

MINGHAO YAN

Email: Minghao.Yan@rice.edu

Personal Website: <https://minghaoyan.netlify.app/>

EDUCATION

Master of Science in Computer Science,

Expected: May 2022

Bachelor of Science in Computer Science, *Summa Cum Laude*

May 2021

Rice University, Houston, Texas

GPA: 4.03/4.09 (Only the first year was weighted due to school policy change)

RESEARCH EXPERIENCE

Research Assistant at Rice University Hashing and Sketching Lab, May 2019 – Now

Advised by Prof. Anshumali Shrivastava

- Current Project: Designed and implemented a communication efficient and scalable MPI based framework for distributed neural network training on CPUs via Locality Sensitive Hashing (LSH) (**Submitted to ICML 2022**).
 - **Workshop tutorial at the 5th Annual Ken Kennedy AI and Data Science Conference**
- Previous Project: Designed and implemented a fast Bloom Filter based algorithm for Multiple Set Membership Testing (MSMT) that can index 170TB of genomic data in less than 9 hours and query in sublinear time (**Published at SIGMOD 2021**).

**Research Assistant at Rice Undergraduate Data Science Summer Program (RUDSSP),
May 2018 – July 2018**

Advised by Prof. Luay Nakhleh and Prof. Hamim Zafar

Project: Simulating, inferring, and scaling up single nucleotide variants in single-cell genomic data

- Built a genome data simulator for ground truth generation, a genome amplifier, and optimized a genome reads generator.

INDUSTRY EXPERIENCE

AI Engineer Intern, Third AI Corp., August 2021 – Now

- Developing and commercializing our framework for training large neural networks on CPUs. Extending the training framework from MLP to recommendation models and GNNs.
- Extending support for multiple data formats and hash functions.

PREPRINTS

- Distributed SLIDE: Enabling Training Large Neural Networks on Low Bandwidth and Simple CPU-Clusters via Model Parallelism and Sparsity
Minghao Yan, Nicholas Meisburger, Tharun Medini, Anshumali Shrivastava
In submission to ICML 2022.
- PairConnect: A Compute-Efficient MLP Alternative to Attention
Zhaozhuo Xu, **Minghao Yan**, Junyan Zhang, Anshumali Shrivastava
In submission to ACL 2022.

PUBLICATION

- Fast Processing and Querying of 170TB of Genomics Data via a Repeated And Merged BloOm Filter (RAMBO)
Gaurav Gupta*, **Minghao Yan***, Benjamin Coleman, Bryce Kille, R. A. Leo Elworth, Tharun Medini, Todd Treangen, Anshumali Shrivastava
SIGMOD 2021.
(* denotes equal contribution)

TALKS

- Democratizing Deep Learning with Commodity Hardware: How to Train Large Deep Learning Models on CPU Efficiently with Sparsity
Workshop tutorial at 5th Annual Ken Kennedy AI and Data Science Conference, Oct 27th, 2021

AWARDS

- Summa Cum Laude (Top 5% in the School of Engineering), 2021
- President's Honor Roll, 6/8 Semesters
- Research Fellowship for Master of Science in Computer Science, 2020
- Louis J. Walsh Scholarship, 2019-2020, 2020-2021
- Rice Undergraduate Data Science Summer Program (RUDSSP) Fellowship, 2018

TEACHING EXPERIENCE (TA)

- Fall 2018: Honors Calculus III (MATH221)
- Spring 2019: Algorithmic Thinking (COMP182)
- Fall 2019, 2020: Reasoning About Algorithms (COMP382)
- Spring 2020: Honors Calculus IV (MATH222)
- Spring 2022: Machine Learning (COMP642)

REVIEWING EXPERIENCE

- ICML 2022

SKILLS

- Languages: English (Bilingual); Mandarin (Native)
- Proficient with Python, C/C++, and Java; Basics of MATLAB, R, C#, and JavaScript.