XINHUI LI

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EDUCATION

University of Pennsylvania, Philadelphia, PA, US   M.S., Computer and Information Technology, 2019-

Columbia University, New York, NY, US   M.S., Biomedical Engineering, 2017-2018

Xiamen University, Xiamen, FJ, CN   B.S., Pharmaceutical Science, 2013-2017

Utrecht University, Utrecht, UT, NL   Exchange Student, Economics and Humanities, 2016

RESEARCH INTERESTS

Brain Computer Interaction, Machine Learning, Neuroimaging Software Development

PUBLICATIONS

Li, X., Cho, J. W., Milham, M. P. & Xu, T. (2020). **Improving brain-behavior prediction using individual-specific components from connectivity-based shared response model.** Resting-State Brain Connectivity Conference 2020. (abstract in review)

Li, X., Giavasis, S., Jin, H., Ai, L., Sólon, A., Adebimpe, A., Franco, A. R., Poldrack, R. A., Vogelstein, J. T., Xu, T., Satterthwaite, T., Craddock, R. C., & Milham, M. P. (2020). **Evaluating and Improving Cross-Pipeline Reproducibility in Functional Connectomics: A Case Study**. Organization for Human Brain Mapping (OHBM) 2020 Annual Meeting. [poster]

Jin, H., Giavasis, S., **Li, X.,** Sólon, A., Ai, L., Franco, A. R., Ramirez, J. S. B., Wang, X., Gozzi, A., Pagani, M., Fox, A., Messinger, A., Fair, D. A., Keilholz, S., Russ, B., Xu, T., Craddock, R. C., & Milham, M. P. (2020). **A Unified, End-to-End Pipeline Solution for Human and Nonhuman Functional Connectomics**. Organization for Human Brain Mapping (OHBM) 2020 Annual Meeting. [poster]

Li, X., Tsamis, E., Thakoor, K. A., Zemborain, Z., Moraes, C. G. D., & Hood, D. C. (2020). **Evaluating the transferability of deep learning models that distinguish glaucomatous from non-glaucomatous OCT circumpapillary disc scans**. Investigative Ophthalmology & Visual Science, 61(7), 4548–4548. [abstract]

Thakoor, K. A., **Li, X.**, Tsamis, E., Sajda, P., & Hood, D. C. (2019). **Enhancing the Accuracy of Glaucoma Detection from OCT Probability Maps using Convolutional Neural Networks**. 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2036–2040. https://doi.org/10.1109/EMBC.2019.8856899

Feng, Y., Chung, E., **Li, X.**, Cycowicz, Y. M., & He, X. (2019). **Deep Learning for Motor Imagery Classification based on EEG Data**. New York Scientific Data Summit 2019. [poster]

Thakoor, K. A., Zheng, Q., Nan, L., **Li, X.,** Tsamis, E., Rajshekhar, R., Dwivedi, I., Drori, I., Sajda, P., & Hood, D. C. (2019). **Assessing the Ability of Convolutional Neural Networks to Detect Glaucoma from OCT Probability Maps**. Investigative Ophthalmology & Visual Science, 60(9), 1464–1464. [abstract] [poster]

Joiner, D., **Li, X.,** Eguia, M., Tsamis, E., Sun, A., Moraes, C. G. D., Ritch, R., & Hood, D. C. (2019). **Detecting progression of preserved areas of retinal nerve fiber layer in advanced glaucoma using optical coherence tomography**. Investigative Ophthalmology & Visual Science, 60(9), 5547–5547. [abstract] [poster]

Eguia, M., **Li, X.,** Joiner, D., Tsamis, E., Moraes, C. G. D., Ritch, R., & Hood, D. C. (2019). **Detecting progression on local areas of retinal nerve fiber layer in glaucoma suspects and early glaucoma using optical coherence tomography**. Investigative Ophthalmology & Visual Science, 60(9), 5594–5594. [abstract] [poster]

Sun, A., Tsamis, E., **Li, X.,** Tsang, K., Al-Aswad, L., Blumberg, D., Cioffi, G., Liebmann, J. M., Moraes, C. G. de., & Hood, D. C. (2019). **Detecting progression of early glaucoma using alternative methods with optical coherence tomography**. Investigative Ophthalmology & Visual Science, 60(9), 5545–5545. [abstract] [poster]

PROFESSIONAL EXPERIENCE

Computational Neuroimaging Lab, Child Mind Institute, US   **Assistant Research Engineer**, 2019-
- Developing Configurable Pipeline for the Analysis of Connectomes (C-PAC) for fMRI analysis; implemented new features for fMRIPrep-options pipeline, non-human primate pipeline, rodent pipeline and longitudinal pipeline.
- Applied connectivity-based shared response model to improve brain-behavior variance explained.
- Applied U-Net model for macaque MRI brain tissue segmentation and brain extraction.

University of Pennsylvania, US   **CIT595 Software System Programing Teaching Assistant**, 2020
- Participated in virtual synchronous office hours and recitations weekly.
- Monitored and responded to student questions in the communication forum.

Hood Visual Science Lab, Columbia University, US   **Machine Learning Engineer**, 2018-2019
- Designed and applied deep learning models such as ResNet50 to identify glaucoma with wide-field optical coherence tomography (OCT) scans, visual fields (VF) and Heidelberg circle scans; applied visualization methods such as grad-cam, attention map and occlusion sensitivity to explain features in convolutional neural network; achieved classification accuracy above 95%; evaluated and enhanced the generalizability of models across different datasets; conducted statistical and post-hoc analysis.
- Applied deep learning models such as LSTM to identify glaucoma progression with time-series VF.
- Built MATLAB-based APIs for qualitative and quantitative measures of glaucoma progression in both early and advanced glaucoma datasets using wide-field OCT and Heidelberg circle scans.
- Assisted with research database maintenance and basic statistical analysis using MySQL and R.

Xiaofu He Lab, New York State Psychiatric Institute, US   **Research Assistant**, 2018-2019
- Developed a cascade Convolutional Neural Network – Recurrent Neural Network (CNN-RNN) to classify imaginary motor movements.
- Designed a real-time electroencephalogram (EEG) data classification feedback car-racing interface.
- Designed a motor movement and imagery task interface for EEG data recordings using PsychoPy.

Paul Sajda Lab (LIINC), Columbia University, US   **Research Assistant**, 2018-2019
- Collected eye tracking data in three conditions when subjects watch lecture videos with soundtrack, slides and the speaker, to assess speaker and teacher effectiveness in online courses.
- Analyzed eye tracking data of video study using the structural equation model to illuminate the relationship between the amount of information loading and the mechanism of cognitive regulation.

Qi Wang Lab (LNEC), Columbia University, US   **Research Assistant**, 2017-2018
- Recorded EEG data in three conditions when subjects use only vision, only touch, and both vision and touch to make decisions, to explore visual and haptic role in rapid decision-making.
- Preprocessed EEG data using MATLAB toolbox EEGLAB to filter raw data, reject artifacts and select task-related components.

Xiaokun Zhang Lab, Xiamen University, CN   **Researcher**, 2016-2017
- Analyzed effective compounds from a food database for modulator of an orphan nuclear receptor Nur77 that could induce apoptosis to identify ligands of Nur77.

Liangcheng Li Lab, Xiamen University, CN   **Researcher**, 2014-2016
- Constructed plasmids with four different functional areas of the gene KIAA0358.
- Detected insulin secretion in IG20-lacked beta-cells using PCR and gene targeting methods to find the most effective functional area of KIAA0358.

SCHOLARSHIPS AND MEMBERSHIPS

First Prize, CBS & EGSC HACKATHON 2019, Columbia University, US	2019
First Level Excellent Student Scholarship, Xiamen University, CN	2014, 2015, 2016
Outstanding Student Cadre, Xiamen University, CN	2014, 2015, 2016
Outstanding Graduate, Xiamen University, CN	2017
Vice President, Sunshine Psychology Volunteer Team, Xiamen University, CN	2014 – 2015

SKILLS

Python, MATLAB, R, C, Java, JavaScript, Shell; SQL; Git; Docker, Singularity; Amazon Web Services