

Miyoung Chung

Ph.D. Student

Integrated Program in Neuroscience, McGill University
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Educations

Ph.D. Student in the Integrated Program in Neuroscience (Sep. 2022 – Current)
McGill University, Montréal, QC, CA

M.S. Biomedical Engineering (Sep. 2020 – Aug. 2022)
Ulsan National Institute of Science and Engineering (UNIST), Ulsan, Rep. of Korea
Summa cum laude, GPA 4.3/4.3

B.S. Electrical Engineering | Human Factors Engineering (Mar. 2014 – Feb. 2020)
Ulsan National Institute of Science and Engineering (UNIST), Ulsan, Rep. of Korea
Magna cum laude, GPA 3.65/4.3

Research Experiences

The Auditory Cognitive Neuroscience Lab (Sep. 2022 – Present)
Montreal Neurological Institute, McGill University
Advisor: Dr. Robert Zatorre

BCILAB (Jan. 2020 – Aug. 2022)
Dept. of Biomedical Engineering, UNIST, Ulsan, Rep. of Korea
Advisor: Dr. Sung-Phil Kim
-Development of Music-Imagery Brain-Computer Interface (BCI): Decoding Pitch Imagery from Electroencephalogram (EEG) and Closed-loop BCI Training
-Electrocorticogram (ECoG) data analysis on Korean speech Imagery/Articulation Task & Musical melody Perception-Imagery Task

Artificial Intelligence Challengers Program (AICP)
(Aug. 2021 – Dec. 2021 | Mar. 2022 – Dec. 2022)
UNIST Innovative Education Center, Ulsan, Rep. of Korea
-AI-based defect prediction during the CFRP (Carbon Fiber Reinforced Plastic) drilling process with an industrial robot machining system
-Sensor and Image Data Preprocessing

Teaching Experiences

Teaching Assistant, UNIST, Ulsan, Rep. of Korea

Advanced Multivariate Data analysis and Data mining (Sep. – Dec. 2020)

Lecturer: Dr. Sung-Phil Kim

Web Design Instructor, Regent University, Accra, Rep. of Ghana

World Friends Korea Information & Communication Technology (ICT) (Jul. 2017)

Dance Instructor, Ulsan, Rep. of Korea

Dance Instructor for 15 beginners (Sep. – Dec. 2019)

Peer-Reviewed Journal Publications

- [1] Taehyung Kim, **Miyoung Chung**, Eunju Jeong, Yang Seok Cho, Oh-Sang Kwon, Sung-Phil Kim, "Neural representation of musical pitch in space" (under review)
- [2] **Miyoung Chung**, Taehyung Kim, Eunju Jeong, Chun-Kee Chung, June-Sic Kim, Oh-Sang Kwon, Sung-Phil Kim, "Decoding imagined musical pitch from human scalp electroencephalograms" (under review)
BioRxiv doi: <https://doi.org/10.1101/2022.06.13.495849>
- [3] Jae Gyeong Choi, Dongchan Kim, **Miyoung Chung**, Sunghoon Lim, Hyung Wook Park, "A multimodal one-dimensional convolutional neural network that predicts delamination during the carbon-fiber-reinforced plastic drilling process completed by an industrial robot machining system" (under review)
- [4] "Relationship between covert/overt speech and semantic/phonologic feature of Korean words" (in preparation)

Conference Proceedings

- [1] Dongchan Kim, Jae Gyeong Choi, **Miyoung Chung**, Sunghoon Lim, Hyung Wook Park, "AI-based prediction of the hole quality in CFRP drilling with an industrial robot", Poster at the Korean Society of Manufacturing Technology 2021 Spring/Autumn Conference, Jeju, Rep. of Korea (Dec. 2021)
- [2] Jae Gyeong Choi, Dongchan Kim, **Miyoung Chung**, Sunghoon Lim, Hyung Wook Park, "A multimodal deep learning model for carbon fiber-reinforced plastic (CFRP) drilling process optimization", Oral presentation at 2022 ICS Conference, Florida, USA (Jan. 2022)
- [3] Jae Gyeong Choi, Dongchan Kim, **Miyoung Chung**, Sunghoon Lim, Hyung Wook Park, "A multimodal 1D convolutional neural network for delamination prediction in carbon fiber reinforced plastic (CFRP) drilling processes", Oral Presentation at 2022 Joint conference of Korean Operations Research and Management Science Society & Korean Institute of Industrial Engineers, Jeju, Rep. of Korea (Jun. 2022)

Awards & Honors

Excellence Award (2nd Prize) / Dec. 2021

AICP (Artificial Intelligence Challengers Program), UNIST Innovative Education Center, Ulsan, Rep. of Korea

Best paper award / Jul. 2022

The Korean Society of Manufacturing Technology Engineers (한국생산제조학회)

Difference Fee Award / Mar. 2022

Integrated Program in Neuroscience, McGill University, Montréal, QC, CA

National Scholarship / Mar. 2014 – Dec. 2015

Korean Student Aid Foundation (KOSAF)

National S&T (Science & Technology) Scholarship / Mar. 2016 – Feb. 2020

Korean Student Aid Foundation (KOSAF)

UNIST Scholarship (Graduate) / Sep. 2020 – Aug. 2022

Ulsan National Institute of Science and Technology (UNIST)

Research Interests

Neural Data Science

Music and Speech Cognition

Music and Speech Brain-Computer Interface

Signal Processing

Skills

MATLAB

MATLAB Toolboxes: EEGLAB, Psychtoolbox

Python

Python Libraries: Scikit learn, Tensorflow, etc.

R Studio

Logic Pro X

HTML/CSS

C++ (Basic level)