

Miyoung Chung

Department of Biomedical Engineer/UNIST

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Education

M.S. Program, Biomedical Engineering

Sep. 2020 - Present (Expected Graduation at Aug. 2022)

Ulsan National Institute of Science and Engineering (UNIST), Ulsan, Rep. of Korea

GPA 4.3/4.3 (All classes were held in English)

UNIST Scholarship (Graduate) Recipient, Sep.2020-Current

B.S. 1st Track: Electrical Engineering

2nd Track: 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 (All classes were held in English)

Academic Performance Scholarship Recipient, Mar. 2014 - Dec. 2015

National S&T (Science & Technology) Scholarship Recipient, Mar. 2016 - Feb. 2020

Research Experiences

Research Assistant (Graduate)

BCILAB, Dept. of Biomedical Engineering, UNIST, Ulsan, Rep. of Korea

Jan. 2020 – Present (Advisor: Prof. Sung-Phil Kim)

Projects title: Musicing-BCI, B2Speech

1. Conducted data analysis and neural decoding research on musical pitch imagery data of ECoG and EEG
2. Developed a real-time brain-computer interface (BCI) system of decoding an imagined musical pitch from EEG
3. Conducted data analysis and neural decoding research on speech data ECoG and EEG
4. Developing a system of classifying an imagined Korean word from EEG

AICP (Artificial Intelligence Challengers Program) team member

UNIST Innovative Education Center, Ulsan, Rep. of Korea

Sep. 2021 – Present

Projects title: AI-based defect prediction during the CFRP drilling process with an industrial robot machining system

1. Conducted data processing and classification research on Robot sensor data
2. Conducted a follow-up study for Artificial Intelligence application on predicting CFRP (Carbon Fiber Reinforced Plastic) delamination

Research Assistant (Undergraduate)

Interactions Lab, Dept. of Human Factor Engineering, UNIST, Ulsan, Rep. of Korea

June 2018 - Dec. 2019 (Advisor: Prof. Ian Oakley)

Project title: Finger identification of smart watch

1. Conducted research on smartwatch finger identification
2. Assisted an eye-movement signal processing filter generation

Music&Brain Research Lab, Dept. of Culture and Technology, KAIST, Daejeon, Rep. of Korea
Apr. 2019 - Aug. 2019 (Advisor: Prof. Kyung-myun Lee)
Project title: The rhythm and language correlation study
Assisted an experiment and data management on the rhythm and language correlation study

Teaching Experiences

Teaching Assistance, UNIST, Ulsan, Rep. of Korea
Advanced Multivariate Data analysis and Data mining
Sep. 2020 - Dec. 2020

Web Design Instructor, Regent University, Accra, Rep. of Ghana
Member of IT tech instructors, World Friends ICT Ghana
July. 2017

Basic Dance Instructor, Ulsan, Rep. of Korea
Dance Instructor of 15 undergraduate & graduate students of UNIST
Sep. 2019 - Dec. 2019

Peer-Reviewed Journal Publications

- [1] T.H. Kim, **M.Y. Chung**, E.J. Jeong, Y.S. Cho, O.S. Kwon, S.P. Kim, "Neural representation of musical pitch in space" (under review)
- [2] **M.Y. Chung**, T.H. Kim, E.J. Jeong, C.K. Chung, J.S. Kim, O.S. Kwon, S.P. Kim, "Decoding imagined musical pitch from human scalp electroencephalograms" (in preparation)
- [3] "Relationship between covert/overt speech and semantic/phonologic feature of Korean words" (in preparation)
- [4] "Predicting delamination of CFRP when the drilling process manipulated with robot arms" (in preparation)

Conference Proceedings

- [1] D.C. Kim, J.G. Choi, **M.Y. Chung**, S.H. Lim, H.W. 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, Republic of Korea
- [2] J.G. Choi, D.C. Kim, **M.Y. Chung**, S.H. Lim, H.W. Park, "A multimodal deep learning model for carbon fiber-reinforced plastic (CFRP) drilling process optimization, Oral presentation at 2022 ICS Conference, Florida, USA

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

Logic Pro X

C++ (Basic level)

Language

Korean, Native

English, Fluent (attended to Sherwood Elementary School, Maryland, Mar. 2003 – Feb.2004;
Test Scores: TOEIC 935/990, TOEFL 92/120)