

# Joshua Engels

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## EDUCATION

**Rice University** | Houston, Texas

*August 2018 - May 2022*

Bachelor of Science in Computer Science

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

**Near Neighbor Search** | Rice University Sketching and Hashing Lab

*August 2020 - Present*

- Building a C++ near neighbor search algorithm powered by locally sensitive hashing and group testing
- Potential to be faster than any other existing technique for high frequency queries that do not need a 1.0 recall rate because the design of the algorithm uses efficient bit operations

**Simulated Voting** | Rice University Human Computer Interaction Lab

*January 2019 - August 2020*

- Modeled paper ballot voting using ACT-R (a cognitive architecture) and Lisp
- Analyzed resulting error rates across the voting strategy space in R to identify ballot deficiencies
- First author of *Missed One! How Ballot Layout and Visual Task Strategy Can Interact to Produce Voting Errors*

## PROJECT AND TEACHING EXPERIENCE

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

*2020*

- Held weekly office hours, led review sessions, and graded exams and projects for Rice's algorithms and discrete mathematics intro class

**Hackathons:**

*2019*

- 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
- At HackGT, built DevHealth, an Electron app that corrects posture with a TensorFlow PoseNet model

**Rice Catalyst Eureka Program:**

*2018 - 2019*

- Mentored a student in a year-long program aimed to introduce high schoolers to research
- Guided student through writing a Python program to web scrape and analyze historical song data

## AWARDS

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