BYUNGKEUN CHOI

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Seoul, Korea
: github.com/DukiChoi ◇ Résumé download link

EDUCATION

M.S. in Electronic Engineering, Hanyang University *Sep. 2022 - Feb. 2025*
Advisor: Jeonghee Kim
Research Area: Bio-signal Processing and NeuroEngineering

B.A. in Electrical Engineering, Hanyang University *Feb. 2013 - Sep. 2022*

SKILLS

Technical Skills

- Embedded software development (C++, Arduino)
- Android application development (Java)
- VR application development (Unity, C#)
- Data analysis (Matlab, Python)
- PCB design and development (KiCad) and PCB soldering and assembly

Language

- Korean (Native)
- English (Fluent): TOEIC 910, TOEIC Speaking 170 (AL)
- Japanese (Intermediate): JLPT N3 (before revision)

EXPERIENCE

Researcher *Mar. 2025- Present*
Hanyang Industry-University Cooperation Foundation (Bio-signal Processing and NeuroEngineering Lab)

- Collaborated with the Flexible Electronics Lab to implement a VR–embedded system for validating a full-body electrical stimulation suit (TESS).
- Collaborated with the Department of Pediatrics, Hanyang University College of Medicine, to develop a "Smart Cube" device for pediatric cognitive ability assessment.

Undergraduate Research Student *Jan. 2022 - Aug. 2022*
Embedded Security and Internet of Things Lab, Hanyang University

- Developed an embedded program to track sensor positions using data from a 9-axis IMU sensor with filtering techniques, and programmed a MCU board in C++ and Python for data visualization. (Github link)

PROJECTS

Development of a Smart Cube for Pediatric Cognitive Assessment ()

Mar. 2025 – Present

- Designed a Smart Cube device with IMU, pressure sensors, and LEDs, implemented BLE firmware and an Android app for grip/motion data collection, and planned deep learning analysis for cognitive ability classification.

Validation of a Full-body Electrical Stimulation Suit (TESS) with VR Integration ()

Mar. 2025 – Jun. 2025

- Developed a VR–embedded system integrated with a full-body stimulation suit (TESS) via BLE, implemented Unity-based haptic scenarios, and validated stimulation reliability and tremor reduction with 9 participants.

Development of a Virtual Reality-Based Tremor Assessment System with Custom HCI Devices ()

Nov. 2023 – Dec. 2024

- Designed a VR-based assessment system integrating custom HCI devices (nRF52-based controllers) to capture multi-modal interaction data, enabling CNN/RNN analysis for quantitative evaluation of tremor severity in Parkinson's patients.

Development of a Pipe Detection App Using IMU Sensors and Magnetometer Data ()

Jun. 2023 - Sep. 2023

Development of a UWB-based Indoor Vehicle Positioning and Visualization Application ()

Jan. 2023 - Mar. 2023

Development of a Worker Safety Alert Android Application Using UWB Technology ()

Jul. 2022 - Feb. 2023

PUBLICATIONS

Jin Hee Hwang†, Sun Hong Kim†, Ju-Hwan Kim†, Jae-Young Yoo†, Byungkeun Choi, Jungmin Seo, Sungjun Park, Joohoon Kang, Sang Min Won, Jeonghee Kim, Dong-Wook Park*, and Yei Hwan Jung* (2025). "A Lightweight, Durable Full-Body Electrical Stimulation Suit for Haptic Feedback and Therapeutic Applications"
Nature Communications, Submitted (under review)

Byungkeun Choi (2025). "A Virtual Reality-Based Assessment System for Tremor Disorders Using CNN and RNN for Comprehensive Symptom Analysis"
Hanyang University, Department of Electronic Engineering
Advisor: Prof. Jeonghee Kim

Bing Jiang, Byungkeun Choi, Hyunsang Cho, Hangue Park, Jeonghee Kim* (2024). "Development of a Real-time Wireless Multi-node Metal Pipeline Localization System via Bluetooth Link"
IEEE/IEIE ICCE-Asia

TEACHING EXPERIENTCE

Personal Assistant to a Foreign Professor (David Wagner), Hanyang University	*Mar. 2024 - Aug. 2024*
Teaching Assistance, Digital Signal Processing, Hanyang University	*Sep. 2023 - Feb. 2024*
Teaching Assistance, Embedded System Design, Hanyang University	*Mar. 2023 - Aug. 2023*
Teaching Assistance, Microprocessor, Hayang University	*Sep. 2022 - Feb. 2023*