Bin Li

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Education

2022   Columbia University
MS in Computer Science (Machine Learning track)

2021   University of Chicago
Graduate Study in Computational Social Science

2020   UC Berkeley
Post-Baccalaureate in Psychology and Cognitive Science, *with Distinction*

2018   Emerson College
BFA in Human Computer Interaction, *Summa Cum Laude*

Selected coursework: Computer Vision, Neural Networks Deep Learning, Machine Learning, Computational Learning Theory, Algorithms, Databases, Parallel Programming, Principles and Techniques of Data Science, Computational Linguistics, Advanced Programming, Data Structures, Abstract Linear Algebra, Advanced Statistics for Psychological Sciences

Research interests: Machine Learning, Natural Language Processing, Cognitive Science, Statistical Learning, Decision-making, Human-Computer Interaction

Technical skills: Python, C, C++, MATLAB, R, Go, Java, SQL, HTML, CSS, Scikit-learn, Tensorflow, Keras, PyTorch, Linux, GitHub, Flask, VS Code, Google Cloud Platform

Research Experience

2020-21, Research Assistant, APEX Lab, University of Chicago

- Advisedby Dr. Howard Nusbaum. Exploring and employing the latest deep learning-based automatic speech recognition models to study urban sonic environment in relation to various social activities such as crime.

2020-21, Lab Assistant, Bensmaia Lab, University of Chicago

- Advised by Dr. Sliman Bensmaia. Programmed various sensor and motor apparatuses using Matlab and building 3D computer simulation to study the brain-machine interface of the human somatosensory system.

2018-20, Research Assistant, Computation and Language Lab, UC Berkeley

- Advised by Dr. Steven T. Piantadosi to study the development of human algorithmic/ procedural cognitive thinking and a novel bayesian computational model based on the framework of the Language-of-Thought hypothesis. Conducted Markov Chain Monte Carlo simulation in C++ and Python for modeling.

2016-17, Lab Assistant, Engagement Lab, Emerson College
  - Advised by Dr. Eric Gordon to design and employ interactive games as social interventions that facilitate positive public engagement in civic matters.

Conferences and Publications

Li, B., and Liu, T. (September 2021). "An Analysis of Multi-Modal Deep Learning for Art Price Appraisal." In *2021 IEEE Intl Conf on Parallel & Distributed Processing with Applications, Big Data & Cloud Computing, Sustainable Computing & Communications, Social Computing & Networking (ISPA/BDCloud/SocialCom/SustainCom)* (pp. 1509-1513). IEEE. doi: 10.1109/ISPA-BDCloud-SocialCom-SustainCom52081.2021.00203.

Li, B. (May 2020). "Development of the Striatum-Mediated Reward Prediction Error Processing from Age Three to Twelve Years." Poster session at the *Cognitive Neuroscience Society 2020 Virtual Meeting*.

Li, B. (September 2019). "Evaluation of the Motion Lagging Effect Induced by the Perceived Change of Velocity in Peripheral Vision." Poster session presented at the *19th Annual Optical Society Fall Vision Meeting*, Washington, DC.

Research Projects

2021, Hybrid Neural Network for Video Activity Understanding
  - Spearheaded a student group of three to redesign BasNet, a neural network model for weakly-supervised video activity labeling, by combining it with Temporal Gaussian Mixture layer to achieve state-of-the-art classification performance. Class project for COMS 4995 Neural Networks Deep Learning at Columbia University.

2021, Multi-Modal Deep Learning for Art Price Appraisal
  - Extracted textual and image data from the website of a fine-art auction house using web-scraping technologies, fitted the data into deep learning models of different modalities, specifically, convolutional neural network and BERT, and compared their learned representations for the task of art price appraisal. Work presented at 2021 IEEE SocialCom.

2020, Development of the Neural Correlate of Reward Prediction Error
  - Analyzed an open-source fMRI dataset using scikit-learn to examine the developmental trend of the neural encoding of reward prediction error, a key component of human learning supported by the striatal dopaminergic system. Work presented at the Cognitive Neuroscience Society 2020 Virtual Meeting.

2019, Motion Perception in Peripheral Visual Field
- Designed experiment to study the phenomena of motion lagging and perceived velocity change in peripheral vision. Result presented at the 19th Annual Optical Society Fall Vision Meeting.

2018, Convolutional Neural Network Model of Aesthetics Judgment
- Analyzed an open-source dataset on the aesthetic perception of classic paintings through building a convolutional neural network model using TensorFlow, and designed/deployed a web-based interface for interacting with the model using Python and Flask web framework on Google Cloud Platform.

Honors and Awards

2020-21, Phoenix Research Award, University of Chicago

2019, Post-Baccalaureate with Distinction, UC Berkeley

2018, Summa Cum Laude, Emerson College

2017, Emerson Gold Key Honor Society, Emerson College

2014-18, Trustee Half-Tuition Scholarship, Emerson College

2014-18, Honors Student, Emerson College

Work Experience

Academic and Educational:

2022, Teaching Assistant, Columbia University, New York, NY
- For QMSS 5052: Practicum in Large-Scale Data Analysis and Processing
- For COMS 4721: Machine Learning for Data Science

2020, Student Reviewer, Association for Psychological Science, Washington, DC

2017-18, Academic Peer Tutor, Emerson College, Boston MA

2016, Conference Volunteer, Boston Civic Media Conference, Cambridge MA

Professional:

2018, AR/VR Content Intern, Brookline Interactive Group, Boston MA

2017-18, Lab Assistant, Emerson College IT Department, Boston MA

Professional Affiliation
- Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, Cognitive Neuroscience Society (CNS)
- Member, Cognitive Science Society (CSS)
- Affiliate, American Psychological Association (APA)
- Affiliate, Association for Psychological Science (APS)