

Curriculum Vitae

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Education:

2000.8	Ph.D.	Biomedical Engineering	Seoul National University
1995.2	M.S.	Biomedical Engineering	Seoul National University
1993.2	B.S.	Electrical Engineering	Seoul National University

Postdoctoral Training:

2002 - 2004 Research Fellow, Surgical Planning Laboratory, MRI Division, Department of Radiology, Brigham and Women's Hospital, Harvard Medical School
2001 - 2004 Research Fellow, Clinical Neuroscience Division, Laboratory of Neuroscience, Boston VA Health Care System-Brockton Division, Department of Psychiatry, Harvard Medical School
2001 Brain Korea 21 Postdoctoral fellow in the Medical Research Center, Seoul National University
2000 Department of Biomedical Engineering, Seoul National University

Academic Appointment:

2017- Director, Center for Systems and Translational Brain Sciences, Institute of Human Complexity and Systems Science, Yonsei University
2015- Adjunct Professor, Department of Cognitive Science, Yonsei University
2014- Professor, Department of Nuclear Medicine, Yonsei University College of Medicine
2014- Adjunct Professor, BK21 PLUS Project for Medical Science, Departments of Radiology and Psychiatry, Yonsei University College of Medicine
2014- Adjunct Professor, Department of Cognitive Science, Yonsei University
2012-2014 Associate Professor, Department of Nuclear Medicine, Yonsei University College of Medicine
2009-2012 Associate Professor, Department of Diagnostic Radiology, Yonsei University College of Medicine
Division of Nuclear Medicine, Severance Hospital, Yonsei University Health System
Adjunct Professor, Department of Psychiatry, Yonsei University College of Medicine
2005-2008 Assistant Professor, Department of Diagnostic Radiology, Yonsei University College of Medicine
Division of Nuclear Medicine, Severance Hospital, Yonsei University Health System
2004 Director, Laboratory of Molecular Neuroimaging Technology
2004 Instructor, Department of Diagnostic Radiology, Yonsei University College of Medicine
Division of Nuclear Medicine, Severance Hospital, Yonsei University Health System

Academic Careers:

2012-2013 Honorary visiting research fellow, Wellcome trust center for neuroimaging, University College London, UK.

Professional Societies:

1993- Member of Korea Society of Medical and Biological Engineering
2001- Member of Organization of Human Brain Mapping
2004- Member of Society for Neuroscience
2004- Member of International Society for Magnetic Resonance in Medicine (ISMRM)
2002- Member of Korean Society of Human Brain Mapping (KHBM)
2015-2016 Secretary of General Affairs of KHBM
2017- Research Committee Chair of KHBM

Awards and Honors:

2009 Research Excellence Award, Yonsei University
2009 Young Researcher Award, Yonsei University College of Medicine
2008 Siemens Academic Excellence Award, Korean Society of Human Brain Mapping
2004 Excellent poster award, Korean Society of Human Brain Mapping
2000 Young Investigator Program Award, Korea Research Foundation
1992-1999 Industry-Academy Cooperation Scholarship Awards, SAMSUNG Electronics

Major Research Interests:

1. Integrating systems and theoretical neurosciences to model neuro-cognition and disease mechanism.
2. Predicting brain plasticity based on network organization theory.
3. Reading mind and facilitating network reorganization using real-time fMRI and brain decoding.
4. Bayesian inference of linguistic, communicative and social brains.
5. Medical image processing, registration and segmentation for surgical planning and medical diagnosis.

Publication:

Peer-reviewed publications: International Journal (*corresponding author, †equally contributed authors, #cover page)

1. Kang, J., Jung, K., Eo, J., Son, J., Park, H.J.*, 2020. Dynamic causal modeling of hippocampal activity measured via mesoscopic voltage-sensitive dye imaging. *Neuroimage* 213, 116755.
2. Song, H., Yi, D.J., Park, H.J., 2020. Validation of a mobile game-based assessment of cognitive control among children and adolescents. *PLoS One* 15, e0230498.
3. Yoo, S., Choi, H.H., Choi, H.Y., Yun, S., Park, H., Bahng, H., Hong, H., Kim, H., Park, H.J. *, 2020. Neural correlates of anxiety under interrogation in guilt or innocence contexts. *PLoS One* 15, e0230837.
4. Kang, J., Pae, C., Park, H.J., 2019*. Graph-theoretical analysis for energy landscape reveals the organization of state transitions in the resting-state human cerebral cortex. *PLoS One* 14, e0222161.
5. Jung, K., Kang, J., Chung, S., Park, H.J.*, 2019. Dynamic causal modeling for calcium imaging: Exploration of differential effective connectivity for sensory processing in a barrel cortical column. *Neuroimage*, 201, 116008.
6. Cha, D., Pae, C., Seong, S.B., Choi, J.Y.*, Park, H.J.*, 2019. Automated diagnosis of ear disease using ensemble deep learning with a big otoendoscopy image database. *EBioMedicine*, 45, 606-614.
7. Lee, D., Jang, C., Park, H.J.*, Neurofeedback learning for mental practice rather than repetitive practice improves neural pattern consistency and functional network efficiency in the subsequent mental motor execution. 2019, *Neuroimage*, 188, 680-693.
8. Yu R, Park HJ*, Cho H, Ko A, Pae C, Oh MK, Kang HC, Kim HD, Park EK, Shim KW, Kim DS, Lee JS*. Interregional metabolic connectivity of 2-deoxy-2[18 F]fluoro-D-glucose positron emission tomography in vagus nerve stimulation for pediatric patients with epilepsy: A retrospective cross-sectional study. 2018, *Epilepsia*, 59:2249–2259.
9. Bang M. Park H*, Pae C, Park K, Lee E, Lee SK, An SK, Aberrant cerebro-cerebellar functional connectivity and minimal self-disturbance in individuals at ultra-high risk for psychosis and with first-episode schizophrenia, 2018, *Schizophrenia Research*, 202:138-140.
10. Seong SB, Pae C, Park HJ*, Geometric Convolutional Neural Network for Analyzing Surface-Based Neuroimaging Data, *Front. Neuroinform.*, vol. 12, 42, [doi: 10.3389/fninf.2018.00042](https://doi.org/10.3389/fninf.2018.00042)
11. Park JS, Chun JW, Park HJ, Kim ES, Kim JJ, Involvement of amygdala-prefrontal dysfunction in the influence of negative emotion on the resolution of cognitive conflict in patients with schizophrenia, *Brain and Behavior*, in press
12. Park HJ*, Friston K., Pae C., Park B., Razi A., 2018. Dynamic effective connectivity in resting state fMRI. *Neuroimage* 180, 594-608
13. Jung K, Friston K, Pae C, Choi H, Tak S, Choi YK, Park B, Park C, Cheong C, Park HJ*, Effective connectivity during working memory and resting states: a DCM study, 2018, *Neuroimage*, 69, 485-495.
14. Cho H, Kim CH, Knight E, Oh HW, Park B, Kim DG, Park HJ*, Changes in brain metabolic connectivity underlie autistic-like social deficits in a rat model of autism spectrum disorder, 2017, *Sci Rep*, 7: 13213 | DOI:10.1038/s41598-017-13642-3.
15. Chun, J.W., Park, H.J., Kim, D.J., Kim, E., Kim, J.J., 2017. Contribution of fronto-striatal regions to emotional valence and repetition under cognitive conflict. *Brain Res* 1666, 48-57.
16. Oh, J., Chun, J.W., Kim, E., Park, H.J., Lee, B., Kim, J.J., 2017. Aberrant neural networks for the recognition memory of socially relevant information in patients with schizophrenia. *Brain Behav* 7, e00602.
17. #Kang J, Pae J, Park HJ*, Energy landscape analysis of the subcortical brain network unravels system properties beneath resting state dynamics, *Neuroimage*, 2017; 149:153-164.
18. Lee D, Pae C, Lee JD, Park ES, Cho SR, Um M-H, Lee S-K, Oh M-K, Park H-J*, Analysis of structure-function network decoupling in the brain systems of spastic diplegic cerebral palsy, *Human Brain Mapp*. 2017, 38(10):5292-5306.
19. Park B, Eo J, Park H*, Structural brain connectivity constrains within-a-day variability of direct functional connectivity, 2017, *Front. Hum. Neurosci*. 11:408 doi: 10.3389/fnhum.2017.00408
20. Lee D, Yun S, Jang C, Park H-J*, Multivariate Bayesian decoding of single-trial event-related fMRI responses for memory retrieval of voluntary actions, 2017, *PLoS ONE* 12(8). <https://doi.org/10.1371/journal.pone.0182657>
21. Kim J, Choi J-Y, Ur J, Park HJ*, Comparative evaluation of the white matter fiber integrity in subjects with pre and postlingual deafness, *Neuroreport*, 2017, 8;28(16):1103-1107.
22. Razi, A., Seghier, M.L., Zhou, Y., McColgan, P., Zeidman, P., Park, H.-J., Sporns, O., Rees, G., Friston, K.J., 2017. Large-scale DCMs for resting-state fMRI. *Network Neuroscience* 1, 222-241.
23. Park HJ*, Pae C, Friston K, Jang C, Razi A, Zeidman P, Chang WS, Chang JW, (2017) Hierarchical dynamic causal modelling of resting-state fMRI reveals longitudinal changes in effective connectivity in the motor system after thalamotomy for essential tremor, *Front. Neurol*. 8:346. doi: 10.3389/fneur.2017.00346
24. Jang C, Knight EQ, Pae C, Park B, Yoon SA, Park HJ*. Individuality manifests in the dynamic reconfiguration of large-scale brain networks during movie viewing. *Sci Rep* 2017;7:41414.

25. Jang C, Park HJ*, Chang WS, Pae C, Chang JW. Immediate and Longitudinal Alterations of Functional Networks after Thalamotomy in Essential Tremor. *Front Neurol* 2016;7:184.
26. Jeong SO, Pae C, Park HJ*. Connectivity-based change point detection for large-size functional networks. *Neuroimage* 2016;143:353-63.
27. Kim EJ, Kyeong S, Cho SW, Chun JW, Park HJ, Kim J, et al. Happier People Show Greater Neural Connectivity during Negative Self-Referential Processing. *PloS one*. 2016;11(2):e0149554.
28. Kim E, Kyeong S, Cheon KA, Park B, Oh MK, Chun JW, Park HJ, Kim J, Kim J, Dolan RJ, Kim JJ. Neural responses to affective and cognitive theory of mind in children and adolescents with autism spectrum disorder. *Neurosci Lett*. 2016;621:117-25.
29. Lee D., Jang, C., Park, H.J.*, 2015, Multivariate Detrending of fMRI Signal Drifts for Real-time Multiclass Pattern Classification, *Neuroimage* 108, 203-213.
30. Nam H., Lee Y.J., Jeong B., Park H.J., Yoon J., 2015, Motion correction of magnetic resonance imaging data by using adaptive moving least squares method, *Magnetic Resonance Imaging*, 33(5), 659-670
31. Park HJ, Park B, Kim HY, Oh MK, Kim JI, Yoon M, Lee JD, Chang JW, A Network Analysis of ¹⁵O-H₂O PET Reveals Deep Brain Stimulation Effects on Brain Network of Parkinson's Disease 2015, *Yonsei Medical Journal*, 56(3): 726-736.
32. Park, I.H., Chun, J.W., Park, H.J., Koo, M.S., Park, S., Kim, S.H., Kim, J.J., 2015. Altered cingulo-striatal function underlies reward drive deficits in schizophrenia. *Schizophr Res*. 161, 229-236.
33. Park, J.Y., Park, H.J., Kim, D.J., Kim, J.J., 2014. Positive symptoms and water diffusivity of the prefrontal and temporal cortices in schizophrenia patients: a pilot study. *Psychiatry Res* 224, 49-57.
34. Kim, H., Park, S.H., Kim, E.K., Kim, M.J., Park, Y.N., Park, H.J., Choi, J.Y., 2014. Histogram analysis of gadoteric Acid-enhanced MRI for quantitative hepatic fibrosis measurement. *PLoS One* 9, e114224.
35. Park, B., Kim, D.S., Park, H.J.*, 2014. Graph independent component analysis reveals repertoires of intrinsic network components in the human brain. *PLoS One* 9, e82873.
36. Kyeong, S., Kim, E., Park, H.J., Hwang, D.U., 2014. Functional network organizations of two contrasting temperament groups in dimensions of novelty seeking and harm avoidance. *Brain Res*. 1575, 33-44.
37. Lee, S.K., Chun, J.W., Lee, J.S., Park, H.J., Jung, Y.C., Seok, J.H., Kim, J.J., 2014a. Abnormal neural processing during emotional salience attribution of affective asymmetry in patients with schizophrenia. *PLoS One* 9, e90792.
38. Lee, J.S., Chun, J.W., Yoon, S.Y., Park, H.J., Kim, J.J., 2014b. Involvement of the mirror neuron system in blunted affect in schizophrenia. *Schizophr Res*. 152, 268-274.
39. Kang, J.I.†, Park, H.J.†, Kim, S.J., Kim, K.R., Lee, S.Y., Lee, E., An, S.K., Kwon, J.S., Lee, J.D., 2014. Reduced Binding Potential of GABA-A/Benzodiazepine Receptors in Individuals at Ultra-high Risk for Psychosis: An [18F]-Fluoroflumazenil Positron Emission Tomography Study. *Schizophr Bull* 40, 548-557.
40. Park, S., Park, H.J., Kyeong, S.H., Moon, I.S., Kim, M., Kim, H.N., Choi, J.Y., 2013a. Combined rTMS to the auditory cortex and prefrontal cortex for tinnitus control in patients with depression: a pilot study. *Acta Otolaryngol* 133, 600-606.
41. Park, H.J., Kim, C.H., Park, E.S., Park, B., Oh, S.R., Oh, M.K., Park, C.I., Lee, J.D., 2013b. Increased GABA-A receptor binding and reduced connectivity at the motor cortex in children with hemiplegic cerebral palsy: a multimodal investigation using 18F-fluoroflumazenil PET, immunohistochemistry, and MR imaging. *J Nucl Med* 54, 1263-1269.
42. Park, H.J.*, Friston, K., 2013. Structural and functional brain networks: from connections to cognition. *SCIENCE* 342, 1238411.
43. Park, B., Ko, J.H., Lee, J.D., Park, H.J.*, 2013c. Evaluation of node-inhomogeneity effects on the functional brain network properties using an anatomy-constrained hierarchical brain parcellation. *PLoS One* 8, e74935.
44. Lee, J.S., Lee, J.D., Park, H.J., Oh, M.K., Chun, J.W., Kim, S.J., Kim, E., Kim, J.J., 2013. Is the GABA System Related to the Social Competence Improvement Effect of Aripiprazole? An (18)F-Fluoroflumazenil PET Study. *Psychiatry Investig* 10, 75-80.
45. Kim, D.J., Park, B., Park, H.J.*, 2013. Functional connectivity-based identification of subdivisions of the basal ganglia and thalamus using multilevel independent component analysis of resting state fMRI. *Hum Brain Mapp* 34, 1371-1385.
46. Jang, G.†, Yoon, S.A., Lee, S.E., Park, H., Kim, J., Ko, J.H., Park, H.J.*†, 2013. Everyday conversation requires cognitive inference: neural bases of comprehending implicated meanings in conversations. *Neuroimage* 81, 61-72.
47. Choi, S.H., Lee, S.H., Park, H.J., Chun, J.W., Kang, J.I., Kim, J.J., 2013. Perceived patient-parent relationships and neural representation of parents in schizophrenia. *Eur Arch Psychiatry Clin Neurosci* 263, 259-269.
48. Park, B., Kim, J.I., Lee, D., Jeong, S.O., Lee, J.D., Park, H.J.*, 2012. Are brain networks stable during a 24-hour period? *Neuroimage* 59, 456-466.
49. Park, J.Y., Lee, J., Park, H.J., Kim, J.J., Namkoong, K., Kim, S.J., 2012. Alpha amplitude and phase locking in obsessive-compulsive disorder during working memory. *Int J Psychophysiol* 83, 1-7.
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51. Lee, P.H., Lee, J.E., Kim, H.S., Song, S.K., Lee, H.S., Nam, H.S., Cheong, J.W., Jeong, Y., Park, H.J., Kim, D.J., Nam, C.M., Lee, J.D., Kim, H.O., Sohn, Y.H., 2012a. A randomized trial of mesenchymal stem cells in multiple system atrophy. *Ann Neurol* 72, 32-40.
52. Lee, J.S., Chun, J.W., In Kang, J., Kang, D.I., Park, H.J., Kim, J.J., 2012b. Hippocampus and nucleus accumbens activity during neutral word recognition related to trait physical anhedonia in patients with schizophrenia: An fMRI study. *Psychiatry Res* 203, 46-53.

53. Park, J.Y., Park, H., Kim, J.I., Park, H.J.*, 2011a. Consonant chords stimulate higher EEG gamma activity than dissonant chords. *Neurosci Lett* 488, 101-105.
54. Park, H.J., Chun, J.W., Park, B., Park, H., Kim, J.I., Lee, J.D., Kim, J.J., 2011b. Activation of the Occipital Cortex and Deactivation of the Default Mode Network During Working Memory in the Early Blind. *Journal of the International Neuropsychological Society : JINS*, 1-16.
55. Park, H., Iverson, G.K., Park, H.J.*, 2011c. Neural correlates in the processing of phoneme-level complexity in vowel production. *Brain Lang* 119, 158-166.
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57. Song, S.K., Lee, J.E., Park, H.J., Sohn, Y.H., Lee, J.D., Lee, P.H., 2011. The pattern of cortical atrophy in patients with Parkinson's disease according to cognitive status. *Mov Disord* 26, 289-296.
58. Nam, H., Lee, D., Lee, J.D., Park, H.J.*, 2011. A method for anisotropic spatial smoothing of functional magnetic resonance images using distance transformation of a structural image. *Phys Med Biol* 56, 5063-5077.
59. Min, B.K., Kim, S.J., Park, J.Y., Park, H.J.*, 2011. Prestimulus top-down reflection of obsessive-compulsive disorder in EEG frontal theta and occipital alpha oscillations. *Neurosci Lett* 496, 181-185.
60. Lee, J.S., Park, H.J., Chun, J.W., Seok, J.H., Park, I.H., Park, B., Kim, J.J., 2011a. Neuroanatomical correlates of trait anhedonia in patients with schizophrenia: a voxel-based morphometric study. *Neuroscience letters* 489, 110-114.
61. Lee, J.D., Park, H.J.†, Park, E.S., Oh, M.K., Park, B., Rha, D.W., Cho, S.R., Kim, E.Y., Park, J.Y., Kim, C.H., Kim, D.G., Park, C.I., 2011b. Motor pathway injury in patients with periventricular leucomalacia and spastic diplegia. *Brain : a journal of neurology*, 134, 1199-1210.
62. Lee, D., Park, B., Jang, C., Park, H.J.*, 2011c. Decoding Brain States Using Functional Magnetic Resonance Imaging. *Biomed Eng Lett* 2011, 82-88.
63. Park, H., Park, H.J.*, Iverson, G.K., 2010. The frontal and temporal lobe in the identification of laryngeal contrasts. *Neuroreport* 21, 474-478.
64. Min, B.K., Park, H.J.*, 2010. Task-related modulation of anterior theta and posterior alpha EEG reflects top-down preparation. *BMC Neurosci* 11, 79.
65. Lee, J.E., Park, H.J., Park, B., Song, S.K., Sohn, Y.H., Lee, J.D., Lee, P.H., 2010a. A comparative analysis of cognitive profiles and white-matter alterations using voxel-based diffusion tensor imaging between patients with Parkinson's disease dementia and dementia with Lewy bodies. *J Neurol Neurosurg Psychiatry* 81, 320-326.
66. Lee, J.E., Park, H.J., Song, S.K., Sohn, Y.H., Lee, J.D., Lee, P.H., 2010. Neuroanatomic basis of amnesic MCI differs in patients with and without Parkinson disease. *Neurology* 75, 2009-2016.
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68. Park, K.M., Kim, J.J., Seok, J.H., Chun, J.W., Park, H.J., Lee, J.D., 2009a. Anhedonia and ambivalence in schizophrenic patients with fronto-cerebellar metabolic abnormalities: a fluoro-d-glucose positron emission tomography study. *Psychiatry Investig* 6, 72-77.
69. Park, I.H., Kim, J.J., Chun, J., Jung, Y.C., Seok, J.H., Park, H.J., Lee, J.D., 2009b. Medial prefrontal default-mode hypoactivity affecting trait physical anhedonia in schizophrenia. *Psychiatry Res* 171, 155-165.
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76. Kim, D.J., Kim, I.Y., Jeong, S.O., Park, H.J.*, 2009e. Evaluation of Bayesian tensor estimation using tensor coherence. *Phys Med Biol* 54, 3785-3802.
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Book chapter

1. Hae-Jeong Park. Quantification of White Matter Using Diffusion-Tensor Imaging, *Neuroimaging, Part A*, edited by Michael F. Glabus, International review of neurobiology, volume 66, pp. 168-209, ISBN: 0123668670, Academic Press, 2005.
2. Hae-Jeong Park, Dae-Jin Kim, Seung Koo Lee, 박해정, 김대진, 이승구. “확산강조영상과 확산텐서영상 Diffusion Weighted Imaging and Diffusion Tensor Imaging”. *Magnetic Resonance Imaging, Ch. 14*, Korean society of magnetic resonance in medicine 자기공명영상학, 제 14 장, pp.221-241, 대한자기공명의과학회 엮음, 일조각, 서울, 2008.

Research Funding Information:

- | | |
|-----------------|---|
| 2000 | The Korea Research Foundation, Young Researcher Encouraging Program, Principal Investigator
“A study on the developing polysomnographic expert system adaptable to the subjects’ characteristics” |
| 2001 | The Visits-abroad Post-doctoral Fellowship Program of Korea Science & Engineering Foundation.
Principal Investigator.
“Spatio-temporal analysis of brain function by integrating multimodal functional brain imaging” |
| 2004.7 - 2005.6 | The Korea Research Foundation 학술진흥재단, D00503, Principal Investigator.
Automated segmentation and quantification of neuronal bundles using diffusion tensor imaging
“확산텐서자기공명영상을 이용한 신경섬유의 자동 구획화 및 정량화 기법에 관한 연구” |
| 2004.9 - 2005.9 | Yonsei University 연세대 신진 교수 연구, Principal investigator
An application study of diffusion tensor for white matter integrity |

“확산텐서 영상술을 이용한 뇌 백질 섬유질의 연결성과 통합성 분석 및 응용연구”

- 2004.12 - 2008.11 Korean Health Technology R&D Project, 02-PJ6-EV07-0002, Researcher
Functional and Metabolic Imaging Research Center 인체기능 및 대사영상화 신기술 개발연구센터
- 2005.3~2007.2 Korea Science &Engineering Foundation 과학기술부, M20504030004-05A0703-00410, Researcher
Development of medical imaging physics and standardization technique
의료영상물리 및 표준화 기술 개발
- 2005.4 - 2008.3 Korea Science &Engineering Foundation (한국과학재단), R01-2005-000-10522-0(2005)
Principal Investigator
Investigation of neural-network reorganization in the blind using multimodal neuroimaging 통합적
뇌기능 영상을 이용한 맹인의 뇌 신경망 가소성 및 신경 연결성연구
- 2008.3 - 2009.2. Wonju medical device techno valley 현장맞춤형기술개발사업 (7-2008-0045) 원주 의료기기
테크노벨리, 위탁연구, Principal investigator, Image processing for permanent magnet MRI 영구
자석형 MRI 형 유방 촬영 수신 코일 및 영상 처리법 개발
- 2008.3 - 2009.2. Korea Science &Engineering Foundation (한국과학재단), 위탁 연구, Researcher
Study on the Nuclear Neuro-imaging
Technology & Radiation Brain Science 뇌질환의 핵의학적인 진단과 방사선 뇌 과학 기반기술 연구
(M20704000039-08M0400-03910)
- 2007.10 - 2008.9. Yonsei University (연세대학교) 교수 연구비, Principal investigator
Analysis of the neuro-anatomical connectivity and its application to the research on developmental
disease 고각 해상도 확산자기공명영상을 이용한 뇌의 신경 해부학적 연결 구조 분석법 개발
및 뇌 발달장애 연구에의 응용 (6-2007-0222)
- 2008.5 - 2010.3. Korea Health Industry Development Institute (보건진흥원), Co-Investigator
A new pathophysiological approach in cerebral palsy 뇌성마비의 새로운 병태 생리학적 연구
(A080446)
2008. 7 - 2010. 6. Ministry of Education, Science and Technology, 교육과학기술부, 바이오기술개발사업,
M10862020005-08N6202-00410, Co-Investigator,
Neuroimage analysis of brain connectivity in the movement disorder 복합 뇌영상을 이용한
운동장애질환의 뇌신경 연결 기전 연구
- 2008.9 - 2011.8. Korea Science &Engineering Foundation (한국과학재단), R01-2008-000-20545-0 (2008), Principal
investigator
Realtime imaging and fusion techniques for MRI guided neurointervention and intra-operative MRI based
neurosurgery (MRI 유도 뉴로인터벤션과 뇌수술을 위한 실시간 MRI 제어 및 영상 융합 기술
개발)
- 2010.5 – 2013.4 Ministry of Education, Science and Technology(교육기술과학부), Principal co-investigator
Neural Correlates of Communication Intelligence Quotient (CQ) and Developing Educational Programs
for Enhancing Communication Intelligence 뇌과학에 기반한 소통지능 지수 개발 및 소통지능
향상을 위한 교육프로그램 개발
- 2010.5 - 2015.4 Korean Health Technology R&D Project, Ministry for Health, Welfare & Family Affairs(보건진흥원),
Principal Investigator
OCT segmentation and quantification (OCT 영상 세그멘테이션을 이용한 관심영역 정량화 기법
개발)
- 2010.5 – 2015.4 Ministry of Education, Science and Technology (교육기술과학부), Principal investigator
Development of real-time neuroimage analysis techniques for the communicative intention based on neural
model of the human intention 뇌신경 모델에 기초한 상호작용 의도의 실시간 뇌신경영상정보 분석
기술 개발

- 2014.5 – 2014.12 National Forensic Service (국립과학수사연구소), Principal Investigator, Brain state decoding as an appropriate application for legal psychology by means of neuroimaging, 뇌영상을 이용한 뇌상태읽기 기술의 법심리학적 응용 가능성 연구
- 2014.4 – 2015.3 Yonsei University College of Medicine, Principal Investigator, 연세대 의대, 장기해외연수교수 연구비, 뇌파 및 기능적 자기공명영상을 이용한 수면에서의 대뇌 기능적 네트워크 분석
- 2014.12 – 2016.10 Korea Health Industry Development Institute, Korea-UK R&D Collaboration Project, Principal Investigator, Large-scale brain network modeling for treatment of brain disorders, 보건진흥원, 한-영 연구협력과제, 뇌질환 치료를 위한 대규모 뇌 연결망 모델링
- 2014.12 – 2017.10 National Research Foundation of Korea, Ministry of Science, ICT and Future Planning (미래창조과학부), Bayesian Inference on Brain Networks and Applications to Brain Disorders, 연구재단 중견연구자지원사업(도약과제), 베이지안 뇌 네트워크 역추론 및 뇌질환 응용기술
- 2017.05-2021.12 National Research Foundation of Korea, Ministry of Science, ICT and Future Planning (미래창조과학부), Development of Mobile VR Neuropsychological Battery and System Using Digital Phenotyping Model for Cognitive Control Deficits High Risk Group, 연구재단 뇌과학원천기술개발사업, 모바일-VR 신경심리배터리 개발 및 데이터베이스 구축과 디지털표현형 모델링을 활용한 인지조절 취약집단 AI 기반 조기 진단/증진 시스템 구현
- 2017.06-2021.12 National Research Foundation of Korea, Ministry of Science, ICT and Future Planning (미래창조과학부), Development of effective connectivity estimation and system analysis techniques for functional neural circuit using multi scale, multimodal, multi species neural signals and images, 연구재단 뇌과학원천기술개발사업, 다중 스케일, 다중 모달, 다중 종 신경 신호 및 영상 기반 뇌신경회로의 인과적 실효연결망 추정과 뇌시스템 해석 기술 개발

Contribution to Brain Research Community (Developed software)

1. CdrSPM 1.0: statistical comparison toolbox for EEG source localizations
2. DoDTI: Automated analysis of diffusion tensor MRI toolbox (<http://neuroimage.yonsei.ac.kr/dodti>)
3. ViStim: Visual stimulator for PET, fMRI and ERP
4. PETICA: ICA analysis toolbox for multiple PET images
5. Neuroan: software for neuroimage analysis
6. MNET: network analysis for structural and functional brain network

Reviewer:

Science, Neuroimage, Human Brain Mapping, Brain connectivity, Medical image analysis, PLOS one, etc.

Others

Training

SIEMENS IDEA Sequence Programing and Imaging Calculation Programming, 2007.9.17-9.27, Cary, NC, USA
 PHILIPS Pulse programing course by Gyrotools Ltd., 2009.9.14-25, Zurich, Switzerland.
 PHILIPS RealTI workshop, 2009, 7.2-3, Bordeaux, France

Korea Patent

1. Author: Jun Soo Kwon, Hae-Jeong Park
 Title: "Statistical analysis method for current source localization of EEG (뇌파의 전류밀도 모델의 신호원 국소화 추정을 위한 데이터 처리방법)
 Patent number: 10-0452628, Date of registration: 2004.10.04
2. Author: Hae-Jeong Park, Changwon Jang,
 Title: "Realtime Inter-subject Neuro-feedback Systems" (다인실시간 상호작용 뉴로-피드백 시스템)
 Patent number: 1014771310000, Date of registration: 2014.12.22
3. 박해정, 이동하, 기능적자기공명영상의 패턴 분류 장치 및 방법, 등록번호:10-1601041, 등록일:2016.3.2
4. 박해정, 배종원, 오재령, 빛 간섭 단층 촬영을 이용한 망막 내 병변 검출 장치 및 방법, 등록번호: 10-2015-0026499, 등록일: 2016.10.12
5. 박해정, 3 차원 볼륨 영상의 빅 데이터 데이터베이스 구축 장치 및 방법, 등록번호: 10-1556601, 등록일:

2015.09.23

6. 박해정, 컨벌루션 신경망 기반의 표면 영상 처리 방법 및 장치, 등록번호: 10-2016-0125345

Media Art Performance

1. Director of Neuroimage Modeling (뉴로이미지 모델링), “춤을 추며 산을 오르다”, 김형수 예술감독, 예술의전당 자유 소극장 (Seoul Arts Center, Jayu Theater), 2008. 3. 19
2. Director of Neuroimage Modeling (뉴로이미지 모델링), “카마스투라, 꿈”, 김형수 예술감독, 한국예술종합학교 (Korea National University of Arts), 2008. 6. 11
3. Director of Neuroimage Modeling (뉴로이미지 모델링), “산에서 꿈을 꾸다”, 김형수 예술감독, 국립현대미술관, National Museum of Contemporary Art, KOREA 2008. 7
4. Director of Neuroimage Modeling (뉴로이미지 모델링), “문화원형미디어아트”, 김형수 예술감독, The 1st Korea Contents Affairs 제 1 회 대한민국콘텐츠 어페어전, 2008. 9
5. Director of Neuroimage Modeling (뉴로이미지 모델링), “봄의제전(Le sacre du printemps) III”, 김형수 예술감독, 예술의전당 자유 소극장 (Seoul Arts Center, Jayu Theater), 2009. 3. 31