

Education

Duke University (Durham, NC, 2016.09 – Present)

PhD Candidate in Biomedical Engineering (Advisor: Fan Wang)

Hallym University (Chuncheon, Korea, 2013)

M.S. in Medical Science (Physiology) (Advisor: Hyung-Cheul Shin)

Yonsei University (Seoul, Korea, 2009)

B.S. in Science (Biology) (Advisor: Kwang-Min Choe)

Research Interests

- Neuronal Computation in Local and Long-Range Circuits
- Hybrid Neural Interfaces with Spiking Neural Networks and Biological Brain

Awards

2016 Fulbright Graduate Study Award

Publications

Jun Takatoh*, **Jae Hong Park***, Jinghao Lu*, Shun Li, P M Thompson, Bao-Xia Han, Shengli Zhao, David Kleinfeld, Beth Fredman, Fan Wang (2021) "Constructing an adult orofacial premotor atlas in Allen mouse CCF" eLife 2021;10:e67291

Jae Hong Park*, Jin Ki Hong*, Ja Yun Jang, Jieun An, Kyu Sung Lee, Tong Mook Kang, Hyun Joon Shin, Jun - Kyo Francis Suh (2017). "Optogenetic Modulation of Urinary Bladder Contraction for Lower Urinary Tract Dysfunction." Scientific Reports 7, 40872.

Jae Hong Park*, Chang-Eop Kim*, Jae Woo Shin, Changkyun Im, Chin Su Koh, In Seok Seo, Sang Jeong Kim and Hyung-Cheul Shin (2013). "Detecting bladder fullness through the ensemble activity patterns of the spinal cord unit population in a somatovisceral convergence environment." Journal of Neural Engineering 10(5): 056009.

** These authors contributed equally to this work.*

Research Experiences

PhD Candidate (2018.11 – present): Duke University (Advisor: Fan Wang)

"Motor and premotor control of orofacial muscle behavior"

PhD student (2016.09 – 2018.10): Duke University (Advisor: Miguel Nicolelis)

"Motor cortical stimulation for evoking sensory perception."

Short term internship (2016.05 – 2016.07): Seoul National University (Advisor: Dr. Sung-yeon Kim)

"Optogenetic dissection of emotion behavior."

Research Scientist (2013.05 – 2016.05): Korea Institute of Science and Technology

"Optogenetic membrane modulation of muscle and retina for functional rehabilitation."

Master student (2011.03 – 2013.02): Hallym University (Advisor: Dr. Hyung-Cheul Shin)

"Closed-loop system for controlling lower urinary dysfunction."

Research Assistant (2009.08 – 2010.12): Seoul National University (Advisor: Dr. Sang Jeong Kim)
“Role of reactive oxygen species in short-term memory in cerebellum purkinje neurons.”

Undergraduate Assistant (2006.12 – 2007.06): Yonsei University (Advisor: Dr. Kwang-Min Choe)
“Wound healing assay in Drosophila

Selected Conference Abstracts

Oral Presentations

Jae Hong Park, Hyuk-June Moon, Dong-Hoon Kang, Sujin Hyung, Hyun Jun Shin, Jun-Kyo Francis Suh (2014). “Off-like Responses to the Blue-light in rd1/ChR2 Mouse Retina” 9th International Meeting on Substrate-Integrated Microelectrode Arrays, Reutlingen, Germany.

Poster Presentations

Jae Hong Park, Jun Takato, Fan Wang (2019) “Descending premotor pathways controlling distinct whisking movements” International Brain Research Organization (IBRO) 2019, Daegu, Korea.

Jae Hong Park, Ja Yun Jang, Jin Ki Hong, Hyuk-June Moon, Heon Hwi Lee, Hyun Joon Shin, Jun-Kyo Francis Suh (2015). “Control of bladder function by optogenetic modulation on membrane potential of smooth muscle.” Neuroscience 2015, Society for Neuroscience, Chicago, Illinois, USA.

Jae Hong Park, Changkyun Im, Chin Su Koh, Jae Woo Shin, In Seok Seo, Hyung-Cheul Shin (2012) Information embedded in functional connectivity patterns within neural ensembles enables to identify bladder fullness in the somatovisceral convergence. The Korean Society for Brain and Neural Science 15th conference, Seoul, Korea.

Jae Hong Park, Hyun Joo Lee, Changkyun Im, Chin Su Koh, Jae Woo Shin, In Seok Seo, Hyung-Cheul Shin (2011). Excitability Changes of Dorsal Horn Single Neurons Responsive to Bladder Expansion after Spinal Cord Transection. The 8th Scientific Meeting for the Asian-Australasian Society of Stereotactic and Functional Neurosurgery, Jeju, Korea.

Technical and Specialized Skills

- In-vivo/ In-vitro electrophysiology (multi-channel single unit recording, patch clamp)
- In-vivo/ In-vitro muscle physiology (isometric contraction, cystometry)
- Optogenetics
- Calcium imaging with fluorescent dyes and Genetically Encoded Calcium Indicators (ex. R-GECO, GCaMP)
- Immunohistology/cytochemistry
- Animal surgery (craniotomy, laminectomy, stereotactic procedure and etc)
- Molecular synaptic tracing with virus
- Mandatory molecular works (PCR, DNA prep.)
- Primary cell culture (hippocampus, smooth muscle)

Computer Languages

- Julia (Intermediate)
- MATLAB (intermediate)
- Python (beginner)
- C/C++ (beginner)