Zhiqin "Bill" Qian

Curriculum Vitae

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Education

August 2019 – Present

Bachelor of Arts, Computer Science, Rice University, Houston, USA

- GPA: 3.94/4
- Research Interests: Human-Centered AI, Reinforcement Learning, Human Robot Interaction
- Relevant Coursework:
  - Computer Science Core: Algorithms, Data Structures, Object-Oriented Programming, Computer Systems, Parallel Programming, Compiler Construction
  - Artificial Intelligence: Reinforcement Learning, Statistical Models and Algorithms
  - Applied and Pure Math: Stochastic Modeling, Analysis, Linear Algebra, Multivariable Calculus

Honors, Awards

2019, 2021 President's Honor Roll

Research Experience

May 2021 - Present

Research assistant, Unhelkar Lab, Rice University, Houston, USA

- Developed a photorealistic and easily reconfigurable computer-based testbed with Unity to conduct human-robot interaction experiments.
- Automated and synchronized data collection from the Unity environment and physiological sensors.
- Created a versatile pipeline that performs signal processing on physiological data, analyzes the processed data, and constructs a machine learning model to predict one's latent states from the data.
- Preparing two manuscripts that highlight different usages of this computer-based testbed.

May 2020 - Jan 2021

Research assistant, Treangen Lab, Rice University, Houston, USA

- Helped develop the SeqScreen pipeline, which assigns taxonomic and functional annotations to short DNA sequences and uses machine learning to characterize their potential pathogenicity with the acquired annotations.
- Curated datasets of DNA sequences and benchmarked the SeqScreen's performance on taxonomic classification, functional annotation, and pathegencity characterization against similar programs.
- Co-authored a published paper detailing the SeqScreen pipeline.

Work Experience

Fall 2022 (Upcoming)

Teaching Assistant for COMP 310, Advanced Object-Oriented Programming and Design, Rice University, Houston, USA

Fall 2021 **Teaching Assistant for COMP 382, Reasoning About Algorithms**, Rice University, Houston, USA

- Guided 50+ students through practice problems during labs (problem solving sessions).
- Held weekly office hours on data structures, graph algorithms, randomized algorithms, and NP-Completeness.
- Graded bi-weekly homework assignments, the midterm and final exam.

Spring 2021 **Teaching Assistant for COMP 182, Algorithmic Thinking**, Rice University, Houston, USA

- Developed and maintained an auto-grader tool to automate the grading of students' coding submissions.
- Held weekly office hours on algorithms and their complexity, recursion, relations, graph theory, etc.
- Graded the midterm and final exam.

Fall 2019 **Design Engineer**, Oshman Engineering Design Kitchen, Rice University, Houston, USA

- Designed and built three robot-themed puzzles for the Children's Museum of Houston.
- Integrated electrical components with physical components of the puzzles so that they can reset and give feedback to children.

Publications

June 2022 Balaji, A., Kille, B., Kappell, A. and Godbold, G., Diep, M., Elworth, R., **Qian, Z.**, Albin, D., Nasko, D., Shah, N., Pop, M., Segarra, S., Ternus, K., Treangen, T. SeqScreen: accurate and sensitive functional screening of pathogenic sequences via ensemble learning. Genome Biol 23, 133 (2022).

Participations

April 2022 Rice Undergraduate Research Symposium, gave a presentation on *A Testbed for Studying Human-Robot Collaboration during Disaster Response*.

Volunteering

Feb 2020 - Present **Peer Academic Advisor**, Office of Academic Advising, Rice University, Houston, USA

- Oversaw and coordinated academic advising programs during the orientation week for 100+ new students
- Holds office hours to help students navigate through academic procedures and resources

Skills

Programming Languages, Proficient - Python, Java, C#; Familiar - C, C++, R, SQL

Languages, English (bilingual proficiency), Mandarin (native proficiency)

Interpersonal Skills, Communication, Collaboration, Time Management, Leadership