Beibin Li

Curriculum Vitae

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Education

May 2015 **Bachelor of Science**, *Mathematics*, University of Michigan, Ann Arbor.

May 2015 **Bachelor of Science**, *Computer Science*, University of Michigan, Ann Arbor.

Experience

2015–Present **Research Fellow in Translational Technologies in Development**,
Technology Innovation Lab, Child Study Center, Yale University.
Advisor: Frederick Shic, Ph.D.
Design eye-tracking experiments using Presentation, Python, PsychoPy, SR EyeLink, Eye Tribe, and Arduino for children with Autism Spectrum Disorder (ASD). Use Matlab, Python, and R to analyze data. Implement virtual reality project using Oculus Rift. Communicate with collaborating implementation sites to troubleshoot eye-tracking experiments in a large NIH-funded multisite project.

2014–2015 **Instructional Aide**, *School of Engineering*,
University of Michigan, Ann Arbor.
Professors: Seth Pettie, Ph.D., and Grant Schoenebeck, Ph.D.
EECS 376 (Foundations of Computer Science). Taught discussion sections on Finite Automata, Context Free Language, Turing Machine, complexity analysis, and NP problems. Answered students' questions in online forum and held office hours. Designed section notes, homework and exams, and graded exams for more than 300 students. Reviews from students: *"Discussions are helpful. If the lectures were taught like the discussions, I would be getting a lot more out of this course"*, *"...you answer my questions *so* well. You always seem to understand what the student is asking..."*

2014–2015 **Research Fellow**, *Transportation Research Institution*,
University of Michigan, Ann Arbor.
Professors: Paul Green, Ph.D.
Used JMP and R to analyze data from transportation research experiments. Used ISAT to design virtual roads for a driving recognition system experiment. Taught ergometrics students to use software: Jack, Morae, Cogtool, and IMPRINT to practice human factor analysis.

Awards

2014 The Mathematical Contest in Modeling (MCM), Honorable Mention

2013–2014 University Honor, University of Michigan

2010 Presidential Scholarship, Rhodes College

Publications

2016 **Li, B.**, Wang, Q., Barney, E., Hart, L., Wall, C., Chawarska, K., ... & Shic, F. (2016, March). Modified DBSCAN algorithm on oculomotor fixation identification. In *Proceedings of the Ninth Biennial ACM Symposium on Eye Tracking Research & Applications* (pp. 337-338). ACM.

2016 **Li, B.**, Wang, Q., Boccanfuso, L., & Shic, F. (2016, March). Optimality of the distance dispersion fixation identification algorithm. In *Proceedings of the Ninth Biennial ACM Symposium on Eye Tracking Research & Applications* (pp. 339-340). ACM.

2016 Wang, Q., Boccanfuso, L., **Li, B.**, Ahn, A. Y. J., Foster, C. E., Orr, M. P., ... & Shic, F. (2016, March). Thermographic eye tracking. In *Proceedings of the Ninth Biennial ACM Symposium on Eye Tracking Research & Applications* (pp. 307-310). ACM.

2016 Boccanfuso, L., Wang, Q., Leite, I., **Li, B.**, Torres, C., Chen, L., Salomons, N., Foster, C., Barney, E., Ahn, Y., Scassellati, B., & Shic, F.. A Thermal Emotion CLassifier for Improved Human-Robot Interaction. *IEEE International Symposium on Robot and Human Interactive Communication 2016 (RO-MAN 2016) (under review)*.

2016 **Li, B.**, Boccanfuso, L., Wang, Q., & Shic, F.. Human Robot Interaction Detection for Sphero Robots. *(in preparation)*.

Presentation

2015 **Li, B.**, Boccanfuso, L., Valencia, S., & Shic, F. (2015, Nov. 7). Background Music and Sound Effects in Human-Robot Interaction. *Northeast Robotics Colloquium 2015*. Worcester Polytechnic Institute, Worcester, MA.

Current Projects

2015–Present **NIH U19 MH108206-01**,
The Autism Biomarkers Consortium for Clinical Trials,
PI: McPartland, James.

Helped create eye-tracking experiments using Neurobs Presentation software, and improved eye-tracking calibration protocol. Designed a 73Hz system to measure and record light conditions using Arduino and TSL2561 sensors. Built and set up eye-tracking system with SR Eyelink 1000 Plus eye trackers, webcams, DVD recorders, and light meters. Analyze pupillary light reflex and other eye-tracking data from children. Process and analyze 500 Hz eye tracking data collected across other sites. Troubleshoot eye tracking experiment and analysis across five sites, including Yale University, Boston Children's Hospital, University of Washington/Seattle Children's Research Institute, University of California (Los Angeles), and Duke University.

2015–Present **Simons Foundation 15-004376**,
Tracking Intervention Effects with Eye Tracking,
PI: Shic, Frederick, Ph.D..
Helped design experiments and counterbalance eye-tracking stimuli. Built and tested eye-tracking experiments using SR eye tracker. Analyzed iPad eye-tracking data using Cambridge face tracker (CLM-framework) and OpenCV in Matlab.

2015–Present **Israel Eye-Tracking Project**.
Used PsychoPy to design eye-tracking experiments and EyeTribe to collect data in Israel. Filtered and analyzed experimental data with Python and R. This project deploys portable eye-tracking experiments for children with ASD outside the United States.

Past Projects

May 2015 **StagePlay**, *Swift*.
Designed an iOS application for actors to practice their lines and to collaborate with their partners. Main features: line-by-line display, performance recording, and script editing. Compatible with iPhone and iPad.

Feb. 2015 **Course Scheduler**, *C++*.
Completed back-end website design for students to schedule the following year's courses. Designed and implemented algorithms in PHP, and imported 10,000 courses into SQL database. Coordinated with front-end developers.

Oct. - Dec. 2014 **Medieval World Game**, *C++*.
Developed a command line game for creating different characters and buildings. Applied C++ idioms and design patterns (MVC, Composite, factory, etc.) so new features could be added easily.

Sept. - Oct. 2014 **Meeting Manager**, *C++*.
Designed a meeting management command line software by using classes for abstraction and encapsulation. Implemented linked-lists, arrays, and strings that behaved like build-in types; used strong exception guarantees. Managed dynamically allocated memory with copy and move construction and assignment.

Mar. 2014 **Stock Exchange**, *C++*.
Designed an electronic exchange simulator by using priority queue to store buyers' and seller's bids. Stored stock information using Hash-Table.

Computer skills

Advanced C++, python, Matlab, R, Vim

Intermediate html, LaTeX, Git, Swift, SQL, Visual Studio, XCode, Eclipse, Mathematica

Basic SPSS, JMP, Unity