Joshua Engels

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EDUCATION

Rice University | Houston, Texas *August 2018 - December 2021*

Bachelor of Science in Computer Science, specialization in Algorithms
Bachelor of Arts in Mathematics
GPA (unweighted): 4.0 out of 4.0

WORK EXPERIENCE

Two Sigma | New York, New York *May 2020 - August 2020*

Software Engineering Intern—Time Series Storage Team

- Designed and built Baikal, a Java proof-of-concept high-frequency/high-throughput time series data store
- Hosted Baikal's gRPC metadata service and Apache Arrow data service on Kubernetes
- Optimized Baikal's merged read operation, bringing 100 MB throughput from 10 minutes to 10 seconds

John Deere | Des Moines, Iowa *May 2019 - August 2019*

Software Engineering Intern—Advanced Analytics Team

- Built a Python framework for ingesting metadata onto AWS and performing automated tasks on that data
- Used the framework to reclaim infrequently used application licenses, saving Deere $65,000 per year

RESEARCH EXPERIENCE

Algorithms | Rice University Sketching and Hashing Lab *August 2020 - Present*

- Augmenting a custom C++ locality-sensitive Bloom filter implementation with learned hash functions and a learned prefilter in TensorFlow
- Built and theoretically analyzed FLINNG, a C++ high dimensional near neighbor search algorithm with a 10X speedup over existing methods, resulting in a first author paper currently under review at ICML

Simulated Voting | Rice University Human Computer Interaction Lab *January 2019 - August 2020*

- Modeled human voting strategies and errors in ACT-R and Lisp, resulting in the ICCM first author paper *Missed One! How Ballot Layout and Visual Task Strategy Can Interact to Produce Voting Errors*

PROJECT AND TEACHING EXPERIENCE

Side Projects: *2019-Present*

- Investigating the performance of using a Repeated Array of Counts estimator (RACE) as input to a binary classifier on the CRITEO click through prediction problem
- At HackGT, built DevHealth, an Electron app that corrects posture with a TensorFlow PoseNet model
- At HackRice, built WikiLearn, a Chrome extension that shows the Wikipedia entry for any highlighted words on any webpage in a tooltip containing a fully functional Wikipedia browser

Rice Comp 182 (Algorithmic Thinking) Teaching Assistant: *2020*

- Held weekly office hours and led review sessions for Rice's algorithms and discrete mathematics class

Rice Catalyst Eureka Program: *2018 - 2019*

- Mentored a high school student in statistical analysis, web scraping in Python, and academic writing through a year long program aimed to introduce students to research

AWARDS

- Louis J. Walsh Scholarship in Engineering, 2020-2021
- Top 0.16% of ~1 million solvers on ProjectEuler.net (mathematical programming challenges), 2021
- First place underclassman in Rice coding competition, 2018 and 2019
- National Merit Finalist and Scholarship awardee, 2018