Miyoung Chung

Montreal Neurological Institute, 3801 rue University, NW230, Montréal, QC, CA
miyoung.chung@mail.mcgill.ca | marymiiiiiyoung@gmail.com
Phone: +1-514-601-0921
Personal Website: https://marymiiiiiyoung.github.io

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

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

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

Dance Instructor, Montréal, QC, CA
Dance instructor of K-pop and Hiphop Choreography (Apr. 2023 – Current)

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

Journal Publications

[1] **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" in *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, doi: 10.1109/TNSRE.2023.3270175.

[2] Jae Gyeong Choi, Dong Chan Kim, **Miyoung Chung**, Sunghoom Lim, Hyung Wook Park, "Multimodal 1D CNN for delamination prediction in CFRP drilling process with industrial robots" in *Computer & Industrial Engineering*, doi: 10.1016/j.cie.2024.110074.

[3] Taehyung Kim, **Miyoung Chung**, Eunju Jeong, Yang Seok Cho, Oh-Sang Kwon, Sung-Phil Kim, "Cortical representation of musical pitch in event-related potentials" in *Biomedical Engineering Letters*, doi: https://doi.org/10.1007/s13534-023-00274-y.

[4] Jae Gyeong Choi, Dongchan Kim, **Miyoung Chung**, Gyeongho Kim, Sunghoon Lim, Hyung Wook Park "Accurate synthesis of sensor-to-machine-surface image generation in carbon-fiber-reinforced plastic drilling" in Expert Systems with Applications, doi: 10.1016/j.eswa.2024.124656.

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

Molson Neuro Engineering Graduate Entrance Award / Sep. 2024
Integrated Program in Neuroscience, McGill University, Montréal, QC, CA

Grad Excellence Award in Neurology & Neurosurgery / Mar. 2022
Integrated Program in Neuroscience, McGill University, Montréal, QC, CA

Excellence Award - Artificial Intelligence Challengers Program / Dec. 2022 & Dec. 2021
UNIST Innovative Education Center, Ulsan, Rep. of Korea

Best paper award / Jul. 2022
The Korean Society of Manufacturing Technology Engineers (한국생산제조학회)

UNIST Scholarship (Graduate) / Sep. 2020 – Aug. 2022
Ulsan National Institute of Science and Technology (UNIST)
National S&T (Science & Technology) Scholarship / Mar. 2016 – Feb. 2020
Korean Student Aid Foundation (KOSAF)
National Scholarship / Mar. 2014 – Dec. 2015
Korean Student Aid Foundation (KOSAF)

Research Interests

Brain Mechanism in Musical Imagery
Musical Pitch Imagery
Music and Speech Cognition
Music and Speech Brain-Computer Interface
Neurofeedback Training

Skills

Brain Data Analysis (MATLAB, Python, R Studio)
Machine Learning / Deep Learning (Python Libraries: Scikit learn, Tensorflow, etc.)
Music Generation (Logic Pro X)
Web Design (HTML/CSS)
Programming (Python, C++ in basic level)