June Christoph Kang

Affective Neuroscientist

Seoul, Republic of Korea · +82-10-9868-5068 · cnsla@korea.ac.kr · ORCID 0000-0003-3625-0856

Professional Profile

Affective neuroscientist with expertise in mood disorders and human emotion research using advanced neuroimaging, multimodal psychophysiology, and non-invasive brain stimulation methodologies. Demonstrated leadership in conducting interdisciplinary collaborative research across clinical and engineering domains as PI and Co-PI. Proven track record of competitive grant acquisition and publication in peer-reviewed journals including *NeuroImage*, *Neuromodulation*, *Journal of Neurodevelopmental Disorders*, *European Journal of Psychotraumatology*, *Psychonomic Bulletin and Review*, and *Psychoneuroendocrinology*.

Research Specialisation

Primary Research Interests

- Human empathy and emotional processing
- Affective neuroscience and neuroplasticity
- Mood disorders and depression neurobiology
- Human-robot interaction with affective dimensions

Technical Expertise

- Multimodal neuroimaging (structural and functional MRI, EEG, diffusion tensor imaging)
- Psychophysiological assessment (heart rate variability, electrodermal activity, autonomic regulation)
- Non-invasive brain stimulation techniques (taVNS, tDCS, tACS)
- Facial expression analysis and emotion recognition
- Neuropsychological assessment and psychometric validation

Education

Doctor of Philosophy in Biomedical Science March 2013 – February 2018
Korea University, Seoul, Republic of Korea
Dissertation: *Altered brain connectivity and structures in bipolar disorder and their effect on trait empathy*

Master of Arts in Clinical Psychology March 2010 – February 2013
Korea University, Seoul, Republic of Korea
Dissertation: *Individual differences in empathy: an investigation utilising emotional priming methodologies*

Bachelor of Arts in Psychology March 2006 – February 2010
Korea University, Seoul, Republic of Korea

Academic and Research Positions

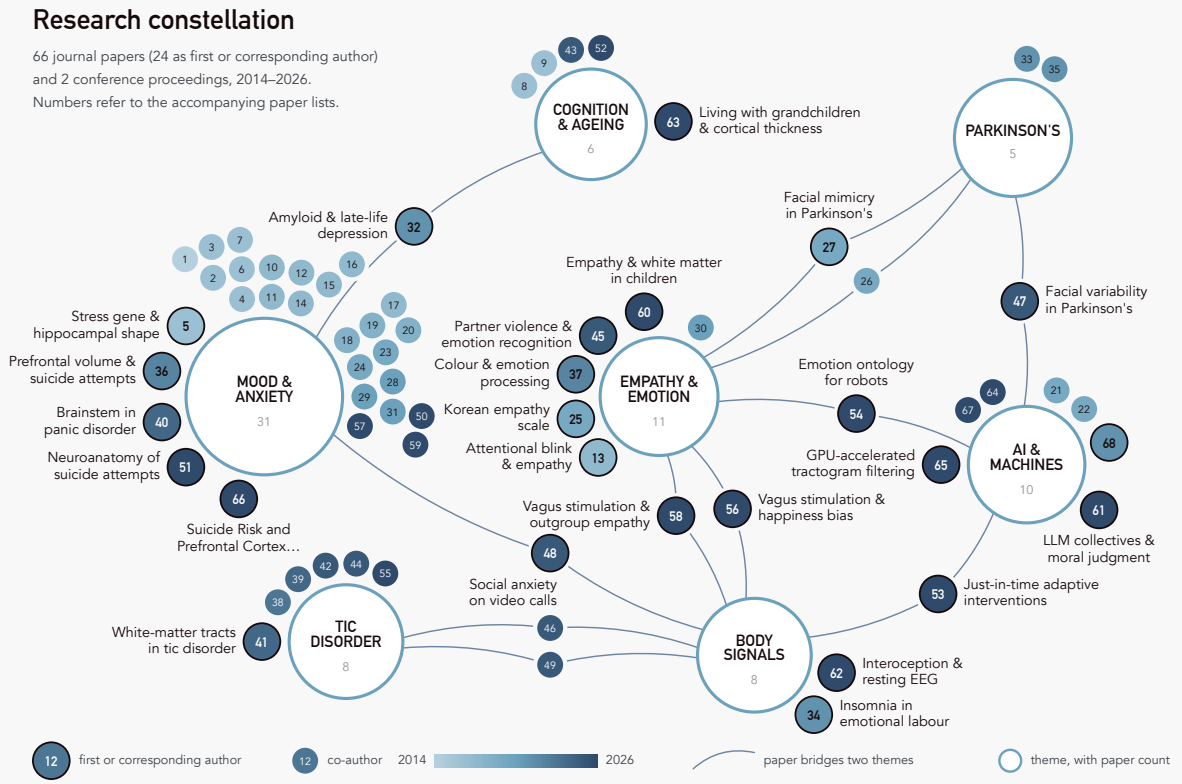
Research Professor March 2018 – Present
Department of Brain and Cognitive Engineering, Korea University
Lead principal investigator for multiple national research grants. Supervision of postgraduate researchers and coordination of multisite collaborative neuroscience projects. Management of neuroimaging laboratories and psychophysiological assessment facilities.

Lecturer in Neuroimaging and Data Science March 2024 – June 2025
Department of Data Science, Hanyang University
Delivery of specialist neuroimaging analysis coursework to postgraduate students. Curriculum development and assessment of advanced quantitative methodologies in neuroscience.

Lecturer in Social and Affective Neuroscience March 2022 – February 2023
Department of Psychology, Yonsei University
Teaching and examination in cognitive and social neuroscience. Student supervision and research methodology guidance.

Lecturer in Biomedical Science March 2017 – February 2018
Department of Biomedical Science, Korea University
Neuroscience coursework delivery and white matter analysis methods instruction.

Publications



● first or corresponding author ○ co-author Numbers are the dots in the figure.

First and corresponding author papers (24)

66 Cho, H.S., **Kang, J.C.**, Kim, H.J., Hwang, I., Park, H-J. (2026). Suicide Risk and Prefrontal Cortex Activation During Facial Emotion Recognition in Korean Older Adults: An Exploratory fNIRS Study. *Journal of Psychiatry Research*. 10.1016/j.jpsychires.2026.11.044

65 **Kang, J.C.**, Ryu, H.S. (2026). GPU-accelerated spherical-deconvolution informed filtering of tractograms for quantitative diffusion MRI connectomics. *Medical Engineering & Physics*. 10.1088/1873-4030/aec017

63 **Kang, J.C.**, Lee, S.K., C.S., Kim, N.H. (2026). Cortical thickness in seniors living with grandchildren: a sex-specific association in the somatosensory cortex. *Neuroreport*.

62 **Kang, J.C.**, Park, H.J., Yoon, H.K. (2026). Resting-state EEG dissociates heartbeat counting from heart-rate discrimination: cortical signal entropy tracks counting accuracy, default-mode connectivity tracks exteroceptive discrimination. *Neuroimage*. 10.1016/j.neuroimage.2026.122240

61 **Kang, J.C.** (2026). The Tachikoma Effect: Aggregation of Independent Agents, Not Information Sharing, Aligns LLM Collectives with Majority Human Moral Judgment. *AI & Society*. 10.1007/s00146-026-03346-6

60 **Kang, J.C.** (2026). Association Between White Matter Tract Microstructure and Cognitive, Affective, and Somatic Empathy in Children: An Exploratory TRACULA-Based Diffusion MRI Study. *Brain and Behavior*. 10.1002/brb3.71751

58 **Kang, J.C.** (2026). Transcutaneous auricular vagus nerve stimulation increases empathic choice toward outgroup negative emotions. *Acta Neuropsychiatrica*. 10.1017/neu.2026.10091

56 **Kang, J.C.**, Ng, J.Y., Kaiser, M., Choi, H., Song, J., J, Jung (2026). Transcutaneous auricular vagus nerve stimulation enhances emotional bias towards happiness in healthy young adults: A comparative study of electrical and ultrasound stimulation. *Neuromodulation: Technology at the Neural Interface*. 10.1016/j.neurom.2026.04.016

54 **Kang, J.C.** (2026). Emotion Ontology from the Perspective of Developmental Robotics: A Review. *IEEE Access*. 10.1109/ACCESS.2026.3688781

53 **Kang, J.C.** (2026). Just-in-Time Adaptive Interventions in Digital Mental Health Care: A Framework for Psychiatric Conditions. *IEEE Access*. 10.1109/ACCESS.2026.3687871

51 Kim, A.R., Kang, Y.B., **J.Kang**, Ham, B.J. (2026). Neuroanatomical Signatures of Suicide Attempts in Major Depressive Disorder. *Psychiatry Research: Neuroimaging*. 10.1016/j.pscychresns.2026.112192

48 Kim, H.M., **Kang, J.**, Yoon, H.K., Ko, Y.H., Shin, C. (2025). Physiological Responses to Video Conferencing Exposure in Individuals with Social Anxiety: An iPPG-Based HRV Analysis. *Acta Neuropsychiatrica*. 10.1017/neu.2025.10029

47 Ryu H.S., **Kang, J.C.**, Kwon, D. Y. (2025). Structured Speech Tasks Reveal Temporal Facial Variability as a Biomarker in the De-novo Parkinson's Disease patients. *Parkinsonism and Related Disorders*. 10.1016/j.parkreldis.2025.107840

45 Cho, H., **Kang, J.C.**, Park, H. J., Park, Y. H., Park, Y.E., Hwang, I., Kang, H.J. (2025). The impact of intimate partner violence on facial emotion recognition among Korean baby boomers. *European Journal of Psychotraumatology*. 10.1080/20008066.2025.2474890

41 **Kang, J.C.**, Chi, S., Mok, Y.E., Kim, J.A., Kim, S.H., Lee, M.S. (2024). Diffusion indices alteration in major white matter tracts of children with tic disorder using TRACULA. *Journal of Neurodevelopmental Disorders*. 10.1186/s11689-024-09558-5

40 Hye-Min Kim, Chanmi Kang, Boram Chae, **June Christoph Kang**, Ho-Kyoung Yoon (2024). Exploring Brainstem Structural Abnormalities: Potential Biomarkers for Panic Disorder. *Experimental Neurobiology*. 10.5607/en23034

37 Park, Y.E., **Kang, J.**, Yoon, H.-K. (2022). Feeling Blue and Getting Red: An Exploratory Study on the Effect of Color in the Processing of Emotion Information. *Frontiers in Psychology*. 10.3389/fpsyg.2022.515215

36 **Kang, J.**, Kim, A., Kang, Y., Han, K.-M., Ham, B.-J. (2022). The Indirect Effect of Prefrontal Gray Matter Volume on Suicide Attempts among Individuals with Major Depressive Disorder. *Experimental Neurobiology*. 10.5607/en22008

34 Chae, B., **Kang, J.**, Shin, C., Ko, Y.-H., Yoon, H.-K. (2021). Insomnia in emotional labor: Its role in autonomic nervous system regulation. *Psychiatry Investigation*. 10.30773/PI.2021.0117

32 Hyung, W.S.W., **Kang, J.**, Kim, J., Lee, S., Youn, H., Ham, B.-J., Han, C., Suh, S., Han, C.E., Jeong, H.-G. (2021). Cerebral amyloid accumulation is associated with distinct structural and functional alterations in the brain of depressed elders with mild cognitive impairment. *Journal of Affective Disorders*. 10.1016/j.jad.2020.12.049

27 **Kang, J.**, Derva, D., Kwon, D.-Y., Wallraven, C. (2019). Voluntary and spontaneous facial mimicry toward other's emotional expression in patients with Parkinson's disease. *PLoS ONE*. 10.1371/journal.pone.0214957

25 Park, Y.E., Yoon, H.-K., Kim, S.Y., Williamson, J., Wallraven, C., **Kang, J.** (2019). A preliminary study for translation and validation of the korean version of the cognitive, affective, and somatic empathy scale in young adults. *Psychiatry Investigation*. 10.30773/pi.2019.06.25

13 **Kang, J.**, Ham, B.-J., Wallraven, C. (2017). Cannot avert the eyes: reduced attentional blink toward others' emotional expressions in empathic people. *Psychonomic Bulletin & Review*. 10.3758/s13423-016-1171-x

5 Won, E., **Kang, J.**, Kim, A., Choi, S., Han, K.-M., Tae, W.S., Chang, H.S., Son, K.R., Greenberg, T., Joe, S.-H.,

Lee, M.-S., Ham, B.-J. (2016). Influence of BclI C/G (rs41423247) on hippocampal shape and white matter integrity of the parahippocampal cingulum in major depressive disorder. *Psychoneuroendocrinology*. 10.1016/j.psyneuen.2016.07.008

Co-authored papers (42)

64 Park, J.Y., **Kang, J.C.**, Wallraven, C. (2026). Too Close for Comfort: Continuous Anxiety Decoding from Physiology and Embodied Signals in Social VR. *IEEE Transactions on Visualization and Computer Graphics*. 10.1109/TVCG.2026.3747427

59 Jung, M., Park, J., Kang, Y., Shin, D., **Kang, J.**, Tae, W.-S., Ham, B.-J., Han, K.-M. (2026). Suicide attempt-related gray matter volume alterations in major depressive disorder and its associations with childhood trauma. *Psychiatry Research*. 10.1016/j.psychres.2026.117273

57 Jung, M., Park, J., Kang, Y., Shin, D., **Kang, J.**, Jung, J., Kaiser, M., Auer, D., Ham, B.-J., Han, K.-M. (2026). Resting-state functional connectome correlates of suicide attempt history and childhood trauma in major depressive disorder. *Journal of Affective Disorders*. 10.1016/j.jad.2026.122111

55 D. H. Cha, S-H Chi, W, Lee, J.C., Kang, J-A, Kim, J-K., Ko., MS, Lee (2026). Neuroimmune Links to White-matter Microstructure in Medication-naïve Children with Tic Disorder: A Mediation Analysis. *Clinical Psychopharmacology and Neuroscience*. 10.9758/cpn.25.1376

52 Shin, G., Siddiquee, A.T., Lee, M.H., Hwang, Y., **Kang, J.C.**, Lee, S.K., Kim, Y., Kim, B., Shin, C., Kim, N. (2026). Middle aged carotid plaque and cognitive functions in later life: a population-based study. *Neurology Open Access*. 10.1212/WN9.0000000000000087

50 Jung, M., Park, J., Kang, Y., Shin, D., **Kang, J.**, Moon, H.-J., Jung, J., Kaiser, M., Auer, D., Ham, B.-J., Han, K.-M. (2026). Suicide attempt history, childhood trauma, and functional brain network alterations in major depressive disorder: a resting-state functional connectivity-based multivariate pattern analysis. *Neuropsychopharmacology*. 10.1038/s41386-025-02307-9

49 Lee, H. Lee, N. Lim, Y., **Kang, J. C.**, Gim, J-A., Lee, M-S. (2025). Changes in Heart Rate Variability in Adolescent Patients With Tic Disorders-A 1-Year Prospective Study. *Psychiatry Investigation*. 10.30773/pi.2025.0072

46 Mok, Y. E., Chi, S., **Kang, J.** Gim, J.A., Ko, J.K., Lee, M.S. (2025). The usefulness of heart rate variability in adolescents with tic disorder: Focused on interplay with quality of life. *PLoS ONE*. 10.1371/journal.pone.0321369

44 Chi, S.H., Ko, J.K., **Kang, J.**, Gim, J-A, Lee, M.S. (2025). Longitudinal Analysis of Cytokine Profiles and Their Impact on Tic Disorder Severity Over One Year. *Clinical Psychopharmacology and Neuroscience*. 10.9758/cpn.24.1266

43 Siddiquee, A. T., Hwang, Y.H., Kim, S., Shun, S.J., Lee, J.S., Kang, C.J., Lee, M. H., Kim, H. J., Lee, S.K., Shin, C. (2025). Middle-age cerebral small vessel disease and cognitive function in later life: a population-based prospective cohort study. *The Lancet Regional Health - Western Pacific*. 10.1016/j.lanwpc.2024.101284

42 Chi, S.H., Mok, Y.E., **Kang, J.**, Gim, J-A, Lee, M.S. (2025). Network hub changes in the pars opercularis indicate impaired inhibition in tic disorder patients. *Acta Neuropsychiatrica*. 10.1017/neu.2024.53

39 Young Kyung Ko, Suhyuk Chi, Gyu-Hwi Nam, Kyung-Wan Baek, Kung Ahn, Yongju Ahn, **June Kang**, Moon-Soo Lee, Jeong-An Gim (2024). Epigenome-wide Association Study for Tic Disorders in Children: A Preliminary Study in Korean Population. *Clinical psychopharmacology and neuroscience*. 10.9758/cpn.23.1099

38 Chi, S.H., Mok, Y.E., **Kang, J.**, Gim, J-A, Han, C., Lee, M.S. (2023). Cytokine levels reflect tic symptoms more prominently during mild phases. *BMC Neuroscience*. 10.1186/s12868-023-00830-3

35 Roh, H., **Kang, J.**, Koh, S.-B., Kim, J.H. (2021). Hippocampal volume is related to olfactory impairment in Parkinson's disease. *Journal of Neuroimaging*. 10.1111/jon.12911

33 Roh, H., **Kang, J.**, Hwang, S.-Y., Koh, S.-B., Kim, J.H. (2021). Regional Cerebral Cortical Atrophy is Related to Urinary Tract Symptoms in Parkinson's Disease. *Journal of Neuroimaging*. 10.1111/jon.12829

31 Kang, W., Shin, J.-H., Han, K.-M., Kim, A., Kang, Y., **Kang, J.**, Tae, W.-S., Paik, J.-W., Lee, H.-W., Seong, J.-K., Ham, B.-J. (2020). Local shape volume alterations in subcortical structures of suicide attempters with major depressive disorder. *Human Brain Mapping*. 10.1002/hbm.25168

30 Lee, J., Han, C., Ko, Y.-H., **Kang, J.**, Byun, Y., Son, Y., Yoon, H.-K. (2020). Emotional changes and protective factors of emotional workers in the public and private sector. *Psychiatry Investigation*. 10.30773/pi.2019.0329

29 Han, K.-M., Tae, W.-S., Kim, A., Kang, Y., Kang, W., **Kang, J.**, Kim, Y.-K., Kim, B., Seong, J.Y., Ham, B.-J. (2020). Serum FAM19A5 levels: A novel biomarker for neuroinflammation and neurodegeneration in major depressive disorder. *Brain, Behavior, and Immunity*. 10.1016/j.bbi.2020.03.021

28 Han, K.-M., Han, M.-R., Kim, A., Kang, W., Kang, Y., **Kang, J.**, Tae, W.-S., Cho, Y., Ham, B.-J. (2020). A study combining whole-exome sequencing and structural neuroimaging analysis for major depressive disorder. *Journal of Affective Disorders*. 10.1016/j.jad.2019.10.039

26 Derya, D., **Kang, J.**, Kwon, D.-Y., Wallraven, C. (2019). Facial Expression Processing Is Not Affected by Parkinson's Disease, but by Age-Related Factors. *Frontiers in Psychology*. 10.3389/fpsyg.2019.02458

24 Han, M.-R., Han, K.-M., Kim, A., Kang, W., Kang, Y., **Kang, J.**, Won, E., Tae, W.-S., Cho, Y., Ham, B.-J. (2019). Whole-exome sequencing identifies variants associated with structural MRI markers in patients with bipolar disorders. *Journal of Affective Disorders*. 10.1016/j.jad.2019.02.028

23 Han, K.-M., Kim, A., Kang, W., Kang, Y., **Kang, J.**, Won, E., Tae, W.-S., Ham, B.-J. (2019). Hippocampal subfield volumes in major depressive disorder and bipolar disorder. *European Psychiatry*. 10.1016/j.eurpsy.2019.01.016

22 Uijong, J., **Kang, J.**, Wallraven, C. (2019). You or Me? Personality Traits Predict Sacrificial Decisions in an Accident Situation. *IEEE Transactions on Visualization and Computer Graphics*. 10.1109/TVCG.2019.2899227

21 Ju, U., **Kang, J.**, Wallraven, C. (2019). To brake or not to brake? Personality traits predict decision-making in an accident situation. *Frontiers in Psychology*. 10.3389/fpsyg.2019.00134

20 Na, K.-S., Won, E., **Kang, J.**, Kim, A., Choi, S., Kim, Y.-K., Lee, M.-S., Ham, B.-J. (2018). Interaction effects of oxytocin receptor gene polymorphism and depression on hippocampal volume. *Psychiatry Research - Neuroimaging*. 10.1016/j.pscychresns.2018.10.004

19 Na, K.-S., Won, E., **Kang, J.**, Kim, A., Choi, S., Tae, W.-S., Kim, Y.-K., Lee, M.-S., Joe, S.-H., Ham, B.-J. (2018). Differential effect of COMT gene methylation on the prefrontal connectivity in subjects with depression versus healthy subjects. *Neuropharmacology*. 10.1016/j.neuropharm.2018.04.030

18 Han, K.-M., Choi, S., Kim, A., **Kang, J.**, Won, E., Tae, W.-S., Kim, Y.-K., Lee, M.-S., Ham, B.-J. (2018). The effects of 5-HTTLPR and BDNF Val66Met polymorphisms on neurostructural changes in major depressive disorder. *Psychiatry Research - Neuroimaging*. 10.1016/j.pscychresns.2018.01.005

17 Lee, J., Choi, S., **Kang, J.**, Won, E., Tae, W.-S., Lee, M.-S., Ham, B.-J. (2017). Structural characteristics of the brain reward circuit regions in patients with bipolar I disorder: A voxel-based morphometric study. *Psychiatry Research - Neuroimaging*. 10.1016/j.pscychresns.2017.09.013

16 Han, K.-M., Won, E., **Kang, J.**, Choi, S., Kim, A., Lee, M.-S., Tae, W.-S., Ham, B.-J. (2017). TESC gene-regulating genetic variant (rs7294919) affects hippocampal subfield volumes and parahippocampal cingulum white matter integrity in major depressive disorder. *Journal of Psychiatric Research*. 10.1016/j.jpsychires.2017.05.010

15 Won, E., **Kang, J.**, Choi, S., Kim, A., Han, K.-M., Yoon, H.-K., Cho, S.-H.,

Tae, W.-S., Lee, M.-S., Joe, S.-H., Kim, Y.-K., Ham, B.-J. (2017). The association between substance P and white matter integrity in medication-naive patients with major depressive disorder. *Scientific Reports*. 10.1038/s41598-017-10100-y

(14) Won, E., Han, K.-M., **Kang, J.**, Kim, A., Yoon, H.-K., Chang, H.S., Park, J.-Y., Lee, M.-S., Greenberg, T., Tae, W.-S., Ham, B.-J. (2017). Vesicular monoamine transporter 1 gene polymorphism and white matter integrity in major depressive disorder. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 10.1016/j.pnpbp.2017.02.028

(12) Han, K.-M., Won, E., **Kang, J.**, Kim, A., Yoon, H.-K., Chang, H.S., Son, K.R., Lee, M.-S., Tae, W.-S., Ham, B.-J. (2017). Local gyrification index in patients with major depressive disorder and its association with tryptophan hydroxylase-2 (TPH2) polymorphism. *Human Brain Mapping*. 10.1002/hbm.23455

(11) Han, K.-M., Won, E., Sim, Y., **Kang, J.**, Han, C., Kim, Y.-K., Kim, S.-H., Joe, S.-H., Lee, M.-S., Tae, W.-S., Ham, B.-J. (2017). Influence of FKBP5 polymorphism and DNA methylation on structural changes of the brain in major depressive disorder. *Scientific Reports*. 10.1038/srep42621

(10) Han, K.-M., Kim, D., Sim, Y., **Kang, J.**, Kim, A., Won, E., Tae, W.-S., Ham, B.-J. (2017). Alterations in the brainstem volume of patients with major depressive disorder and their relationship with antidepressant treatment. *Journal of Affective Disorders*. 10.1016/j.jad.2016.08.066

(9) Chang, H.-J., **Kang, J.**, Ham, B.-J., Lee, Y.-M. (2016). A functional neuroimaging study of the clinical reasoning of medical students. *Advances in Health Sciences Education*. 10.1007/s10459-016-9685-6

(8) Kang, S.-G., Yoon, H.-K., Cho, C.-H., Kwon, S., **Kang, J.**, Park, Y.-M., Lee, E., Kim, L., Lee, H.-J. (2016). Decrease in fMRI brain activation during working memory performed after sleeping under 10 lux light. *Scientific Reports*. 10.1038/srep36731

(7) Won, E., Choi, S., **Kang, J.**, Lee, M.-S., Ham, B.-J. (2016). Regional cortical thinning of the orbitofrontal cortex in medication-naïve female patients with major depressive disorder is not associated with MAOA-uVNTR polymorphism. *Annals of General Psychiatry*. 10.1186/s12991-016-0116-0

(6) Choi, S., Han, K.-M., **Kang, J.**, Won, E., Chang, H.S., Tae, W.S., Son, K.R., Kim, S.-J., Lee, M.-S., Ham, B.-J. (2016). Effects of a polymorphism of the neuronal amino acid transporter SLC6A15 gene on structural integrity of white matter tracts in major depressive disorder. *PLoS ONE*. 10.1371/journal.pone.0164301

(4) Won, E., Choi, S., **Kang, J.**, Kim, A., Han, K.-M., Chang, H.S., Tae, W.S., Son, K.R., Joe, S.-H., Lee, M.-S., Ham, B.-J. (2016). Association between reduced white matter integrity in the corpus callosum and serotonin transporter gene DNA methylation in medication-naive patients with major depressive disorder. *Translational Psychiatry*. 10.1038/tp.2016.137

(3) Na, K.-S., Won, E., **Kang, J.**, Chang, H.S., Yoon, H.-K., Tae, W.S., Kim, Y.-K., Lee, M.-S., Joe, S.-H., Kim, H., Ham, B.-J. (2016). Brain-derived neurotrophic factor promoter methylation and cortical thickness in recurrent major depressive disorder. *Scientific Reports*. 10.1038/srep21089

(2) Yoon, H.-K., **Kang, J.**, Kwon, D.-Y., Ham, B.-J. (2016). Frontoparietal cortical thinning in respiratory-type panic disorder: A preliminary report. *Psychiatry Investigation*. 10.4306/pi.2016.13.1.146

(1) Jung, J., **Kang, J.**, Won, E., Nam, K., Lee, M.-S., Tae, W.S., Ham, B.-J. (2014). Impact of lingual gyrus volume on antidepressant response and neurocognitive functions in Major Depressive Disorder: A voxel-based morphometry study. *Journal of Affective Disorders*. 10.1016/j.jad.2014.08.018

Refereed conference proceedings (2)

(67) Ryu, H. S., **Kang, J. C.**, Wallraven, C. (2026). Test-time user alignment via Bayesian population guidance in subjective tasks. *Proceedings of the 35th International Joint Conference on Artificial Intelligence (IJCAI-ECAI 2026), Special Track on Human-Centred AI*.

(68) **Kang, J.**, Park, Y. E. (2021). A preliminary study on reading the mind in the eyes of the robot. *30th IEEE International Conference on Robot & Human Interactive Communication (RO-MAN 2021), 839-843*.

Oral Presentations

1 **J. C. Kang**, J.-A. Kim, and M. S. Lee. "Multimodal Connectome Fusion for Predicting Treatment Outcome in Tic Disorders: A Machine Learning Approach". In: *12th Congress of the Asian Society for Child and Adolescent Psychiatry and Allied Professions (ASCAPAP 2026)*. Oral presentation. Seoul, Korea, 2026.

Poster Presentations

1 **J. Kang**. "Does perception of artificial agents as outgroup members affect recognition tasks? Case analysis of robot RMET". In: *Society for Social Neuroscience Annual Conference*. 2025.

2 **J. Kang**. "The effect of transcutaneous vagal nerve stimulation on empathic choice towards negative emotion in others". In: *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*. Vol. 18. 1. 2025, p. 393.

3 **J. Kang**. "The brain structural differences related to grandparenting in healthy seniors: An interaction analysis with biological sex". In: *Society for Social Neuroscience Annual Conference*. 2024.

4 **J. Kang**, Y. Park, H. Lim, and C. Wallraven. "Modulating emotional empathy using individualised transcranial alternating current stimulation protocol". In: *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*. Vol. 12. 2. 2019, p. 399.

5 **J. Kang**, B. Ham, J. W. Kang, W. Y. Kang, A. Kim, and G. J. Shim. "Functional characteristics of brain reward circuitry in the altruistic and self-oriented reward processing". In: *2018 American Psychiatric Association Annual Meeting*. 2018.

6 H. Lim, Y. Park, C. Wallraven, and **J. Kang**. "Investigation of important facial regions for emotion recognition using composite faces". In: *Proceedings of the Spring Conference of the Korean Society for Emotion and Sensibility*. 2018, pp. 79–80.

7 Y. E. Park, H. Lim, **J. Kang**, and C. Wallraven. "Influence of emotional information in working memory tasks". In: *Proceedings of the Spring Conference of the Korean Society for Emotion and Sensibility*. 2018, pp. 83–84.

8 Y. E. Park, **J. Kang**, H. Lim, and C. Wallraven. "Smile, the world smiles towards you or your smile? The effect of emotions and facial identity on working memory processes". In: *21st Annual Meeting of the Korean Society for Brain and Neural Science*. 2018.

9 D. Derya, D. Y. Kwon, **J. Kang**, and C. Wallraven. "Let's face it: Which factor impacts communicative and emotional facial expressions? Parkinson's disease or age". In: *21st Annual Meeting of the Korean Society for Brain and Neural Science*. 2018.

10 H. Lim, E. Won, Y. E. Park, and **J. Kang**. "Current genetic understanding of individual variance in emotional intelligence". In: *21st Annual Meeting of the Korean Society for Brain and Neural Science*. 2018.

11 **J. Kang** and B. Ham. "Empathic readiness: Resting-state functional connectivity reflects individual differences in trait empathy". In: *British Association for Cognitive Neuroscience Annual Conference*. 2016.

12 **J. Kang**, J. Jung, and B. Ham. "Trait empathy and facial mimicry towards goal-irrelevant presentation of others' emotional expressions". In: *Society for Social Neuroscience Annual Conference*. 2015.

13 **J. Kang** and B. Ham. "Development and validation of East-Asian dynamic facial expression stimulus". In: *Current Trends in Biomedical Science*. 2015.

14 **J. Kang**, E. Won, and B. Ham. "Validation of Korean version of questionnaire of affective and cognitive empathy". In: *Current Trends in Biomedical Science*. 2015.

15 **J. Kang**, A. Shin, and C. Wallraven. "Cross-validation of East-Asian dynamic facial expression stimulus using automatic Facial Action Coding System". In: *Current Trends in Biomedical Science*. 2015.

Patents and Intellectual Property

1 **Intelligent Healthcare Device and System for Emotional Care.** Patent application, Republic of Korea (10-2024-0033801). Status: Pending.

2 **Contactless Video-Based System and Method for Personalised Thoracoabdominal Respiratory Mechanics Quantification and Adaptive Breathing Training.** Patent application, Republic of Korea (10-2026-0155845), filed 19 August 2026. Sole inventor. Status: Pending.

3 **Method and System for Active Verification of and Selective Intervention in Abnormal Sleep Events Using Contactless Evoked Responses.** Patent application, Republic of Korea (10-2026-0155846), filed 19 August 2026. Sole inventor. Status: Pending.

4 **Video Conference Image-Based Social Anxiety Treatment System Using Biofeedback and Exposure Therapy, and Non-Transitory Recording Medium Having, Recorded Thereon, Program for Executing Method for Same.** Patent registered, United States (US 12,793,832 B2), granted 10 November 2026. Inventors: H. K. Yoon and J. Kang. Assignee: Korea University Research and Business Foundation.

5 **Social Anxiety Treatment System through Biofeedback and Exposure Therapy Based on Video Conference.** Patent registered, Republic of Korea (10-2499966). Patent application pending in the European Union.

Honours and Awards

- **Bronze Award**, 2nd Korean Emotion Recognition Competition, Korean Smart Media Society and Chonnam National University (2025)
- **Best Paper Presentation Award**, 2018 Spring Conference of the Korean Society for Emotion and Sensibility. Paper: *Influence of Emotional Information in Working Memory Tasks*

- **Best Paper Presentation Award**, 2018 Spring Conference of the Korean Society for Emotion and Sensibility. Paper: *Research on Important Facial Regions for Emotion Recognition Using Composite Faces*
- **NVIDIA GPU Grant** (2018)

Research Grants and Funding

Development of Socially Intelligent Edge Language Models and Neural Data Refinement via GPU Parallel Computing 2026
Principal Investigator · National IT Industry Promotion Agency (PJT-25-122281)
Funding: In-kind computational resource support (£79,400 equivalent) (135,011,520 KRW)

Development of empathic artificial intelligence model using artificial mirror neuron network based on reservoir computing 2025–2028
Principal Investigator · National Research Foundation of Korea (RS-2025-23524143)
Funding: £148,000 (279,567,000 KRW)

Decision to care: The neuroplasticity of the brain and autonomic nervous system associated with care experience 2023–2025
Principal Investigator · National Research Foundation of Korea (RS-2023-00272647)
Funding: £142,400 (235,216,000 KRW)

Translational approach on prognosis of tic disorder using neuroimaging and electroencephalography technologies 2021–2023
Principal Investigator · Korea Health Industry Development Institute (HI21C0012020021)
Funding: £176,055 (275,000,000 KRW)

Multi-level approach to the automaticity of empathy: Individual variance and expandability of empathic ability 2018–2023
Principal Investigator · National Research Foundation of Korea (NRF-2018R1D1A1B07048820)
Funding: £170,450 (250,000,000 KRW)

Measuring empathy bias towards outgroup members and reducing bias through non-invasive brain stimulation techniques in the context of multicultural society and minority hatred 2018–2019
Principal Investigator · National Research Foundation of Korea (NRF-2018R1E1A2A02086661)
Funding: £54,400 (80,000,000 KRW)

Decoding individual pattern of emotional empathy and elicitation using high-density electroencephalography and non-invasive brain stimulation technique 2017–2018
Principal Investigator · National Research Foundation of Korea (NRF-2017R1E1A2A01079266)
Funding: £55,200 (85,000,000 KRW)

Professional Service

Committee Membership
Committee of Inclusion, 30th IEEE International Conference on Robot and Human Interactive Communication, 2021, Canada

Technical Training
Behaviour experiment design without coding using SuperLab. Delivered at 2018 Autumn Conference of the Korean Clinical Psychology Association.

Teaching and Academic Leadership

University-Level Coursework Delivered

- Neuroimaging (SOI4004), Department of Data Science, Hanyang University (March 2025 – June 2025)
- Neuroimaging (SOI4004), Department of Data Science, Hanyang University (March 2024 – June 2024)
- Social and Affective Neuroscience (PSY4130), Department of Psychology, Yonsei University (September 2022 – December 2022)
- Introduction to Cognitive Neuroscience (PSY3146), Department of Psychology, Yonsei University (March 2022 – June 2022)
- Social Brain and Human Behaviour (PMED230), College of Medicine, Korea University (September 2021 – December 2021)
- Social Brain and Human Behaviour (PMED230), College of Medicine, Korea University (September 2020 – December 2020)
- Introduction to White Matter Analysis (BMS536), Department of Biomedical Science, Korea University (September 2018 – December 2018)
- Introduction to Neuroimaging Research (BMS691), Department of Biomedical Science, Korea University (March 2017 – August 2017)
- Structural Neuroimaging Analysis for Mental Disorder Research (BMS712), Department of Biomedical Science, Korea University (September 2016 – December 2016)

Open Access Lecture Series

- Neuroscience of Empathy. K-MOOC (Korean Massive Open Online Courses) (2024)
- The Automaticity of Empathy. Friday Science Touch, Session 24. Jeongdok Public Library, October 2019

Professional Qualifications and Certifications

National Certifications (Republic of Korea)

- Big-Data Analysis Engineer (National Certification #: BAE-010002165)
- Survey Analyst, Junior (National Certification #: 15202073653M)
- Clinical Psychology Practitioner (National Certification #: 17201073924L)

Technical Competencies

Neuroimaging and neurophysiology: structural and functional MRI; EEG and high-density EEG; diffusion tensor imaging and white matter tract analysis; non-invasive brain stimulation (taVNS, tDCS, tACS).

Psychophysiological assessment: heart rate variability; autonomic nervous system evaluation; electrodermal activity; photoplethysmography; facial action coding and automated emotion detection.

Statistical and computational methods: longitudinal and mixed-effects modelling; structural equation modelling and causal inference; machine learning applications in neuroscience; multivariate and big-data analysis.

Languages

- **English:** Professional working proficiency
- **Korean:** Native proficiency