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EDUCATION

Ph.D. Electrical and Computer Engineering, Jan. 2001 – May 2005
University of Florida, Gainesville, FL, USA (Advisor: Dr. Jose C. Principe)

M.S. Electrical and Computer Engineering, Aug. 1998 - Dec. 2000
University of Florida, Gainesville, FL, USA (Advisor: Dr. Jose C. Principe)

B.S. Nuclear Engineering, Mar. 1990 - Feb. 1994
Seoul National University, Seoul, South Korea (Advisor: Dr. Changhyo Kim)

EXPERIENCE

Associate Professor, Mar. 2015 – Present
School of Design and Human Engineering, UNIST, Ulsan, Korea

- Director of the UNIST BCI Lab

Assistant Professor, Sep. 2013 – Feb. 2015
School of Design and Human Engineering, UNIST, Ulsan, Korea

- Director of the UNIST BCI Lab

Assistant Professor (Research), Sep. 2012 – Aug. 2013
Research and Business Foundation, Korea University, Seoul, Korea

- Director of the Neural Interface Laboratory

Assistant Professor, Sep. 2009 – Aug. 2012
Dept. of Brain and Cognitive Engineering, Korea University, Seoul, Korea

- Director of the Neural Interface Laboratory

Postdoctoral Research Associate, Sep. 2005 – Aug. 2009 (Advisor: Dr. M.J. Black)
Computer Science Dept., Brown University, Providence, RI, USA

- Conduct research for the development of human brain-computer interfaces, involved in the BrainGate™ pilot clinical trial (P.I.: Dr. J.P. Donoghue)

Research Assistant, May 2000 – May 2005 (Advisor: Dr. J.C. Principe)
Dept. of Electrical and Computer Engineering, University of Florida, Gainesville, FL

- Conducted research for non-human brain-computer interfaces

Teaching Assistant, May 1999 - Apr. 2000
Dept. of Electrical and Computer Engineering, Univ. of Florida, Gainesville, FL, USA

PUBLICATIONS

Peer-reviewed journal papers

1. S. Lee, T. Lee, T. Yang, C. Yoon and **S.-P. Kim**, “Detection of drivers’ anxiety invoked by driving situations using multimodal bio-signals,” *Processes*, 8(2): 155, 2020.
2. Y. Soh, **S.-P. Kim** and J. Kim, “Perception of surface stickiness in different sensory modalities: an fMRI study,” *Neuroreport*, in press, 2020.
3. D. Sihn and **S.-P. Kim**, “A spike train distance robust to firing rate changes based on the Earth Mover’s Distance,” *Frontiers in Computational Neuroscience*, 13, 82, 2019.
4. M. Kim, M.-K. Kim, M. Hwang, H.-Y. Kim, J. Cho and **S.-P. Kim**, “Online home appliance control using EEG-based brain-computer interfaces,” *Electronics*, 8(10), 1101, 2019.
5. T. Yang and **S.-P. Kim**, “Group-level neural responses to service-to-service brand extension,” *Frontiers in Neuroscience*, 13, 676, 2019.
6. S. Jeong, I.Y. Lee, B.O. Jun, Y.-J. Ryu, J. Sohn, **S.-P. Kim**, C.-W. Woo, J.W. Koo, I.-J. Cho, U. Oh, K. Kim and P.-G. Suh, “Korea brain initiative: emerging issues and institutionalization of neuroethics,” *Neuron*, 101(3), pp. 390-393, 2019.
7. J. Kim, I. Buelthoff, **S.-P. Kim**, H.H. Buelthoff, “Shared neural representations of tactile roughness intensities by somatosensation and touch observation using an associative learning method,” *Scientific Reports*, 9, 77, 2019.
8. D. Sihn, M.-K. Kim, J. Kim and **S.-P. Kim**, “Differences in the synchronization of alpha oscillations between anterior and posterior brain regions,” *Neuroscience Letters*, 690, 171-177, 2019.
9. J. Choi, S.-M. Kim, R. H. Ryu, **S.-P. Kim** and J. Sohn, “Implantable neural probes for brain-machine interfaces – Current developments and future prospects,” *Experimental Neurobiology*, 27(6):453-471, 2018.
10. H. Kim, H. Kim, S.Y. Chun, J.-H. Kang, I. Oakley, Y. Lee, J.O. Ryu, M.J. Kim, I.K. Park, H.K. Hong, Y.C. Jo, and **S.-P. Kim**, “A wearable wrist band-type system for multimodal biometrics integrated with multispectral skin photomatrix and electrocardiogram sensors,” *Sensors*, 18(8), 2738, 2018.
11. W. Park, D.-H. Kim, **S.-P. Kim**, J.-H. Lee and L. Kim, “Gamma EEG correlates of haptic preferences for a dial interface,” *IEEE Access*, 6, 22324-22331, 2018.
12. S. Hayashi, H. Wada, **S.-P. Kim**, Y. Motomura, S. Higuchi and Y.-K. Kim, “Enhanced Nogo-P3 amplitudes of mothers compared with non-mother women during an emotional Go/Nogo task,” *J. Physiological Anthropology*, 37, 8, 2018.
13. M.-K. Kim, J.-W. Sohn, B. Lee and **S.-P. Kim**, “A simulation study on the effects of neuronal ensemble properties on decoding algorithms for intracortical brain-machine interfaces,” *BioMedical Eng. OnLine*, 17, 28, 2018.
14. J.-H. Kang, Y.C. Jo and **S.-P. Kim**, “Electroencephalographic feature evaluation for improving personal authentication performance,” *Neurocomputing*, 287, 93-101, 2018.
15. T. Yang, S. Lee, E. Seomoon and **S.-P. Kim**, “Characteristics of human brain activity during the evaluation of service-to-service brand extension,” *Frontiers in Human Neuroscience*, 12, 44, 2018.
16. J. Park, H. Kim, J.-W. Sohn, J.-R. Choi and **S.-P. Kim**, “EEG beta oscillations in the temporoparietal area related to the accuracy in estimating others' preference,” *Frontiers in Human Neuroscience*, 12, 43, 2018.
17. J. Kim, J. Yeon, J. Ryu, J.-Y. Park, S.-C. Chung and **S.-P. Kim**, “Neural activity patterns in the human brain reflect tactile stickiness perception,” *Frontiers in Human Neuroscience*, 11, 445, 2017.

18. Y.C. Jo, H.N. Kim, J.-H. Kang, H.K. Hong, Y.S. Choi, S.W. Jung and **S.-P. Kim**, "Novel wearable-type biometric devices based on skin tissue optics with multispectral LED-photodiode matrix," *Japanese Journal of Applied Physics*, 56(4S), 2017.
19. J. Yeon, J. Kim, J. Ryu, J.-Y. Park, S.-C. Chung and **S.-P. Kim**, "Human brain activity related to the tactile perception of stickiness," *Frontiers in Human Neuroscience*, 11, 8, 2017.
20. K. Cho, J.H. Jang, **S.-P. Kim**, J.B. Choi, M.K. Song, I.Y. Kim, S.J. Jung and D.P. Jang, "Analysis of temporal firing patterns of primary afferent C-fibers for different sensations in mice," *Int'l Journal of Precision Engineering and Manufacturing*, 18, 739, 2017.
21. K. Cho, J.H. Jang, **S.-P. Kim**, S.H. Lee, S.-C. Chung, I.Y. Kim, D.P. Jang and S.J. Jung, "Analysis of nociceptive information encoded in the temporal discharge patterns of cutaneous C-fibers," *Frontiers in Computational Neuroscience*, 10, 118, 2016.
22. J. Kim, Y.G. Chung, S.-C. Chung, H.H. Buelthoff and **S.-P. Kim**, "Decoding pressure stimulation locations on the fingers from human neural activation patterns," *Neuroreport*, 27(16), pp. 1232-1236, 2016.
23. J.-H. Kang, J. H. Choi, E. Hwang and **S.-P. Kim**, "Changes in effective connectivity of sensorimotor rhythms in thalamocortical circuits during the induction and recovery of anesthesia in mice," *J Neurol. Sci*, 369, pp. 165-175, 2016.
24. M.H. Choi, **S.-P. Kim**, H.-S. Kim, S.-Y. Gim, W.-R. Kim, K.-R. Kim, D.-W. Lim, B. Lee and S.-C. Chung, "Somatotopic map and inter- and intra-digit distance in Brodmann area 2 by pressure stimulation," *Scientific Reports*, 6, 30243, 2016.
25. J. Kim, Y.G. Yoon, S.-C. Chung, H. Buelthoff, and **S.-P. Kim**, "Neural categorization of vibrotactile frequency in flutter and vibration stimulations: an fMRI Study," *IEEE Trans. Haptics*, 9(4): 455, 2016.
26. M.-H. Choi, **S.-P. Kim**, H.-S. Kim, and S.-C. Chung, "Inter- and intra-digit somatotopic map of high-frequency vibration stimulations in human primary somatosensory cortex," *Medicine*, 95(20), e3714, 2016.
27. M.-H. Choi, H.-S. Kim, J.-H. Baek, J.-C. Lee, S.-J. Park, U.-H. Jeong, S.-Y. Gim, **S.-P. Kim**, D.-W. Lim, and S.-C. Chung, "Differences in activation area within Brodmann area 2 caused by pressure stimuli on fingers and joints," *Medicine*, 94(38), e1657, 2015.
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40. W. Park, G. H. Kwon, D.-H. Kim, Y. -H. Kim, **S.-P. Kim** and L. Kim, "Assessment of cognitive engagement in stroke patients from single-trial EEG during motor rehabilitation," *IEEE Trans. Neural Systems and Rehabilitation Eng.*, 23, pp. 351-362, 2015.
41. J. Kim, K.-R. Muller, Y.G. Chung, S.-C. Chung, J.-Y. Park, H.H. Buelthoff and **S.-P. Kim**, "Distributed functions of detection and discrimination of vibrotactile stimuli in the hierarchical human somatosensory system," *Frontiers in Human Neuroscience*, 8:1070, 2014.
42. J.-H. Kang, J.W. Jeong, H.T. Kim, S.H. Kim and **S.-P. Kim**, "Representation of cognitive reappraisal goals in frontal gamma oscillations," *PLoS One*, 9(11), e113375, 2014.
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44. D. Sin, J. Kim, J.H. Choi, and **S.-P. Kim**, "Neuronal ensemble decoding using a dynamical maximum entropy model," *Journal of Applied Mathematics*, 2014, 218373, 2014.
45. W. Wu, A. Amarasingham, Z. (S.) Chen, and **S.-P. Kim**, "Modeling and analysis of neural spike trains," *Computational Intelligence in Neuroscience*, 2014, 161203, 2014.
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49. H. Santosa, M.J. Hong, **S.-P. Kim** and K.-S. Hong, "Noise reduction in functional near-infrared spectroscopy signals by independent component analysis," *Review of Scientific Instruments*, 84, 073106, 2013.
50. C.-H. Im, L. Ding, Y. Wang and **S.-P. Kim**, "Computational methods in neuroengineering," *Computational and Mathematical Methods in Medicine*, 617347, 2013.
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52. M.-K. Kim, M. Kim, E. Oh and **S.-P. Kim**, "A review on the computational methods for emotional state estimation from the human EEG," *Computational and Mathematical Methods in Medicine*, 573734, 2013.
53. Y.G. Chung, J. Kim, S.W. Han, H.S. Kim, M.H. Choi, S.C. Chung, J.Y. Park, and **S.-P. Kim**, "Frequency-dependent patterns of somatosensory cortical responses to vibrotactile stimulation in humans: a fMRI study," *Brain Research*, 1504, pp. 47-57, 2013.
54. J.-H. Kang, H.M. Ahn, J.W. Jeong, I. Hwang, H.T. Kim, S.H. Kim, and **S.-P. Kim**, "The modulation of parietal gamma oscillations in the human EEG with cognitive reappraisal," *Neuroreport*, 23, pp. 995-999, 2012.
55. **S.-P. Kim**, J.-H. Kang, S.-H. Choe, W.J. Jeong, T.H. Kim, K.S. Yun, J.S. Jeong, and S.-H. Lee, "Modulation of theta phase synchronization in the human EEG during a recognition memory task," *Neuroreport*, 23, pp. 637-641, 2012.
56. Y.G. Chung, J.-H. Kang, and **S.-P. Kim**, "Correlation of fronto-central phase coupling with sensorimotor rhythm modulation," *Neural Networks*, 36C, pp. 46-50, 2012.
57. **S. P. Kim**, M.H. Choi, J. H. Kim, H. W. Yeon, H. J. Yoon, H. S. Kim, J.Y. Park, J. H. Yi, G. R. Tack, and S. C. Chung, "Changes of 2-back task performance and physiological signals in ADHD children due to transient increase in oxygen level," *Neuroscience Letters*, 511, pp. 70-73, 2012.
58. **S.-P. Kim**, E. Hwang, J.-H. Kang, S. Kim, and J. H. Choi, "Changes in the thalamocortical connectivity during anesthesia-induced transitions in consciousness," *Neuroreport*, 23, pp. 294-298, 2012.
59. **S. P. Kim**, B. Y. Lee, S. J. Lee, M.H. Choi, H. W. Yeon, J.Y. Park, J. H. Jun, and S. C. Chung, "A study on orbital volume of Korean people in their 20s or 40s," *Ophthalmic Research*, 47, pp. 98-102, 2012.
60. E.K. Chadwick, D. Blana, J.D. Simeral, J. Lambrecht, **S.-P. Kim**, A.S. Cornwell, D.M. Taylor, L.P. Hochberg, J.P. Donoghue, and R.F. Kirsch, "Continuous neuronal ensemble control of simulated arm reaching by a human with tetraplegia," *Journal of Neural Engineering*, 8, 034003, 2011.
61. **S.-P. Kim**, J.D. Simeral, L.R. Hochberg, J.P. Donoghue, G.M. Friehs, and M.J. Black, "Point-and-click cursor control using an intracortical neural interface system in humans with tetraplegia," *IEEE Transaction on Neural Systems and Rehabilitation Engineering*, 19, pp. 193-203, 2011.
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63. J.D. Simeral, **S.-P. Kim**, M.J. Black, J.P. Donoghue, and L.R. Hochberg, "Neural control of cursor trajectory and click by a human 1000 days after implant of an intracortical microelectrode array," *Journal of Neural Engineering*, 8, 025027, 2011.
64. **S.-P. Kim**, J.D. Simeral, L.R. Hochberg, J.P. Donoghue, and M.J. Black, "Neural cursor of computer cursor velocity by decoding motor cortical spiking activity in humans with tetraplegia," *Journal of Neural Engineering*, 5, pp. 455-476, 2008.
65. **S.-P. Kim**, J.C. Sanchez, and J.C. Principe, "Real time input subset selection for linear time-variant MIMO systems," *Optimization Methods and Software*, 22, pp. 83-89, 2007.
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Conference proceedings

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2. M. Choi, J. Kim, T. Yang, J. Park, J. Kim, **S.-P. Kim**, "Development of a neuron-inspired tactile information processing model," *The 18th Int'l Conf. on Control, Automation and Systems*, October, 2018.
3. J. Park, J. Kim, **S.-P. Kim**, "A Study on the Development of a Day-to-Day Mental Stress Monitoring System using Personal Physiological Data," *The 18th Int'l Conf. on Control, Automation and Systems*, October, 2018.
4. J. Park, J. Kim and **S.-P. Kim**, "Prediction of daily mental stress levels using a wearable photoplethysmography sensor," *IEEE TENCON 2018*, Oct. 2018.
5. S. Lee, T. Lee, T. Yang, E. Seomoon and **S.-P. Kim**, "Neural correlates of anxiety induced by environmental events during driving," *IEEE TENCON 2018*, Oct. 2018.
6. M. Kim, and **S.-P. Kim**, "A comparison of artifacts rejection methods for a BCI using event-related potentials," *The 6th IEEE Int'l Winter Conf. Brain-Computer Interface*, Jan. 2018.
7. J.W. Park, J. S. Kim and **S.-P. Kim**, "Classification of physical activities based on photoplethysmography signals from a wearable device," *U-Healthcare 2017*, December, 2017.
8. C. Lee, J.-H. Kang and **S.-P. Kim**, "Methods of selecting electroencephalographic features for personal authentication," *The 17th Int'l Conf. on Control, Automation and Systems*, October, 2017.
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11. S. Chae and **S.-P. Kim**, "Decoding analysis of spatio-temporal ensemble activity in anterior lateral motor cortical neurons," *The 39th Annual International Conference of the IEEE EMBS*, July, 2017.
12. M.-K. Kim, J.-W. Sohn and **S.-P. Kim**, "A study on neuronal ensemble network properties during acceleration of arm reaching movements," *The 8th Int'l IEEE EMBS Conference on Neural Eng.*, May, 2017.
13. J.-H. Kang and S.-P. Kim, "Optimization of non-linear permutation entropy features for EEG-based biometrics," *The 20th Int'l Conf. on Biomagnetism*, Oct. 2016.
14. M.-K. Kim and **S.-P. Kim**, "A simulation study on decoding algorithms for brain-machine interfaces with the non-stationary neuronal ensemble activity," *The 16th Int'l Conf. on Control, Automation and Systems*, Oct. 2016.
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17. S. Y. Chun, J.-H. Kang, H. Kim, C. Lee, I. Oakley, and **S.-P. Kim**, "ECG based User Authentication for Wearable Devices using Short Time Fourier Transform," *The 39th International Conference on Telecommunications and Signal Processing (TSP)*, June. 2016.

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20. M.K. Kim and **S.-P. Kim**, "Artifact removal from EEG signals using the total variation method," *The 10th Asian Control Conference (ASCC)*, June, 2015.
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PATENTS (selected based on primary contributions from the UNIST BCILAB)

1. Apparatus for brain-machine interface simulator, *Registered*, Korea, Aug 2015.
2. EEG-based neurofeedback method and apparatus for emotion regulation training, *Registered*, Korea, Aug 2016.
3. A virtual reality system based on eye movements and perceptual functions for self early diagnosis and training dementia, *Registered*, Korea, Feb 2017.
4. Laser board game apparatus, *Registered*, Korea, Sep 2016.
5. Electroencephalogram display apparatus and method, *Registered*, Korea, Nov 2017.
6. Apparatus and method for engagement of viewers in movie contents, *Registered*, Korea, Mar 2017.
7. Personal authentication system and method based on eye tracking and head movement data in response to moving visual objects, *Registered*, Korea, Nov 2017.
8. X-ray imaging device using laser beam, *Registered*, Korea, May 2015.
9. X-ray photographing device using laser beam, *Registered*, Korea, Sep, 2015.
10. A simulator of the control of 3D upper limb assistant technology using brain activity, *Filed*, Korea, Dec 2016.
11. Virtual tactile sensation generation technique by the modulation of peripheral neural activity patterns, *Filed*, Korea, Jun 2017.
12. An experimental platform to induce upper limb movements and somatosensory sensations in rodents, *Filed*, Korea, Mar 2018.
13. Personal authentication using biometrics integrating electrocardiography and multispectral photodiode matrix, *Filed*, Korea, Apr 2018.
14. Virtual tactile sensation generation technique by the modulation of peripheral neural activity patterns, *Filed*, PCT, Jun 2018.

GRANTS

On-going projects

1. Future Converging Technology Development Program, **Co**, "Active and adaptive intelligence in natural brain and its application to AI," *Ministry of Science, ICT and Future Planning*, 2019.06 – 2023.12

2. Software Computing Industry Source Technology Development Program, **Co-PI**, “Development of non-invasive integrated BCI SW platform to control home appliances and external devices by user’s thought via AR/VR interface,” *Ministry of Science, ICT and Future Planning*, 2017.04 – 2023.12.
3. Brain Science Source Technology Development Project, **Co-PI**, “Development of neural signal processing systems for sensory-integrated bidirectional brain-machine interfaces,” *National Research Foundations of Korea*, 2016.06 – 2020.12.
4. Basic Researcher Support Program, **PI**, “Development of consumer behavior prediction models based on neuropsychological processing of brands,” *National Research Foundations of Korea*, 2015.11 – 2018.10.

Past projects

5. Local Industry Promotion Technology Development Program, **Co-PI**, “Development for IoT business platform designed to enhance connectivity based on universal design,” *Ministry of Trade, Industry and Energy*, 2017.03 – 2018.12.
6. Government-Funded Research Institute Intramural Grant, **Co**, “Development of digital cockpit systems for smart car,” *ETRI*, 2018.06 – 2018.11.
7. SW Computing Industry Source Technology Development Project, **Co-PI**, “Development of personal identification technology based on biomedical signals to avoid identity theft,” *Ministry of Science, ICT and Future Planning*, 2015.07 – 2018.06.
8. Life Sciences and Technology Converging Research Program, **Co-PI**, “Development of interfaces for the measurement and assessment of empathic competence in future talented individuals,” *Ministry of Science, ICT and Future Planning*, 2016.10 – 2017.07.
9. Future Converging Pioneer Research Program, **Co-PI**, “Investigation on neurophysiologic mechanisms of tactile senses induced by laser,” *National Research Foundations of Korea*, 2014.03 – 2017.02.
10. Industry Source Technology Development Project, **Co-PI**, “Development of EEG-based neurofeedback systems to diagnose and enhance ADHD,” *Ministry of Trade, Industry and Energy*, 2014.08 – 2016.07.
11. Established Researcher Support Program, **PI**, “Investigation on social communications using hyperscanning technique,” *National Research Foundations of Korea*, 2013.09 – 2015.08.
12. S/W Integrated Device Technology Development Program, **Co-PI**, “Development of 2uV BMI SoC and SW platform to reduce hair induced noise for disease based services in smart environment,” *Ministry of Trade, Industry and Energy*, 2013.11 - 2015.10.
13. External Research and Development Grant, **PI**, “Development of affective and cognitive EEG-based BCI systems,” *Samsung Electronics, Co., Ltd.*, 2013.09 – 2013. 12.
14. External Research and Development Grant, **PI**, “Experimental studies on active and passive BCIs,” *Samsung Electronics, Co., Ltd.*, 2014.04 – 2014. 08.
15. Technology Innovation Program, **Commission**, “Development of a smart UI/UX based on brain signals,” *Small and Medium Business Administration*, Korea, 2013.06 – 2015.05.
16. Neuroscience Basic Technology Development Project, **Co**. “Measurement of neural activity associated with attention and development of neural indices,” *National Research Foundations of Korea*, 2012.08-2015.07.
17. Basic Researcher Support Program, **PI**, “Development of adaptive Bayesian decoding algorithms for brain-computer interfaces,” *National Research Foundations of Korea*, 2010.09 – 2013.08.
18. BRI-HUB Research Project, **PI**, “Development of signal measurement and analysis methods for cognitive and motor rehabilitation,” *Korea Institute for Science and Technology*, 2011.01 – 2012. 12.
19. World Class University Program, **Co.**, “Converging neuroengineering technology research,” *National Research Foundations of Korea*, 2010.10-2012.08.

20. External Research Grant, **Co.**, “Neuromarketing model development for biz. solution,” *LG Electronics, Co., Ltd.*, 2010.03-2010.12.
21. Undergraduate Research Program, **PI**, “Development of a Korean speller via EEG signal analysis,” *Korea Science Creativity Foundation*, 2010.07 – 2011. 01.

AWARDS

Excellent Teaching Award, Korea University, 2011
Best Paper Award, Korea Computer Conference, 2009
Assoc. of Korean Neuroscientists Award for Excellence in Research, San Diego, CA, 2007
Sheridan Teaching Certificate, Brown University, Providence, RI, 2006
International Students Academic Award, University of Florida, Gainesville, FL, 2004
Employee of the year, Comtec Systems, Inc., Seoul, South Korea, 1996

PROFESSIONAL ACTIVITIES

Editorial Board: Journal of Physiological Anthropology, Brain-Computer Interfaces
Guest Editor: Computational and Mathematical Methods in Medicine, Computational Intelligence and Neuroscience, Frontiers in Neurorobotics
Reviewer in: IEEE Trans. on Neural Systems and Rehabilitation Engineering, IEEE Trans. on Biomedical Engineering, IEEE Trans. on Neural Networks, IEEE Trans. on Signal Processing, Neural Information Processing Systems, IEEE Signal Processing, Biomedical Engineering Letters, Sensors, Linear Algebra and its Applications, IEEE Trans. on Affective Computing, Int’l Journal of Imaging Systems and Technology, Journal of Physiological Anthropology, Biological Psychology, Brain-Computer Interfaces, PLoS One, Journal of Neuroimaging, Biomedical Engineering Letters, Scientific Reports, Peer J, Psychophysiology, Frontiers in Human Neurosci, Frontiers in Neurorobotics, Proceedings of Royal Society A, Int’l J HCI
Member: IEEE EMBS, Society for Neuroscience, Korean Society for Computational Neuroscience, Korea Society for EEG and Neurophysiology, Korea Society for Brain and Neural Sciences, Brain Engineering Society of Korea, Korea Society for Emotion and Sensibility, Ergonomics Society of Korea, Review Boards at Brain and Innovative Medical Engineering Group of National Research Foundation of Korea

CURRENT RESEARCH INTERESTS

- Brain-computer interfaces
- Neural codes
- Tactile intelligence
- Brain-inspired artificial intelligence