

黃聖閔 Sheng-Min Huang, Ph.D.

shengmin.smhuang@gmail.com

Education

- 2012/09 – 2016/06 Ph.D.
Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University
Dissertation: The brain networks of an ADHD animal model.
- 2007/09 – 2011/06 B.Sc.
Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University

Experience

- 2019/11 – present Postdoctoral research fellow
Institute of Biomedical Engineering & Nanomedicine, National Health Research Institute, Taiwan
- 2019/02 – 2019/11 Section Manager for Laser Technology and Process Development
Bolite Co., Ltd., Taiwan
- *Development of next generation laser technology and its applications*
 - *Management of RD projects*
- 2018/08 – 2019/02 Postdoctoral research fellow
Department of Biomedical Engineering & Environmental Sciences, National Tsing Hua University, Taiwan
- *Investigation of a high fat diet mice model by using MR spectroscopy, DSC perfusion and diffusion kurtosis imaging*
 - *Investigation of heavy water perfusion MRI on mouse tumor model*
- 2017/08 – 2018/08 Postdoctoral research fellow
Institute of Biomedical Engineering & Nanomedicine, National Health Research Institute, Taiwan
- *Enhancement of the imaging capability of first home-built preclinical MRI platform in Taiwan (A 3 Tesla machine). Establishment of animal experiment protocols and analysis procedure*
 - *Development of quantitative susceptibility mapping (QSM) protocol*
 - *Investigation of the brain connectivity of a depression mice model using resting state fMRI*

2011/09 – 2016/06 PhD student

Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University

- Construction of the 4.7T micro-MRI system in NTHU, including the integration of hardware, signal circuits, pulse sequence programming, analysis tool development and software integration.
- Development of MR compatible PET imaging probe (an INER project) by using the abovementioned 4.7T micro-MRI system. Evaluation of the interferences between the two systems as well as the electromagnetic shielding solutions.

Research Interests

- MR physics, Resting state fMRI, MR spectroscopy
- MR Neuroimaging, Brain function
- Medical Image Analysis
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Research Skills

- Programming: Matlab
- Analysis packages: AFNI, SPM, REST, jMRUI, DSI studio, Image J, GIFT ICA
- Working knowledge of Linux script programming
- Working knowledge of MR Solutions & Tecmag pulse sequence programming
- Working knowledge of Bruker, Siemens, MR Solutions, Tecmag systems
- Working knowledge of rodent experiment (handling, anesthesia, injection)

Awards

- Student Stipend: 20th & 21st & 23rd Annual Meeting of ISMRM
- 2012 President Scholarship for Ph.D. student, National Tsing Hua University

Invited Talk

- 2018/01/23: “Principles of Magnetic Resonance Imaging and its applications”, IBEN Training course, National Health Research Institutes, Miaoli, Taiwan

Publications

1. Cho KH, **Huang SM**, Choi CH, Chen MJ, Chiang HH, Buschbeck RP, Farrher E, Shah NJ, Garipov R, Chang CP, Chang H, Kuo LW*. Development, integration and use of an ultra-high-strength gradient system on a human-size 3 T magnet for small animal MRI. *PLoS One* 14(6):e0217916. doi: 10.1371/journal.pone.0217916 (2019). (Cho KH and Huang SM contributed equally to this work.)
2. Liu TY, Huang TK, Yang SY, Hong YT, **Huang SM**, Wang FN, Chiang SF, Tsai SY, Lu WC, Chiou TJ*. Identification of plant vacuolar transporters mediating phosphate storage. *Nature Communications* 7, 11095; doi: 10.1038/ncomms11095 (2016).
3. **Huang SM**, Wu YL, Peng SL, Peng HH, Huang TY, Ho KC, Wang FN*. Inter-Strain Differences in Default Mode Network: A Resting State fMRI Study on Spontaneously Hypertensive Rat and Wistar Kyoto Rat. *Scientific Reports* 6, 21697; doi: 10.1038/srep21697 (2016).

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4. **Huang SM**, Jan ML, Liang HC, Chang CH, Wu YC, Tsai SY, Wang FN*. Investigation of Readout RF Pulse Impact on the Chemical Exchange Saturation Transfer Spectrum. *Scientific Reports* 5, 15062; doi: 10.1038/srep15062 (2015).

Conference Presentations

1. **Huang SM**, Cho KH, Chen MJ, Chiang HH, Choi CH, Buschbeck R, Farrher E, Shah NJ, Garipov R, Chang CP, Chang H, and Kuo LW. A 3T MRI platform for imaging rodent models by integrating a dedicated high- strength gradient coil on a whole-body magnet. ISMRM 27th Annual Meeting & Exhibition, Montreal, Canada. (2019, May)
 2. **Huang SM**, Cho KH, Yang TY, Wu YS, Huang HK, Chiang CW, Huang PH, and Kuo LW. Diffusion tensor imaging and resting-state functional MRI reveal altered brain network hubs on a depression knockout mouse model. ISMRM 27th Annual Meeting & Exhibition, Montreal, Canada. (2019, May)
 3. Chao KI, Lyu XY, Yu PL, **Huang SM**, Peng SL, Ho KC, Tsai PH, and Wang FN. Transient hyperhydration modulates the brain fluid distribution of spontaneous hypertension rats: A T2 relaxometry study. Joint Annual Meeting of ISMRM-ESMRMB, Paris, France. (2018, June)
 4. Fu HY, Lee WC, **Huang SM**, Peng SL, Ho KC, and Wang FN. Intra- and inter-subject variability of diffusivity by DTI and DKI: A small animal study on 7T. Joint Annual Meeting of ISMRM-ESMRMB, Paris, France. (2018, June)
 5. Chao KI, Li CH, **Huang SM**, Yu PL, Ho KC, Tsai SY, Tsai PH, and Wang FN. Assessment of hydrodynamics and T2 alterations in spontaneously hypertensive rat under short- term hyperhydration. ISMRM 25th Annual Meeting & Exhibition, Honolulu, HI, USA. (2017, April)
 6. **Huang SM**, Chao KI, Ho KC, and Wang FN. Altered Default Mode Network in Developmental Stages of ADHD Rats. ISMRM 24th Annual Meeting & Exhibition, Singapore. (2016, May)
 7. Lee WC, **Huang SM**, Li CH, Ho KC, and Wang FN. The negative residuals of diffusion kurtosis model: a study on rat brain imaging. ISMRM 24th Annual Meeting & Exhibition, Singapore. (2016, May)
 8. Li CH, Lei ZM, **Huang SM**, Lu CT, Ho KC, and Wang FN. Simultaneously Trace Blood Perfusion and Glymphatic Passage by Analyzing Deuterium Oxide Perfusion Imaging with a Two-Compartment Parallel Model. ISMRM 24th Annual Meeting & Exhibition, Singapore. (2016, May)
 9. **Huang SM**, Lee WC, Ho KC, and Wang FN. Default Mode Network Abnormality in ADHD Rat Model. ISMRM 23rd Annual Meeting & Exhibition, Toronto, Canada. (2015, May)
 10. **Huang SM**, Lee WC, Ho KC, and Wang FN. Deep Anesthesia Provokes Dissimilar Resting State Connectivities in ADHD Rat Model and Normal Control. ISMRM 23rd Annual Meeting & Exhibition, Toronto, Canada. (2015, May)
 11. Lei ZM, Li CH, **Huang SM**, Lu CT, Ho KC, and Wang FN. Multi-compartment analysis on water dynamics in rat brain by heavy water perfusion. ISMRM 23rd Annual Meeting & Exhibition, Toronto, Canada. (2015, May)
 12. Su TY, **Huang SM**, Li CH, Ho KC, and Wang FN. Automatic Selection of Arterial Input Function Using K-mean Cluster Algorithm. ISMRM 23rd Annual Meeting & Exhibition, Toronto, Canada. (2015, May)
 13. Peng SL, Huang LY, **Huang SM**, Wu YC, Lu H, Wei FC, Weng CJ, Lin CH, and Wang FN. A reproducible experimental protocol for longitudinal rat fMRI studies: electrical mystacial pad stimulation under isoflurane anesthesia. ISMRM 23rd Annual Meeting & Exhibition, Toronto, Canada. (2015, May)
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14. Peng SL, Huang LY, **Huang SM**, Wu YC, Wei FC, Wen CJ, Cheng HY, Lin CH, and Wang FN. On the age effect of the BOLD signal in rat fMRI using electrical mystacial stimulation. Joint Annual Meeting of ISMRM-ESMRMB, Milano, Italy. (2014, May)
 15. Lu CT, Lai CC, **Huang SM**, and Wang FN. Deuterium prolonged relaxation reveals the macromolecular content in MRI. Joint Annual Meeting of ISMRM-ESMRMB, Milano, Italy. (2014, May)
 16. Lu CT, Lei ZM, **Huang SM**, Peng SL, Ho KC, Chiang CS, Wang CF, and Wang FN. Absolute quantification of CBF on rodent brain with D2O as tracer of 1H MRI. Joint Annual Meeting of ISMRM-ESMRMB, Milano, Italy. (2014, May)
 17. Wu YL, **Huang SM**, Peng SL, Wu YC, Yang TC, Hsu JC, Wu ML, and Wang FN. Resting State Network in ADHD Rat Model Using Group ICA. ISMRM 21st Annual Meeting & Exhibition, Salt Lake City, USA. (2013, April)
 18. **Huang SM**, Yeh CK, and Wang FN. The Non-Linearity of CEST and MT Signal Combination. ISMRM 21st Annual Meeting & Exhibition, Salt Lake City, USA. (2013, April)
 19. **Huang SM**, Lin YH, Wu YC, Liu YJ, and Wang FN. Pharmacological MRI by dynamic CEST MRI. ISMRM 20th Annual Meeting & Exhibition, Melbourne, Australia. (2012, May)
 20. **Huang SM**, Tsai SY, Huang TY, Wu YC, and Wang FN. Altered CEST Spectrum with Different Imaging Readout Schemes. ISMRM 20th Annual Meeting & Exhibition, Melbourne, Australia. (2012, May)
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