Motofumi Fushimi

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Education

The University of Tokyo

Ph.D. in Information Science and Technology — April 2018 – Present
Supervisor: Takaaki Nara
Research field: Medical Imaging

The University of Tokyo

M.S. in Information Science and Technology — April 2016 – March 2018
Supervisor: Takaaki Nara
Research field: Medical Imaging

The University of Tokyo

B.S. in Engineering — April 2012 – March 2016
Supervisor: Ayumu Matani
Research field: Brain Functional Imaging

Teaching Experience

Teaching Assistant

Sensor and Measurement Experiments, The University of Tokyo — April 2016 – March 2017

Publications

Journal Papers

[1] **Motofumi Fushimi**, Takaaki Nara, “A Boundary-Value-Free Reconstruction Method for Magnetic Resonance Electrical Properties Tomography Based on the Neumann-Type Integral Formula over a Circular Region,” *SICE Journal of Control, Measurement, and System Integration*, vol. 10, no. 6, pp. 571–578, 2017. DOI: https://doi.org/10.9746/jcmsi.10.571

[2] Takaaki Nara, Tetsuya Furuichi, **Motofumi Fushimi**, “An explicit reconstruction method for magnetic resonance electrical property tomography based on the generalized Cauchy formula,” *Inverse Problems*, vol. 33, no. 10, p. 105005, 2017. URL: http://stacks.iop.org/0266-5611/33/i=10/a=105005

International Conferences

[3] **Motofumi Fushimi**, Takaaki Nara, “A Boundary-Value-Free Method for Reconstructing Electrical Properties Using MRI Based on the Neumann-Type Integral Formula,” *SICE Annual Conference 2017*, pp. 898–902, Ishikawa, Japan, Sep. 23, 2017.

[4] **Motofumi Fushimi**, Takaaki Nara, “An Explicit Method for MR-Based Electrical Properties Reconstruction Free from Their Boundary Values,” *Joint Annual Meeting ISMRM–ESMRMB 2018*, Paris, France. [accepted]

[5] **Motofumi Fushimi**, Takaaki Nara, “Magnetic Resonance Based Electrical Properties Reconstruction with Total Variation Regularization and Zero-point Control of Electric Fields,” *The 40th PIERS*, Toyama, Japan. [accepted]

And 7 other articles including 4 first-author ones in International/Domestic Conferences without peer review.
Full list available at https://fushimi1018.github.io/#publications.

Awards

- **Research Award**: The 34th Sensing Forum, The Society of Instrument and Control Engineers (2017)
- **Research Award**: The 2nd Workshop on Medical Imaging 2016, The Institute of Electronics, Information and Communication Engineers (2016)
- **Excellent Poster Award**: The 33th Sensing Forum, The Society of Instrument and Control Engineers (2016)
- **Bronze Medalist**: Japan Chemistry Grand Prix (2011)
- **Area Excellence Award**: Japan Mathematical Olympiad (2011)

Founding

- **Research Fellowship for Young Scientists (DC1)**: The Japan Society for the Promotion of Science

Skills

Language

Japanese (Native)
English (Intermediate)

Software

Experience in
EM Simulation Tools: Ansys HFSS, COMSOL Multiphysics
Design Tools: Adobe Photoshop CC, Illustrator CC, InDesign CC
Web Tools: Adobe Muse CC, Dreamweaver CC

Programming

Experience in: MATLAB, C, C++, Python, Javascript

Research Field

Electrical Tissue-Properties Mapping Using MRI

Proposed an explicit and stable method of reconstructing electrical properties (conductivity and permittivity) of biological tissues in magnetic resonance electrical properties tomography (MREPT).