Li Zhu

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EMPLOYMENT

- **Samsung Research America, Inc.**, Mountain View, CA 06/2019 - Present
  Staff Research Engineer

- **AlayaTec, Inc.**, Palo Alto, CA 07/2018-06/2019
  Data Scientist

- **Rutgers, The State University of New Jersey – New Brunswick**, NJ 09/2013-06/2018
  Research Assistant, Integrated Systems and NeuroImaging Laboratory
  Teaching Assistant, Dept. of Electrical and Computer Engineering
  ECE Graduate Fellow, Dept. 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

EDUCATION

- **Ph.D., Electrical and Computer Engineering** October 2018
  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

HONORS & AWARDS

- **ECE Graduate Program Academic Achievement Award,** Rutgers University — 2019
- **Graduate Travel Award,** Rutgers University — 2018
- **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**, C. R. Lee, D. J. Margolis, L. Najafizadeh, "Decoding Cortical Brain States from Widefield Transcranial Imaging Using Visibility Graph," *Biomedical Optics Express,* 9.7 (2018): 3017-3036.

J2. **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.

J3. 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, 65.4 (2018): 1210-1223.

Under Review

J4. **L. Zhu**, S. Haghani, L. Najafizadeh, "On the Fractality of fNIRS Time Series Using Visibility Graph," Under Review (20 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. A. Haddad, F. Shamsi, **L. Zhu**, L. Najafizadeh, "Identifying Dynamics of Brain Function Via Boolean Matrix Factorization." *52nd Asilomar Conference on Signals, Systems, and Computers*, IEEE, 2018.

C2. **L. Zhu**, S. Haghani, L. Najafizadeh, "Spatiotemporal Characterization of Brain Function Via Multiplex Visibility Graph," *OSA Technical Digest*, Hollywood, FL, paper JTh3A-54, Apr. 2018.

C3. **L. Zhu**, C. R. Lee, D. J. 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**)

C4. **L. Zhu**, C. R. Lee, D. J. 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.

C5. **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.

C6. **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.

C7. 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.

C8. **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.

C9. 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)**

C10. 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.

C11. **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.

C12. 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.

PATENT

- **L. Zhu**, D. Chen, "Wearable device for non-invasive administration of continuous blood pressure monitoring without cuffing," U.S. Application No.: 16/164,777 (pending).

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
  Average Student Rating on Teaching Effectiveness: **4.19/5.00**

- **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 "Dextera Dei: EMG Controlled Prosthetic Hand With Bio-Feedback", Spring 2018 (**The First Place Winner in ECE Department**)
- Gavin McKim (Undergraduate Researcher) – Summer 2018

PROFESSIONAL SERVICES AND ACTIVITIES

Reviewer:

[1] IEEE Transactions on Neural Systems & Rehabilitation Engineering
[2] Biomedical Signal Processing and Control
[3] IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) (2019)
[4] Annual Meeting of the Organization of Human Brain Mapping (OHBM) (2019)
[5] International Conference on Biological Information and Biomedical Engineering (BIBE) (2018)
[6] IEEE International Conference on Biomedical Circuits and Systems (BioCAS) (2017, 2018, 2019)

Society Services:

- Vice Chair of AP/ED/MTT Chapter at IEEE Princeton/Central Jersey Section (2018)

- Coordinator in Student Chapter at IEEE Princeton/Central Jersey Section (2017, 2018)

International Conference Volunteer:

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

Society Membership:

- **IEEE**, Member
- **Brain Computer Interface Society**, Student Member

REFERENCES

Dr. Laleh Najafizadeh
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