Beibin Li

Curriculum Vitae

SCRI-W8, 1900 9th Ave.
Seattle, WA, 98101
✆ *(901) 734-3790*
✉ *beibin.li@seattlechildrens.org*
🖥 *beibinli.com*

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

2016–Present	**Research Associate in Computer Imaging**, SEATTLE CHILDREN'S INNOVATION AND TECHNOLOGY LAB, Seattle Children's Research Institute. Advisor: Frederick Shic, Ph.D.
2015–2016	**Research Fellow in Translational Technologies in Development**, TECHNOLOGY INNOVATION LABORATORY, Child Study Center, Yale University. Advisor: Frederick Shic, Ph.D. Design eye-tracking experiments and systems using Presentation, Python, PsychoPy, SR EyeLink, Eye Tribe, and Arduino for children with Autism Spectrum Disorder (ASD). Design fixation identification algorithms for eye tracking technology, and use C++, Matlab, Python, and R to conduct post-hoc experiment data analysis. Communicate with collaborating implementation sites to troubleshoot eye-tracking experiments in a large NIH-funded multi-site project. Deploy and tune machine learning algorithms on robots to improve human robot interaction for children. Implement virtual reality project using Python and Unity for Oculus Rift.
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 during office hours. Designed section notes, homework, 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. Professor: Paul Green, Ph.D. Used ISAT to design virtual roads for a driving recognition system experiment. Used JMP and R to analyze data from transportation research experiments. Taught ergometrics students to use software: Morae, Cogtool, and IMPRINT to design user-friendly interface.

Awards

2014	The Mathematical Contest in Modeling (MCM), Honorable Mention
2013–2015	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).*

2016 **Li, B.**, Boccanfuso, L., Wang, Q., & Shic, F.. Human Robot Activity Classification based on Accelerometer and Gyroscope. *IEEE International Symposium on Robot and Human Interactive Communication 2016 (RO-MAN 2016).*

Presentations

2016 **Li, B.** (2016, July. 8). Human Robot Activity Classification for Children with Autism. Child Study Center, Yale University, New Haven, CT.

2016 **Li, B.** (2016, Feb. 26). Low Cost and Portable Eye Tracker. Center For Children With Special Needs, Glastonbury, CT.

2015 **Li, B.** (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 condition using Arduino and TSL2561 sensor. Built and set up eye-tracking system with SR EyeLink 1000 Plus eye trackers, web-cams, DVD recorders, and light meters. Analyze pupillary light reflex and other eye-tracking experiment 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 **Hebrew University Eye-Tracking Project**.

Used PsychoPy to design eye-tracking experiments and Eye Tribe 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 (Model View Controller, 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 sellers' bids. Stored stock information using customized 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

Membership

Institute of Electrical and Electronics Engineers

Association for Computing Machinery

International Society for Autism Research

Research Interests

- Computer Vision
- Optimization
- Machine Learning
- Artificial Intelligence

References

Frederick Shic,
Associate Professor,
University of Washington, and Seattle Children's Research Institute.
(206)884-8162
fshic@uw.edu

Paul A. Green,
Professor,
University of Michigan, Ann Arbor.
(734)-763-3795
pagreen@umich.edu

Betsy Sanders,
Associate Professor,
Rhodes College.
(901)-843-3791
sandersb@rhodes.edu