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
Thesis Master program in Computer Science, Master of Science   Expected May 2022

Research Interests

Accelerated methods in non-convex optimization, stochastic first order methods, sparsity constraints and pruning for neural networks, double descent in neural network training.

Research Experience

Research Assistant, Rice University, Houston, Texas   January 2019 – Now
Advised by Dr. Anastasios Kyrillidis

Independent Subnet Training driven Lottery Ticket Pruning
- Introduced Independent Subnet Training (IST) as a pre-training aid for sub-network (LTH) pruning
- Enabled efficient parallel training of large network that does not fit in conventional machine memory.
- Distilled large network knowledge to 10% of its original size with same accuracy.

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

Meta Learning for Database Query Time Prediction
- Developing database generating pipeline for query predictor benchmarking.
- Designing general learning algorithm framework for predicting query time
- Enabled meta-learning training on neural networks to boost performance across various database.

Publication

- 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." RECOMB-CCB 2019

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.

Honors and Awards

- Louis J. Walsh Scholarship Year 2019-2020, 2020-2021 ($5000)
- President's Honor Roll, Year 2017-2018, 2018-2019, 2019-2020
- 8th in Algebra @ Harvard MIT Mathematical Tournament