# Qingyi Lu

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## SUMMARY

- Interested in pursuing a Software Engineer internship position at a company that promotes creative and innovative work.
- Graduate student with 5 years' study in Computer Science and Mathematics. Knowledgeable experience in academic research and application development. Familiar with object-oriented analysis and design, and most modern algorithms and data structures. Having leadership experience as a TA about 2 years.

## EDUCATION

**Brown University - Providence, RI** **Excepted May 2021**
- Master of Science in Computer Science

**Hobart and William Smith (HWS) Colleges - Geneva, NY | Overall GPA: 3.97/4.0** **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"
- **Honors**: Summa Cum Laude, Member of Phi Beta Kappa, Catherine Adele Rippey '35 Prize in mathematics and Computer Science, Robert Beinert Prize in mathematics, William Ross Proctor Prize in Mathematics

## TECHNICAL SKILLS

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

## PROFESSIONAL EXPERIENCE

**Research Assistant |** *Mathematical Phylogenetic Scholars Program, HWS Colleges, Geneva, NY* **Aug. 2016 - Aug. 2019**
- Built own R package for Booster, the alternative bootstrap estimation method, and used in the fundamental step in binning pipeline to produce more accurate species trees
- Applied the statistical theories to design the algorithms in order to obtain precisely classification
- Implemented theoretical binning pipeline in R and Python, and performed data analysis for the large sets of sequence data
- Developed console management application for data storage and synchronization in large dispatch center

**Publication in Review:** Joseph P Rusinko, Jennifer Vandenbussche and Qingyi Lu, *"Improving Statistical Binning Techniques for Species Tree Reconstruction"*

**CS Teaching Fellow & Calculus TA |** *HWS Colleges*, *Geneva, NY* **Aug. 2018 - May 2019**
- Presented lectures, and introduced students to software architecture development, prototyping, debugging and testing
- Planned course content, methods of presentation, administrated tests and issued grades in accordance with methods used by cooperating educational institution
- Assisted in authoring design documentation associated with software development projects

**Database Engineer Intern |** *HWS Colleges, IT Department, Geneva, NY* **May 2018 - Aug. 2018**
- Built the connection to TeamDynamix, a front-end application, by using HTML and PHP
- Redesigned and implemented the database system structure in SQL by adding functions to manage the duplicate information in the original database
- Provided assistance to various clients as required software implementation, troubleshooting and debugging
- Assisted with releases to QA via various tests tools and performance metrics, and provided feedbacks.

## PROJECTS

**Connect Four |** *Independent 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
- Constructed the learning database and implemented the TD, Q and SARSA learners to learn the playing strategies from database
- Explored the minimax algorithms by applying the various heuristic functions, iterative minimax, and moving order strategies
- Built 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 Colleges Honors Project*, *Geneva, NY* **Aug. 2018 - May 2019**
- Two-semester independent project culminates in a written thesis, written exams and 90-minute oral exam, and evaluated by the honors committee
- Used statistics methods to extract features from sequence data to represented the relationships between species and formatted data mathematically as input into supervised 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