CURRICULUM VITAE

Chang-Hee Han (Ph.D.)

Position: Assistant Professor (tenure track professorship)
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SHORT BIOGRAPHY

Dr. Chang-Hee Han graduated from the department of biomedical engineering at Yonsei University in 2011. He received his M.S. and Ph.D. degrees from the department of biomedical engineering at Hanyang University in 2014 and 2018, respectively. He had worked as a postdoctoral associate at the Machine Learning Group in Technical University of Berlin from March 2018 to August 2020 (Supervisor: Klaus-Robert Müller). He currently works at the Department of Computer Convergence Software in Korea University as an assistant professor since September 2023.

His research interests cover various fields of computaional neuroengineering including brain-computer interfaces (BCI) and neural signal decoding based on machine learning and deep learning using artificial intelligence techniques. He has authored 23 articles in peer-reviewed international (SCIE-indexed) journals, 1 article in peer-reviewed domestic (KCI-indexed) journals, 8 domestic patents, 20 international conference proceeding papers, 25 domestic conference papers, and 9 research fundings (6 principal researcher and 3 co-researcher).

EDUCATION AND CAREER

2023.09.01 ~ **Present**	**Assistant Professor (Tenure-track)**, Department of Computer Convergence Software, Korea University (Sejong Campus), Republic of Korea
2022.09.01 ~ 2023.08.31	**Assistant Professor (Tenure-track)**, Department of Artificial Intelligence, Kongju National University, Republic of Korea
2021.03.01 ~ 2022.08.31	**Assistant Professor (Tenure-track)**, Department of Software, Dongseo University, Republic of Korea
2020.09.01 ~ 2021.02.28	**Research Professor**, Department of Electronic Engineering, Hanyang University, Republic of Korea
2018.03.01 ~ 2020.08.31	**Postdoctoral Research Associate**, Machine Learning Group, Technical University of Berlin (Supervisor: Klaus-Robert Müller), Germany
2014.03.03 ~ 2018.02.23	**Ph.D.,** Dept. of Biomedical Engineering, Hanyang University, Korea (*Thesis title: Development of Electroencephalography-based Brain-Computer Interface for Communication of Patients with Severe Neuromuscular Diseases*)
2012.03.02 ~ 2014.02.21	**M.S.,** Dept. of Biomedical Engineering, Hanyang University, Korea (*Thesis title: Mechanisms of Neurorehabilitation Techniques Revealed Using Functional Near-Infrared Spectroscopy*)
2006.03.01 ~ 2011.08.26	**B.S.,** Dept. of Biomedical Engineering, Yonsei University, Korea

EDITORIAL ACTIVITIES

2022.04 ~ Present	**Review Editor,** The Korean Institute of Communications and Information Sciences (한국통신학회)
2021.10 ~ Present	**Review Editor,** The Korean Institute of Electronic Communication Science (한국전자통신학회)
2021.03 ~ Present	**Review Editor,** The Korean Society of Medical & Biological Engineering (대한의용생체공학회)
2021.03 ~ Present	**Review Editor,** The Korean Society for EEG and NEurophysiology (대한뇌파신경생리학회)
2019.04 ~ 2020.08.31	**Guest Editor,** Special issue: "The challenges in brain-computer interface (BCI) - Toward practical BCI", *Electronics* (SCIE-indexed)
2019.03 ~ Present	**Review Editor,** *Frontiers in Human Neuroscience* (SCIE-indexed)
2023.08 ~ Present	**Review Editor,** *Expert Systems with Applications* (SCIE-indexed)

RESEARCH INTERESTS

■ Human-Computer Interface (HCI)	Development of practical HCI systems and experimental paradigms
■ Braion-Computer Interface (BCI)	Development of BCI applications using brain signals for patients with severe motor impairments
■ Noninvasive Brain Stimulation	Validating the effect of noninvasive brain stimulation techniques such as transcranial direct current stimulation (tDCS)
■ Neural Signal Processing	Analysis of brain and physiological signals and their applications to clinical science
■ Intelligent Computational Neuroengineering	Development of various computational neuroengineering applications based on brain and physiological signals
■ Artificial Intelligence (AI) for Healthcare	Development of deep and machine learning algorithms for healthcare systems

AWARDS

2014.05.09	**Best Poster Award,** Conference of the Korean Society of Medical & Biological Engineering (*Poster title: Data-Driven User Feedback: An Improved Neurofeedback Strategy Considering Individual Variability of EEG Features*)
2013.11.08	**Best Poster Award,** Conference of the Korean Society of Medical & Biological Engineering (Poster *title: Single-Trial Classification and Evaluation of The Hemodynamic Responses during Simultaneous Execution of Passive and Active Exercises*)
2013.11.01	**Best Poster Award,** Conference of the Korean Society for Human Brain Mapping (Poster *title: Single-Trial Classification and Evaluation of The Hemodynamic Responses during Simultaneous Execution of Passive and Active Exercises*)

TOTAL PUBLICATIONS

Peer-Reviewed International Journal Papers (SCI/SCIE-Indexed Journals)

averaed IF = 4.173 / Total IF = 95.98 / h-index = 12 / i10-index = 17

[23] **Chang-Hee Han**, Ga－Young Choi,, and Han-Jeong Hwang, "Deep Convolutional Neural Network Based Classification of Eye States Using Ear-EEG", *Expert Systems with Applications (0957-4174)*, vol. 192, Art.No. 116443, 15th April 2022, **(IF: 8.5; Top 6.4% in Operations research & management science)**

[22] Ga-Young Choi, **Chang-Hee Han**, Hyung-Tak Lee, Nam-Jong Paik, Won-Seok Kim, and Han-Jeong Hwang, "An Artificial Neural-Network Approach for Motor Hotspot Identification Based on Electroencephalography: A Proof-of-Concept Study", *Journal of NeuroEngineering and Rehabilitation (eISSN: 1743-0003)*, vol. 18(1), Art.No. 176, 20th December 2021, **(IF: 5.1; Top 3.7% in Rehabilitation)**

[21] Seonghun Park, Do-Won Kim, **Chang-Hee Han**, and Chang-Hwan Im, "Estimation of Emotional Arousal Changes of a Group of Individuals during Movie Screening Using Steady-State Visual-Evoked Potential", *Frontiers in Neuroinformatics*, vol. 15, Art.No. 731236, 2nd September 2021 **(IF: 3.5; Q2 in mathematical & computational biology)**

[20] **Chang-Hee Han**, Klaus-Robert Müller, and Han-Jeong Hwang, "Enhanced Performance of a Brain Switch by Simultaneous Use of EEG and NIRS Data for Asynchronous Brain-Computer Interface", *IEEE Transactions on Neural Systems and Rehabilitation Engineering, (ISSN: 1534-4320),* vol. 28(10), pp 2102-2112, 17th August 2020, **(IF: 4.9; Top 5.1% in Rehabilitation)**

[19] Seonghun Park, **Chang-Hee Han**, and Chang-Hwan Im, "Design of Wearable EEG Devices Specialized for Passive Brain－Computer Interface Applications", *Sensors, (eISSN: 1424-8220),* vol. 20(16), Art.No. 4572, 13 August 2020, **(IF: 3.9; Q2 in Instruments & Instrumentation)**

[18] **Chang-Hee Han**, Klaus-Robert Müller, and Han-Jeong Hwang, "Brain-Switches for Asynchronous Brain-Computer Interfaces: A Systematic Review", *Electronics (eISSN: 2079-9292),* vol. 9(3), Art.No. 422, 2nd March 2020, **(IF: 2.9; Q2 in Engineering, Electrical & Electronics)**

[17] Ho-Seung Cha, **Chang-Hee Han**, and Chang-Hwan Im, "Prediction of Individual User's Dynamic Ranges of EEG Features from Resting-State EEG Data for Evaluating Their Suitability for Passive Brain-Computer Interface Applications", *Sensors (eISSN: 1424-8220),* vol. 20(4), Art.No. 988, 12th February 2020, **(IF: 3.9; Q2 in Instruments & Instrumentation)**

[16] **Chang-Hee Han**, Eujin Kim, and Chang-Hwan Im, "Development of a Brain-Computer Interface Toggle Switch with Low False-Positive Rate Using Respiration-Modulated Photoplethysmography", *Sensors (eISSN: 1424-8220),* vol. 20(2), Art.No. 348, 08 January 2020 **(IF: 3.9; Q2 in Instruments & Instrumentation)**

[15] Ga-Young Choi, **Chang-Hee Han**, Young-Jin Jung, and Han-Jeong Hwang, "A Multi-Day and Multi-Band Dataset for a Steady-State Visual-Evoked Potential－Based Brain-Computer Interface", *GigaScience (ISSN: 2047-217X)*, vol. 8(11), pp. 1-11, 25th November 2019 **(IF: 9.2; Top 17.1% in Multidisciplinary Science)**

[14] **<u>Chang-Hee Han</u>**, Yong-Wook Kim, Do Yeon Kim, Seung Hyun Kim, Zoran Nenadic, and Chang-Hwan Im, "Electroencephalography-Based Endogenous Brain-Computer Interface for Online Communication with a Completely Locked-in Patient", *Journal of NeuroEngineering and Rehabilitation (eISSN: 1743-0003)*, vol. 16, Art.No. 18, 30 January 2019 **(IF: 5.1; Top 3.7% in Rehabilitation)**

[13] Soo-In Choi, **<u>Chang-Hee Han</u>**, Ga-Young Choi, Jaeyoung Shin, Kwang Soup Song, Chang-Hwan Im, and Han-Jeong Hwang, "On the Feasibility of Using an Ear-EEG to Develop an Endogenous Brain-Computer Interface", *Sensors (eISSN: 1424-8220),* vol. 18(9), Art.No. 2856, 29th August 2018 **(IF: 3.9;** Q1 in Instruments & Instrumentation**)**

[12] Do Yeon Kim, **<u>Chang-Hee Han</u>**, and Chang-Hwan Im, "Development of an Electrooculogram-Based Human Computer Interface Using Involuntary Eye Movement by Spatially Rotating Sound for Communication of Locked-in Patients", *Scientific Reports (ISSN: 2045-2322)*, vol. 8, Art.No. 9505, 22nd June 2018 **(IF: 4.6;** Q2 in Multidisciplinary Sciences**)**

[11] **<u>Chang-Hee Han</u>**, Han-Jeong Hwang, Jeong-Hwan Lim, and Chang-Hwan Im, "Assessment of User Voluntary Engagement during Neurorehabilitation Using Functional Near-Infrared Spectroscopy: A Preliminary Study", *Journal of NeuroEngineering and Rehabilitation (eISSN: 1743-0003)*, vol. 15, Art.No. 27, 23rd March 2018 **(IF: 5.1; Top 3.7% in Rehabilitation)**

[10] **<u>Chang-Hee Han</u>**, Jun-Hak Lee, Jeong-Hwan Lim, Yong-Wook Kim, and Chang-Hwan Im, "Global Electroencephalography Synchronization as a New Indicator for Tracking Emotional Changes of a Group of Individuals during Video Watching", *Frontiers in Human Neuroscience (ISSN: 1662-5161)*, vol. 11, Art.No. 577, 1st December 2017 **(IF: 2.9;** Q2 in Psychology**)**

[9] Jeong-Hwan Lim, Yong-Wook Kim, Jun-Hak Lee, Kwang-Ok An, Ho-Seung Cha, **<u>Chang-Hee Han</u>**, and Chang-Hwan Im, "An Emergency Call System for Patients in Locked-in State Using an SSVEP-Based Brain Switch", *Psychophysiology (ISSN: 0048-5772)*, vol. 54, pp. 1632-1643, 11th July 2017 **(IF: 3.7; Top 18.5% in Psychology)**

[8] Han-Jeong Hwang, **<u>Chang-Hee Han</u>**, Jeong-Hwan Lim, Yong-Wook Kim, Soo-In Choi, Kwang-Ok An, Jun-Hak Lee, Ho-Seung Cha, Seung Hyun Kim, and Chang-Hwan Im, "Clinical Feasibility of Brain-Computer Interface Based on Steady-State Visual Evoked Potential in Patients with Locked-in Syndrome: Case Studies", *Psychophysiology (ISSN: 0048-5772)*, vol. 54, pp. 444-451, 3rd December 2016 **(IF: 3.7; Top 18.5% in Psychology)**

[7] **<u>Chang-Hee Han</u>**, Jung-Hwan Lim, Jun-Hak Lee, Kangsan Kim, and Chang-Hwan Im, "Data-driven user feedback: An improved neurofeedback strategy considering the interindividual variability of EEG features", *BioMed Research International (ISSN: 2314-6133)*, vol. 2016, Art.No. 3939815, 18th Aug 2016 **(IF: 3.2;** Q3 in Biotechnology & Applied Microbiology**)**

[6] Jeong-Youn Kim, Kun-Il Kim, **<u>Chang-Hee Han</u>**, Jeong-Hwan Lim, and Chang-Hwan Im, "Estimatiing Consumer's Subjective Preference Using Functional Near-Infrared Spectroscopy: A Feasibility Study" *Journal of Near Infrared Spectroscopy (ISSN: 0967-0335),* vol. 24, pp. 433-441, 6th Aug 2016 **(IF: 1.8;** Q3 in Chemistry, Applied**)**

[5] **Chang-Hee Han**, Hyuna Song, Yong-Guk Kang, Beop-Min Kim, and Chang-Hwan Im, "Hemodynamic Responses in Rat Brain during Transcranial Direct Current Stimulation: a Functional Near-Infrared Spectroscopy Study" *Biomedical Optics Express (ISSN: 2156-7085)*, vol. 5, no. 6, pp. 1812-1821, 13 May 2014 **(IF: 3.4;** Q2 in Optics**)**

[4] **Chang-Hee Han**, Han-Jeong Hwang, and Chang-Hwan Im, "Classification of Visual Stimuli with Different Spatial Patterns for Single Frequency, Multi-Class SSVEP BCI: A Preliminary Study" *Electronics Letters (ISSN: 0013-5194)*, vol. 49, Issue 22, pp. 1374-1376, 24th October 2013 **(IF: 1.1;** Q4 in Engineering, Electrical & Electronic**)**

[3] Han-Jeong Hwang, Dong Hwan Kim, **Chang-Hee Han**, and Chang-Hwan Im, "A New Dual-Frequency Stimulation Method to Increase the Number of Visual Stimuli for Multi-Class SSVEP-Based Brain-Computer Interface (BCI)" *Brain Research (ISSN: 0006-8993)*, vol. 1515, pp. 66-77, 17th June 2013 **(IF: 2.9;** Q3 in Neuroscience**)**

[2] Jeong-Hwan Lim, Han-Jeong Hwang, **Chang-Hee Han**, and Chang-Hwan Im, "Classification of Binary Intentions for Individuals with Impaired Oculomotor Function: "Eyes-closed" SSVEP-Based Brain-Computer Interface (BCI)" *Journal of Neural Engineering (ISSN: 1741-2560)*, vol. 10, Art.No. 026021, 26 March 2013 **(IF: 4.0;** Q2 in Engineering, Biomedical**)**

[1] Dong-Hyun Baek, **Chang-Hee Han**, Ha-Chul Jung, Seon Min Kim, Chang-Hwan Im, Hyun-Jik Oh, James Jungho Pak, and Sang-Hoon Lee, "Soldering-Based Easy Packaging of Thin Polyimide Multichannel Electrodes for Neuro Signal Recording," *Journal of Micromechanics and Microengineering (ISSN: 0960-1317)*, vol. 22(11), Art.No. 115017, 26 September 2012 **(IF: 2.3;** Q3 in Instruments & Instrumentation**)**

Peer-Reviewed Domestic Journal Papers (KCI-Indexed Journals)

[0] Min-Soo Kim, Mi-Kyung Moon, and **Chang-Hee Han***, "Expiration Date Notification System Based on YOLO and OCR algorithms for Visually Impaired Person", *Korea Institute of Electronic Communication Science*, vol. 16(6), 31 December 2021

International Conference Proceeding Papers

[20] **Chang-Hee Han** and Han-Jeong Hwang, "Ear-EEG Based Eye State Classification Using Convolutional Neural Network ", Annual Summit and Conference by Asia-Pacific Signal and Information Processing Association, November 7-10, 2022 (Oral Presentation)

[19] Ga-Young Choi, **Chang-Hee Han**, Hyunmi Lim, Jeonghun Ku, Won Seok Kim, and Han-Jeong Hwang, "Electroencephalography-Based Motor Hotspot Detection", The 13th International Conference on Bio-Inspired Systems and Signal Processing, February 24-26, 2020

[18] **Chang-Hee Han** and Han-Jeong Hwang, "Onset Detection of a Hybrid EEG-NIRS Brain-Computer Interface", The 41th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, July 23-27, 2019

[17] **Chang-Hee Han**, Jinuk Kwon, Han-Jeong Hwang, and Chang-Hwan Im, "Classification of Functional Near-Infrared Spectroscopy Signals during Passive and Combinatory Exercises for Neurorehabilitation", The 7th International Winter Conference on Brain-Computer Interface (BCI), February 18-20, 2019 (Oral Presentation)

[16] **Chang-Hee Han**, and Chang-Hwan Im, "EEG-based Brain-Computer Interface for Real-Time Communication of Patients in Completely Locked-in State", The 6th International Conference on Brain-Computer Interface, January 11-15, 2018

[15] **Chang-Hee Han**, Yong-Wook Kim, Do Yeon Kim, and Chang-Hwan Im, "EEG-Based Brain-Computer Interface for Real-Time Binary Communication of Patients in Completely Locked-in State", The 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, July 11-15, 2017

[14] Do-Yeon Kim, **Chang-Hee Han**, and Chang-Hwan Im, "A Novel EOG-Based Binary Communication Paradigm using Sound Rotation for Patients with Locked-in Syndrome", The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August 25-29, 2016

[13] Seonghun Park, Do-Won Kim, **Chang-Hee Han**, and Chang-Hwan Im, "A Method for Estimating Emotional Arousal Changes of a Group of Individuals during Movie Screening Using SSVEP", The 6th International Brain-Computer Interface Meeting, May 30 - June 3, 2016

[12] **Chang-Hee Han**, Jun-Hak Lee, Jeong-Hwan Lim, and Chang-Hwan Im, "Extracting Emotional Highlights from Video Clips by Tracking Global Electroencephalography Synchronization", The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August 25-29, 2016

[11] **Chang-Hee Han**, Jeong-Hwan Lim, Jun-Hak Lee and Chang-Hwan Im, "Individualization Strategy for EEG-based Passive Brain-Computer Interfaces Considering Test-Retest Reliability of EEG Features", International Biomedical Engineering Conference 2015, November 12-14, 2015

[10] Jeong-Hwan Lim, Yong-Wook Kim, **Chang-Hee Han**, Ho-Seung Cha, and Chang-Hwan Im, "An Emergency Call System for Patients with Severe ALS Using Less-Stimulating SSVEP-Based Brain Switch", The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August 25-29, 2015

[9] Yong-Wook Kim, Jeong-Hwan Lim, **Chang-Hee Han**, and Chang-Hwan Im, "Towards BCI-Controlled Augmented Reality: Integration of Computer Vision with BCI for Hands-Free Communication and Control", The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August 25-29, 2015

[8] **Chang-Hee Han**, Han-Jeong Hwang, Jeong-Hwan Lim, and Chang-Hwan Im, "Assessment of Users' Cognitive Engagement during Passive and Active Exercises for Neurorehabilitation Using NIRS", The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August 25-29, 2015

[7] Jeong-Youn Kim, **Chang-Hee Han**, Jeong-Hwan Lim, and Chang-Hwan Im, "Estimation of Consumer's Subjective Preference Using fNIRS", International Biomedical Engineering Conference 2014, November 20-22, 2014

[6] Jun-Hak Lee, Jeong-Hwan Lim, **Chang-Hee Han**, Yong-Wook Kim, and Chang-Hwan Im, "Global EEG Synchronization as an Indicator of Emotional Arousal and Its Application for Tracking Emotional Changes during Video Watching", The 6th International Brain-Computer Interface Conference, September 16-19, 2014 (oral presentation)

[5] **Chang-Hee Han**, Han-Jeong Hwang, Jeong-Hwan Lim, and Chang-Hwan Im, "Single-Trial Classification and Evaluation of Hemodynamic Responses during Passive and Active Exercises for Neurorehabilitation", The 6th International Brain-Computer Interface Conference, September 16-19, 2014 (oral presentation)

[4] **Chang-Hee Han** and Chang-Hwan Im, "Development of an Data-Driven User Feedback: An Improved Neurofeedback Strategy Considering Individual Variability of EEG Features", The 18th IEEE International Symposium on Consumer Electronics, June 22-25, 2014

[3] Jeong-Youn Kim, **Chang-Hee Han**, Jeong-Hwan Lim, and Chang-Hwan Im, "Estimation of consumer's Subjective Preference from NIRS Signals: a Preliminary Investigation", Organization of Human Brain Mapping, June 08-12, 2014

[2] **Chang-Hee Han**, Han-Jeong Hwang, Jeong-Hwan Lim, and Chang-Hwan Im, "Development of an "Eyes-Closed" Brain-Computer Interface System for Communication of Patients with Oculomotor Impairment", The 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, July 03-07, 2013

[1] **Chang-Hee Han**, Han-Jeong Hwang, and Chang-Hwan Im, "Modified Pattern-Reversal Visual Checkerboard stimuli with Dual Alternating Frequencies for Multi-Class SSVEP-based Brain-Computer Interfaces", 2013 IEEE International Winter Workshop on Brain-Computer Interface, February 18-20, 2013

Domestic Conference Proceeding Papers

[25] 김민수, 문미경, **한창희***, "Automatic Notification System of Expiration Date Based on YOLO and OCR algorithm for Blind Person", 한국컴퓨터정보학회 하계학술대회 논문집, vol. 29(2), 2021.07

[24] 박성훈, **한창희**, 임창환, "Design of Portable EEG Headsets Based on Database", IBEC 2016 추계학술대회(International Biomedical Engineering Conference), 2016.11.12

[23] 박성훈, 김도원, **한창희**, 임창환,"A Method for Estimating Emotional Arousal Changes of a Group of Individuals during Movie Screening using SSVEP", 2016년 대한뇌기능매핑학회 추계 학술대회, 2016.11.04

[22] 박성훈, 김도원, **한창희**, 임창환,"정상상태시각유발전위를 이용한 영화 상영 중 집단의 감정 변화 추적 기술", 2016년 제51회 대한의용생체공학회 춘계학술대회, 2016.05.14

[21] 김도연, **한창희**, 임창환,"회전 음원을 이용하는 안구전도 기반의 새로운 이진 의사소통 패러다임",2016년 제51회 대한의용생체공학회 춘계학술대회, 2016.05.14

[20] 김도원, **한창희**, 심미선, 임창환, "Classification of Selective Attention to Spatially Separated Auditory Stimuli Using Near-Infrared Spectroscopy (NIRS)", 제7회 한국계산뇌과학회 정기학술대회, 2015.08.19

[19] 임정환, 김용욱, 차호승, **한창희**, 임창환, "An Emergency Call System for Patients with Severe ALS Using Less-Stimulating SSVEP-Based Brain Switch",제7회 한국계산뇌과학회 정기학술대회, 2015.08.19

[18] 김용욱, 임정환, **한창희**, 임창환, "SSVEP 기반 BCI를 이용한 증강현실 시스템에서의 타겟 선택 기술", 2015년 제50회 대한의용생체공학회 춘계학술대회, 2015.05.08-09

[17] 임정환, 김용욱, 이준학, **한창희**, 차호승, 임창환, "색체 자극을 이용한 정상 상태 시각 유발 전위 기반의 저자극 뇌-스위치 시스템 개발", 2015년 제50회 대한의용생체공학회 춘계학술대회, 2015.05.08-09

[16] 이준학, 임정환, **한창희**, 김용욱, 임창환, "Global EEG Synchronization as an Indicator of Emotional Arousal and Its Application for Tracking Emotional Changes during Video Watching", 대한뇌기능매핑학회 추계학술대회, 2014.11.07

[15] 김정연, **한창희**, 임정환, 임창환, "Estimation of Consumer's Subjective Preference Using fNIRS", 대한뇌기능매핑학회 추계학술대회, 2014.11.07

[14] 이준학, 임정환, **한창희**, 김용욱, 임창환, "미래병사체계 적용이 가능한 정상상태 시각 유발전위를 이용한 뇌-스위치 시스템 개발",제22회 지상무기학술대회, 2014.09.25

[13] **한창희**, 임창환, "Data-Driven User Feedback : An Improved Neurofeedback Strategy Considering Individual Variability of EEG Feature", International Symposium on Consumer Electronics, 2014.06.22-25

[12] 이준학, 임정환, **한창희**, 김용욱, 임창환, "전역 뇌파 동기화를 이용한 비디오 시청 시 감정 변화 추적", 대한의용생체공학회 춘계학술대회, 2014.05.09-10

[11] 차호승, 임정환, 황한정, **한창희**, 임창환, "CTVEP를 이용한 뇌 스위치 시스템 개발", 대한의용생체공학회 춘계학술대회, 2014.05.09-10

[10] **한창희**, 임창환, "데이터베이스 기반의 사용자 피드백: 뇌파 특징의 개인 편차를 고려한 향상된 뉴로피드백 전략", 대한의용생체공학회 춘계학술대회, 2014.05.09-10

[9] 차호승, 임정환, 황한정, **한창희**, 임창환, "일시적 시각유발전위에 기반한 뇌 스위치 시스템 구현", 제49회 대한의용생체공학회 추계학술대회, 2013.11.08

[8] 이준학, 임정환, 황한정, **한창희**, 임창환, "정상상태 시각 유발전위를 이용한 뇌-스위치 시스템 개발: 예비 연구", 제49회 대한의용생체공학회 추계학술대회, 2013.11.08

[7] **한창희**, 황한정, 임창환, "수동 운동과 능동 운동(운동 심상) 동시 수행 시 혈류역학 반응 변화 비교 및 단독 시행 분류", 제49회 대한의용생체공학회 추계학술대회, 2013.11.08

[6] **한창희**, 송현아, 강용국, 김법민, 임창환, "Changes of Hemodynamic Responses in Rat Brain during Transcranial Direct Current Stimulation: A Functional Near-Infrared Spectroscopy Study", 2013 대한뇌기능매핑학회 추계학술대회, 2013.11.01

[5] **한창희**, 황한정, 임창환, "Single-Trial Classification and Evaluation of the Hemodynamic Responses during Simultaneous Execution of Passve and Active Exercises", 2013 대한뇌기능매핑학회 추계학술대회, 2013.11.01

[4] 이준학, 임정환, 황한정, **한창희**, 임창환, "시각의 선택적 주의 집중을 이용한 루게릭병 환자의 이진 의도 분류", 제47회 대한의용생체공학회 춘계학술대회, 2013.05.10

[3] 임정환, 황한정, **한창희**, 이준학, 임창환, "정상 상태 시각 유발 전위 기반 BCI 시스템의 중증 ALS 환자에 대한 적용: 사례 연구", 제47회 대한의용생체공학회 춘계학술대회, 2013.05.10

[2] **한창희**, 송현아, 강용국, 김법민, 임창환, "근적외선분광기를 이용하여 측정한 경두개직류자극에 따른 뇌 혈류량 변화 고찰", 제47회 대한의용생체공학회 춘계학술대회, 2013.05.10

[1] 임정환, 황한정, **한창희**, 임창환, "시각의 선택적 주의집중을 이용한 눈을 감은 상태에서의 이진 의도 분류", 제 45회 대한의용생체공학회 춘계학술대회, 2012.05.11-12

PROJECT FUNDING

2023.09.01. ~ 2025.01.31.
"파킨슨병 환자 및 노령 인구의 이상 보행 감지를 위한 스마트인솔 기반 딥러닝 알고리즘 및 모델 개발 연구", 신임교원정착연구비 *(고려대학교)*, **연구책임자**, 3,500만원 (수행중)

2023.04.01. ~ 2024.02.16.
"딥러닝 알고리즘 기반 뇌-컴퓨터 인터페이스 시스템 개발", *교내학술연구비 (공주대학교)*, **연구책임자**, 1,000만원 (완료)

2022.03.01. ~ 2027.02.28.
"인공지능 기반 영유아 삼킴장애 진단 평가 시스템 개발과 임상적 검증", *세종과학펠로우십 (한국연구재단)*, 공동연구자, 6억 5,000만원 (완료)

2022.03.01. ~ 2022.11.30.
"정신장애인의 집중력 강화를 위한 지능형 레이저사격시스템 개발", *산학협력 R&D프로젝트 (동서대학교)*, **연구책임자**, 2,400만원 (완료)

2021.06.01. ~ 2024.02.28.
"뇌-컴퓨터 인터페이스의 한계 극복을 위한 신호 처리 및 딥 러닝 알고리즘 기반 원천 기술 개발 연구", *이공분야기초연구사업 기본연구 (한국연구재단)*, **연구책임자**, 1억 3,200만원 (수행중)

2019.09.01. ~ 2020.08.31.
"Development of Novel Analysis Frameworks Based on Deep-Learning Algorithms for Fast and Accurate Onset Detection in Hybrid EEG-NIRS Brain-Computer Interface", *학문후속세대양성사업 박사후국외연수 (교육부)*, **연구책임자**, 4,500만원 (완료)

PATENTS

Domestic Patents

8. Han-Jeong Hwang and **Chang-Hee Han**, "합성곱 신경망 기반의 기면 상태 감지 장치 및 그 방법", 10-2020-0129401. 2020. 10. 07. (Korea – 출원)

7. Chang-Hwan Im and **Chang-Hee Han**, "광용적맥파를 이용하는 호흡 상태 판단 방법 및 스위치 제어 방법", 10-2034151. 2019. 10. 14. (Korea – 등록)

6. Han-Jeong Hwang and **Chang-Hee Han**, "뇌-컴퓨터 인터페이스 시스템을 위한 다중 뇌 신호 기반의 사용자 의도 시점 검출 방법 및 그 장치", 10-2019-0101407. 2019. 08. 19. (Korea – 출원)

5. Chang-Hwan Im, Do Yeon Kim, **Chang-Hee Han**, Do-Won Kim, and Seonghun Park, "안구전도 신호를 이용하는 의사 판단 방법 및 장치", 10-1929650. 2018. 12. 10. (Korea – 등록)

4. Chang-Hwan Im, Seonghun Park, Do-Won Kim, **Chang-Hee Han**, and In-Young Kim, "동영상 콘텐츠에 대한 시청자의 정서적 흥분 측정 방법 및 평가 방법", 10-1798777. 2017. 11. 10. (Korea – 등록)

3. Chang-Hwan Im, Seonghun Park, **Chang-Hee Han**, Jeong-Hwan Lim, and Do-Won Kim, "자발적 안구전도 기반의 청력검사 방법 및 시스템", 10-1748491. 2017. 06. 12. (Korea – 등록)

2. Chang-Hwan Im, Ho-Seung Cha, Jeong-Hwan Lim, Han-Jeong Hwang, **Chang-Hee Han**, and Won-Du Chang, "일시적 시각 유발 전위를 이용한 장애인용 뇌 스위치 시스템 구현", 10-1541619, 2015. 07. 28. (Korea - 등록)

1. Chang-Hwan Im, Jeong-Hwan Lim, Han-Jeong Hwang, and **Chang-Hee Han**, "눈을 감은 상태에서의 시각의 선택적 주의집중을 이용한 사지마비 장애인용 의도 전달 인터페이스", 10-2012-0049659, 2012. 05. 10 (Korea – 공개)

REFERENCES

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