

Qingyi Lu

School: Box 1910, Brown University, Providence, RI 02912

Email: qingyi_lu@brown.edu | Cell: 315-461-7977 | Website: qingyilu.com | LinkedIn: [linkedin.com/in/qingyilu97](https://www.linkedin.com/in/qingyilu97)

Summary

- **Career Target:** software developer / software engineer internship in summer 2020
- Graduate student with 5 years' study in Computer Science. Knowledgeable experience in academic research and application development. Familiar with most modern algorithms and data structures. Having leadership experience as a TA about 2 years.

Skills

- **Languages:** Advanced: Java, R, SQL, LaTeX | Proficient: C++, Python, PHP, HTML | Familiar: C, Assembly Language
- **Tools:** Eclipse, R Studio, Arduino, Anaconda/Python3, Qt Creator, TensorFlow, MATLAB, MySQL

Education

Brown University - Providence, RI

Excepted May 2021

Master in Computer Science

Hobart and William Smith Colleges (HWS) - Geneva, NY | Overall GPA: 3.97/4.0, Summa Cum Laude

May 2019

Bachelor of Science degrees with Highest Honors in Mathematics and Computer Science

Honors Thesis: "Machine Learning for Phylogenomics: Improving Statistical Binning Technique for Species Tree Reconstruction"

Significant Awards/Honors: Member of Phi Beta Kappa, Catherine Adele Rippey '35 Prize, Robert Beinert Prize

Professional Experience

HWS Mathematical Phylogenetic Scholars Program | Research Assistant

Geneva, NY | Aug 2016 - Aug 2018

- Worked on a combination of Math, CS and Biology project related to the species tree reconstruction
- Implemented theoretical binning pipeline in R and Python, and performed data analysis for the large sets of sequence data
- Verified experimentally that Statistical Binning technique can reduce gene tree estimation error
- Designed algorithms by using statistical theories to improve the conditions for classifying the pairs of gene trees
- Built own R package for Booster, the alternative bootstrap estimation method, and used into the fundamental step in binning pipeline to produce more accurate species trees

HWS IT Department | Database Engineer Intern

Geneva, NY | May 2018 - Jul 2018

- Worked on the development of IT service management system to provide a clearer self-searching platform for the users
- Redesigned and implemented the database system structure in SQL by adding functions to manage the duplicate information in the original database
- Used various functional techniques to solve the conflict for the service requests
- Built the connection to TeamDynamix, a front-end application, by using HTML and PHP

Hobart and William Smith Colleges | CS Teaching Fellow & Calculus TA

Geneva, NY | Aug 2018 - May 2019

- Prepared the lectures, projects, labs and other supplemental materials with professors as well as held weekly drop-in hours
- Tutored students in computer science introductory and calculus courses and guided them to solve the problems

Projects

Connect Four | Class Project

Geneva, NY | Apr 2019 - May 2019

- A Java application that implements the Connect Four game to compare the preforms of the players by applying different AI algorithms, including minimax algorithms, reinforcement learning, and supervised learning
- Explored the minimax algorithms by applying the various heuristic functions, iterative minimax, and moving order strategies
- Constructed the learning database and implemented the TD, Q and SARSA learners to learn the playing strategies from database
- Build backpropagation network model with multi-layer and adjusted the weights by using different activation functions
- Applied genetic algorithm to adjust the number of layers and the number of nodes in each layer to improve the model

Machine Learning for Phylogenomics | HWS Honors Project

Geneva, NY | Aug 2018 - May 2019

- Two-semester independent project culminates in a written thesis and 90-minute oral exam and evaluated by the honors committee
- Applied supervised learning to Statistical Binning method to produce accurate species trees for all types of phylogenetic datasets
- Used statistics methods to extract features from sequence data to represented the relationships between species and formatted data mathematically as input into learning models
- Implemented various supervised learning algorithms to solve the classification problems for the binning decision of gene trees
- Conducted experiments and statistical analysis to verify the using of Support Vector Machine algorithm produces the most precise species trees

Classroom Reservation System | Class Project

Geneva, NY | Nov 2018 - Dec 2018

- An application written in SQL, PHP and HTML managing the database system and web development
- Designed and implemented a classroom reservation system to store the features of classrooms, connect to the school account system, update the availability of classrooms' schedule and reservations made by users, and announce the events
- Focused on adding the functions to solve the problems of time conflict for the reservations

Academic Publications

Journal Article

Jul 2018

- Joseph P Rusinko, Jennifer Vandenbussche and Qingyi Lu. (2018). Improving Statistical Binning Techniques for Species Tree Reconstruction. Manuscript submitted for publication.