

Qihan (Chuck) Wang

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Education

Rice University, Houston, TX

GPA: 3.95/4

Bachelor of Science in Computer Science, Bachelor of Arts in Mathematics

Expected May 2021

Relevant Courses

Advanced Topics in Optimization, Artificial Intelligence, Honors Linear Algebra, Convex Optimization, Reasoning about Algorithms, Intro to Machine Learning, Concrete Mathematics.

Research Experience

Research Assistant, Rice University, Houston, Texas

January 2019 – Now

Advised by Dr. Anastasios Kyriallidis

Accelerated Power Method with Adaptive Momentum

- Introducing parameter-free decreasing momentum to power iteration
- Conducting mathematical analysis on theoretical bounds of the convergence rate.
- Experimenting different adaptive step sizes and beta that enable parameter free learning.

Learning compressed features using proximal gradient unrolling in noisy environments

- Collaborated with Jasper Liao to design and test a LSTM network for learning encoder and decoder.
- Expanded our network to enable learning for L0 objective.

Research Assistant, Rice University, Houston, Texas

December 2019 – Now

Advised by Dr. Christopher Jermaine

Machine Learning for Database Query Time Prediction

- Developing database generating pipeline for data generation
- Designing general learning algorithm framework for predicting query time

Research Assistant, MD Anderson Cancer Center, Houston, Texas

March 2018 – May 2019

Advised by Dr. Ken Chen

Single cell evolution chronology inference algorithm

- Designed new model for describing copy number evolution.
- Implemented application for efficient modeling under large input size.
- Conducted analysis on real-life single cell data.

Cancer type prediction with somatic mutation dataset

- Designed and implemented Machine Learning algorithms for cancer type prediction
- Conducted statistical data analysis on cancer type sub-class hierarchy analysis
- Designed scoring matrix for ontology-cancer type knowledge graph inference

Publication

- Fang Wang, Qihan Wang, Jincheng Han, Shaoheng Liang, Ruli Gao, Li Ding, Nicholas Navin and Ken Chen. "Tracing chronology of tumor cells through copy number profile." The NSF-Simons Center for Multiscale Cell Fate Research (CMCF), 2019
- Fang Wang, Qihan Wang, Jincheng Han, Shaoheng Liang, Ruli Gao, Li Ding, Nicholas Navin and Ken Chen. "Tracing tumor cellular evolution through copy number alterations [poster]." RECOMB-CCB 2019
- K. Chen, F. Wang, Q. Wang, J. Han, S. Liang, V. Mohanty, R. Gao, L. Ding, and N. Navin. "Modeling aneuploidy evolution in tumor single cells reveals genetic divergence and functional convergence [poster]." ASHG 2019

- Qihan Wang, Ken Chen. "Identifying the Unknown Primary Site of Metastatic Tumors using Support Vector Machines: An Exploration of Different Dimension Reduction Models [poster]" Rice Data Science Conference 2018

Industry Experience

Software Engineering Intern

May 2019 – Aug 2019

Microsoft, Redmond, Washington

- Developed Sabia, a royalty knowledge service fabric that provides easier access for partners.
- Developed bot service that communicates with the user using natural language.
- Developed knowledge graph that represent the knowledge inside the royalties space databases.
- Improved Royalty Anomaly Detection model that validates incoming transactions.

Skills

Programming Language: Python, Java, R, C++, C#, C

Development Tools/Packages: .NET, Azure, SQL, AWS, Jupyter, Git, Scikit-learn

Project Experience

Detail about projects can be found at my personal website: wangqihan.com

Rush Hour – an interactive transportation management game written in Python, inspired by MiniMetro.

Bespoke Life – a smart blogging tool that generates blog post and comments based on images using RNN.

Deep Disaster Learner - A disaster evaluation app that identifies areas of need by analyzing Tweet using SVM.

Honors and Awards

- Louis J. Walsh Scholarship Year 2019-2020 (\$2500)
- President's Honor Roll, Year 2017-2018, 2018-2019
- 1st place in Traders @ MIT fall competition 2019
- 8th in Algebra @ Harvard MIT Mathematical Tournament

Activities

Rice Bridge Club, Rice International Collegiate Programming Contest (ICPC) Team