung

MS STUDENT · SNU BMI LAB

Seoul National University, Seoul, Republic of Korea

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Education

Carnegie Mellon University

VISITING SCHOLAR, SCHOOL OF COMPUTER SCIENCE, SOFTWARE AND SOCIETAL SYSTEMS

Pittsburgh, USA

Aug 2024 – Feb 2025

Seoul National University

M.S., INTERDISCIPLINARY PROGRAM OF BIOENGINEERING

- Advisor: Prof. Kwangsoo Kim
- GPA: 4.27/4.5

Seoul, Republic of Korea

Sep 2022 – Feb 2025

EWHA Womans University

B.S., MECHANICAL AND BIOMEDICAL ENGINEERING; MINOR IN COMPUTER ENGINEERING

- GPA: 4.22/4.5

Seoul, Republic of Korea

Mar 2018 – Aug 2022

Publications

Hail Song*, Wonsik Shin*, Naeun Lee, **Soomin Chung**, Nojun Kwak+, Woontack Woo+ (2025)

S3D: Sketch-Driven 3D Model Generation, GMCV Workshop at CVPR'25, CVPRW 2025

Soomin Chung (2025)

Longitudinal ECG Analysis with Deep Learning for Improved Detection of Reduced Left Ventricular Ejection Fraction, M.S. Thesis, Seoul National University

(co-first) Sehoon Park*, **Soomin Chung***, Yisak Kim, Sun-Ah Yang, Soie Kwon, Jeong Min Cho, Min Jae Lee, Eunbyeol Cho, Jiwon Ryu, Sejoong Kim, Jeonghwan Lee, Hyung Jin Yoon, Edward Choi, Kwangsoo Kim+, Hajeong Lee+ (2025)

A deep-learning algorithm using real-time collected intraoperative vital sign signals for predicting acute kidney injury after major non-cardiac surgeries: A modelling study, [PLOS Medicine](#) (SCIE, IF=10.5, JCR 2023 top 3.5%)

(co-first) Soonil Kwon*, **Soomin Chung***, So-Ryoung Lee+, Kwangsoo Kim+, Junmo Kim, Dahyeon Baek, Hyun-Lim Yang, Eue-Keun Choi, Seil Oh (2025)

Prediction of reduced left ventricular ejection fraction using atrial fibrillation or flutter electrocardiograms: A machine-learning study, [Digital Health](#) (SCIE, IF=2.9)

(co-first) Hong Yeul Lee*, **Soomin Chung***, Dongwoo Hyeon, Hyun-Lim Yang, Hyung-Chul Lee, Ho Geol Ryu+, Hyeonhoon Lee+ (2024)

Reinforcement learning model for optimizing dexmedetomidine dosing to prevent delirium in critically ill patients, [npj Digital Medicine](#) (SCIE, IF=15.2, JCR 2023 top 0.9%)

Hyeonhoon Lee, **Soomin Chung**, Hong Yeul Lee (2023)

Method and Apparatus for Drug Adjustment for Delirium Prevention, Korean Patent Application 10-2023-0138995

(co-first) Sua Kim*, Yebin Lee*, **Soomin Chung***, Miso Choi*, Hyebin Choi* (2022)

Integrated Counseling System for child, KCSE 2022

Na Min An, Hyeonhee Roh, **Soomin Jung**, Eun Ju Kim, Maesoon Im+ (2021)
Machine Learning Approaches as An Alternative to Human Psychophysical Tests of Prosthetic Vision, IEEE EMBC 2021

Hyeonhee Roh, Eunju Kim, **Soo Min Chung**, Joon Ho Kang, Taegon Kim, Maesoon Im+ (2021)
Neural information of artificial vision varies depending on the level of spiking heterogeneity across retinal ganglion cells, ARVO 2021

Research Experience

- Bio-Medical Informatics (BMI) Lab, Seoul National University**
ADVISOR: KWANGSOO KIM
• Applied deep learning and reinforcement learning to clinical decision support across diverse applications, including drug dosing optimization, acute kidney injury prediction, heart failure risk assessment from ECG, neuromuscular disease diagnosis from EMG, and longitudinal ECG analysis.
- Im Vision Lab, Brain Science Institute, Korea Institute of Science and Technology**
ADVISOR: MAESOON IM
• Machine learning approaches as alternatives to human psychophysical testing for artificial vision evaluation
• Effects of retinal ganglion cell firing diversity on neural information processing in artificial vision

Projects

- Autonomous Targeting AI Cannon**
ADVISOR: VIJAY SAI VADLAMUDI (CMU)
• Developed an autonomous targeting AI Cannon system based on NVIDIA Jetson Nano and YOLO v11s
- Medical Visual Question Answering (VQA)**
COURSE PROJECT AT CMU
• Enhanced a Medical VQA model by replacing the M3AE classification head with a T5-based generative layer
- AI Speaker-Counseling System for Youth**
ADVISOR: TAEHOON SHIN (EWha Univ.)
• Developed an AI speaker-psychological counseling integrated system for youth

Work Experience

- KCWI Inc., Driving Safety Evaluation Division**
• Statistical analysis of operational data for Korea Railroad Corporation type approval, resulting in over 20 certifications

Awards & Fellowships

- Aug 2024

Carnegie Mellon University AI Intensive Training Program Fellowship,
Institute of Information & Communications Technology Planning & Evaluation (IITP)
Selected as one of 30 fellows nationwide; full support of tuition and living expenses

45,000 USD
- May 2024

2nd Place, SNU x Upstage LLM Project Hackathon, Seoul National University
- Sep 2022

Academic Excellence Scholarship, Seoul National University
- Jan 2021

8th Cohort Scholar, Woonhae Scholarship Foundation

3,800 USD per semester
- Dec 2021

Silver Award, Engineering Capstone Design Contest, EWha Womans University
- Feb 2021

Academic Excellence Scholarship (Top 6%), EWha Womans University
- Aug 2020

Academic Excellence Scholarship (Top 2%), EWha Womans University
- Feb 2020

Academic Excellence Scholarship (Top 6%), EWha Womans University

Leadership & Service

- Mar 2024 – **Organizing Committee Data Lead**, CDM AI Challenge: Predicting Hypoxemia, Seoul National University Hospital,
Apr 2024 *Organized challenge with 200+ participants*
- Jan 2021 – **Vice President**, Young Engineers Honor Society (YEHS), National Academy of Engineering of Korea,
Dec 2021 *1 of 7 executive board members leading 1,600+ Korean engineering leaders*
- Aug 2019 – **Young Engineers Honor Society (YEHS)**, National Academy of Engineering of Korea,
Present *Selected as one of 3 distinguished EWha Univ. students*

Research Interests

- Medical AI (AI for Health), Multi-modal learning, Reinforcement Learning

Skills

- Programming: Python, R, MATLAB (proficient); C++, C, Java (basic)
- Tools & Frameworks: PyTorch, scikit-learn, Scientific Python (NumPy, Pandas, Matplotlib), Git, Docker