Li Zhu

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EDUCATION

- **Ph.D., Electrical and Computer Engineering** On-going
  Rutgers, The State University of New Jersey – New Brunswick
  Dissertation: Computational Methods for Predicting Behavior from Neuroimaging Data
  Advisor: Professor Laleh Najafizadeh

- **M.S., Electronics and Communication Engineering** May 2007
  Huazhong University of Science and Technology, Wuhan, China
  Thesis: The Design of Analog and Digital Sources Compatible HDTV
  Advisor: Professor Hongyuan Wang

- **B.S., Information Engineering** June 2004
  Wuhan University of Technology, Wuhan, China
  The University Research and Training (UIRT) Project: The Design of Information Theory Toolbox based on MATLAB
  Advisor: Professor Haochun Liu

EMPLOYMENT

- **Rutgers, The State University of New Jersey – New Brunswick**, NJ 09/2013-Present
  Research Assistant, Integrated Systems and NeuroImaging Laboratory
  Teaching Assistant, Department of Electrical and Computer Engineering
  Graduate Fellow, Department of Electrical and Computer Engineering

- **Siemens Healthineers**, Princeton, NJ 06/2016-09/2016
  Research Intern

- **Grandbeing Technology CO. LTD.**, Shenzhen, China 05/2008-01/2013
  Product Manager
  Associate Manager, Research and Development Center
  Electrical Engineer II, Research and Development Center

- **Skyworth Research Institute**, Shenzhen, China 08/2004-05/2008
  Electrical Engineer, High Definition Display Research Group

HONORS & AWARDS

- **TA-GA Professional Development Fund,** Rutgers University 2015-2017
- **Rutgers ECE Ph.D. Student Development Award,** Rutgers University 2016
- **Rutgers ECE Ph.D. Student Research Excellent Award,** Rutgers University 2014
- **Best Student Paper Award,** Runner Up, among more than 600 accepted papers 2014
  47th IEEE International Symposium on Circuits and Systems (ISCAS)
- **ECE Graduate Fellowship,** Rutgers University 2013-2014
- **Young Researcher Award,** 10 out of more than 300 recent-graduates 2005
  Skyworth Research Institute
- **The First Prize Scholarship,** top 1% among >10,000 undergraduate students 2003-2004
  Wuhan University of Technology
- **Excellent Student Cadre,** Wuhan University of Technology 2003
- **Prize for Social Services,** Wuhan University of Technology 2001-2002

JOURNAL PAPERS AND PAPERS UNDER PREPARATION

Published

J1. **L. Zhu** and L. Najafizadeh, "Dynamic Time Warping-based Averaging Framework for Functional Near-Infrared Spectroscopy Brain Imaging Studies," *Journal of Biomedical Optics*, 22(6): 066011, June 2017.

J2. Y. Huang, **L. Zhu**, F. Kong, C. Chun and L. Najafizadeh, "BiCMOS-Based Compensation: Towards Fully Temperature Corrected Bandgap Reference Circuits," *IEEE Trans. on Circuits and Systems-I*, DOI: 10.1109/TCSI.2017.2736062, Accepted Aug. 2017.

Under Review

J3. **L. Zhu**, S. Haghani, L. Najafizadeh, "On the Fractality of fNIRS Time Series Using Visibility Graph," Under Review (20 pages).

J4. **L. Zhu**, Christian R. Lee, David, J. Margolis, L. Najafizadeh, "Decoding Cortical Brain States from Widefield Transcranial Imaging Using Visibility Graph," Under Review (19 pages).

In Preparation

J5. **L. Zhu**, A. Haddad, Y. Wang, T. Zeng, L. Najafizadeh, "The Optimal Electrode/Optode Configuration in EEG-fNIRS Multi-Modal Functional Brain Imaging Experiments," In Preparation (31 pages).

CONFERENCE PAPERS

C1. **L. Zhu**, S. Haghani, L. Najafizadeh, "Spatiotemporal Characterization of Brain Function Via Multiplex Visibility Graph," OSA Biomedical Optics, Hollywood, FL, Apr. 2018, accepted.

C2. **L. Zhu**, C. Lee, D. Margolis, L. Najafizadeh, "Probing the Dynamics of Resting-State Cortical Activities via Wide Field Ca+2 Imaging in GCaMP6 Transgenic Mice," *Wavelets and Sparsity XVII*, Vol. 10394, DOI: 10.1117/12.2274119, SPIE-Optics and Photonics, 2017. (**Invited Paper**)

C3. **L. Zhu**, C. Lee, D. Margolis, L. Najafizadeh, "Predicting Behavior from Cortical Activity Recorded through Widefield Transcranial Imaging," *Proc. of International Conference on Lasers and Electro-Optics (CLEO'17)*, paper ATu3B.1, San Jose, CA, May 2017.

C4. **L. Zhu**, A. Haddad, T. Zeng, Y. Wang and L. Najafizadeh, "Assessing Optimal Electrode/Optode Arrangement in EEG-fNIRS Multi-Modal Imaging," *OSA Technical Digest*, Fort Lauderdale, FL, paper JW3A-39, Apr. 2016.

C5. **L. Zhu** and L. Najafizadeh, "Temporal Dynamics of fNIRS-Recorded Signals Revealed Via Visibility Graph," *OSA Technical Digest*, Fort Lauderdale, FL, paper JW3A-53, Apr. 2016.

C6. T. Zeng, **L. Zhu**, Y. Wang and L. Najafizadeh, "On the Relationship Between Trial-to-Trial Response Time Variability and fNIRS-Based Functional Connectivity," *OSA Technical Digest*, Fort Lauderdale, FL, paper JW3AA-41, Apr. 2016.

C7. **L. Zhu** and L. Najafizadeh. "Does brain functional connectivity alter across similar trials during imaging experiments?" *Proc. of IEEE Signal Processing in Medicine and Biology Symposium (SPMB'14)*, Philadelphia, PA, Dec. 2014, 4 pages.

C8. Y. Huang, **L. Zhu**, C. Cheung, and L. Najafizadeh, "A Low Temperature Coefficient Voltage Reference Utilizing BiCMOS Compensation Technique," *Proc. IEEE International Symposium on Circuits and Systems (ISCAS'14)*, Melbourne, Australia, June 2014, pp. 922-925. **Best Student Paper Award (Runner Up)**.

C9. Y. Huang, **L. Zhu**, C. Cheung, and L. Najafizadeh, "A Curvature-Compensation Technique Based on the Difference of Si and SiGe Junction Voltages for Bandgap Voltage Circuits," *Proc. IEEE International Symposium on Circuits and Systems (ISCAS'14)*, Melbourne, Australia, June 2014, pp. 914-917.

C10. **L. Zhu**, M. Peifer, L. Najafizadeh, "Towards Improving the 'Detection' Power of Brain Imaging Experiments Using fNIRS," *OSA Technical Digest*, Miami FL, paper BM3A-29, Apr. 2014.

C11. M. Peifer, **L. Zhu**, L. Najafizadeh, "Real-time Classification of Finger Tapping vs Imaginary Finger Tapping Using NIRS Data," *OSA Technical Digest*, Miami, FL, paper BM3A-34, Apr. 2014.

CONFERENCE/MEETING ABSTRACTS

A1. **L. Zhu**, L. Najafizadeh, "Functional Brain Networks Analysis Based on Multiplex Visibility Graph," *Proc. Of Annual Meeting of the Organization for Human Brain Mapping*, Vancouver, Canada, June 2017.

A2. **L. Zhu**, A. Haddad, T. Zeng, Y. Wang and L. Najafizadeh, "How to Co-Position EEG Electrodes and fNIRS Optodes in Multi-Modal Functional Brain Imaging Experiments?" in *Proc. Of fNIRS Conference*, Paris, France, Oct. 2016, p. 117.

A3. **L. Zhu** and L. Najafizadeh, "Trial-to-Trial Variability in Multi-Modal Imaging, an EEG-fNIRS Study," *Proc. Of Annual Meeting of the Organization for Human Brain Mapping*, Honolulu, HI, June 2015.

A4. **L. Zhu**, A. Haddad, T. Zeng, Y. Wang and L. Najafizadeh, "On The Spatial Alignment of EEG-fNIRS Channels In Multi-Modal Functional Brain Imaging Experiments With Application In Neurovascular Coupling Studies," *1st Annual Rutgers Brain Health Institute Symposium*, Jersey City, NJ, Dec. 2015, p. 21.

A5. **L. Zhu**, M. Peifer, L. Najafizadeh, "Assessment of Brain Activation During Imagery and Actual Finger Tapping Tasks Using Near Infrared Spectroscopy," *IEEE Signal Processing in Medicine and Biology Symposium (SPMB'13)*, Brooklyn, NY, Dec. 2013.

TALKS

- Signal and Information Processing Seminar Series at Rutgers, "Does Brain Functional Connectivity Alter Across Similar Trials During Imaging Experiments?"

TEACHING EXPERIENCE

- **Data Structure and Algorithms** (16:322:573) Spring 2018
  Teaching Assistant, Rutgers University – New Brunswick, NJ

- **Digital Logic Design** (14:332:233) Fall 2014
  Teaching Assistant, Rutgers University – New Brunswick, NJ
  Average Student Rating on Teaching Effectiveness: **4.25/5.00**

STUDENT MENTORING

- Sean Byju, Alejanro Sanchez, Jesse Gatling, Jonathan Olcheski, Undergraduate Capstone Projects "EMG Controlled Prosthetic Hand With Bio Feedback", Spring 2018

PROFESSIONAL SERVICES AND ACTIVITIES

Reviewer:

- Biomedical Signal Processing and Control
- International Conference on Biological Information and Biomedical Engineering (2018)
- IEEE Biomedical Circuits and Systems Conferences (2017)

Society Services:

- Vice Chair of AP/ED/MTT Jointed Chapter at IEEE Princeton/Central Jersey Section
- Coordinator in Student Chapter at IEEE Princeton/Central Jersey Section

International Conference Volunteer:

- IEEE Bipolar/BiCMOS Circuits and Technology Meeting (2016)

Society Membership:

- **IEEE**, Student Member 2013-Present
- **Optics Society of America**, Student member 2014-Present
- **Human Brain Mapping**, Student member 2017-Present
- **International Society for Optics and Photonics**, Student member 2017-Present

REFERENCES

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Dr. David Margolis
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