Mark Bryan

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Education

Cornell University, College of Engineering B.S., Computer Science *Ithaca, NY May 2018*
Dyson Business Minor for Engineers
Honors: College of Engineering Dean's List fall 2014, fall 2016, spring 2017, fall 2018

Experience

Broadway Technology *Senior Software Consultant* *New York, NY July 2018 – Present*
- Designing, building, and deploying mission-critical fintech solutions to satisfy complex client requirements.
- Managed requirements gathering, design phases, and implementation of high-impact projects to deliver value to clients.
- Implemented various enhancements and bug fixes to graph-based matchine engine, which allows complex matches between diverse order types and outright and synthetic financial instruments. Leveraged heuristics to manage graph-search complexity.
- Designed and implemented loan management service for cryptocurrency trading platform. The service manages loan bookkeeping and provides an API to request loans, confirm loans, transfer funds between accounts.
- Implemented margin trading flow across multiple distributed components, which allowed a brokerage firm to offer out margin risk trading capabilities in cryptocurrency trading. Created risk controls to prevent users from breaching their risk limits, protecting the brokerage firm from overexposure.
- Provided developer support for clients integrating to Broadway's TOC distributed platform.

Yelp *Software Engineer Intern* *San Francisco, CA May 2017 – Aug 2017*
- Improved data documentation service and data warehouse reporting as a member of Yelp's Consumer Analytics and Metrics team.
- Developed backend infrastructure for collecting, cleaning, and analyzing usage data for Yelp's data warehouse and implemented frontend visualizations to describe and convey information to data warehouse administrators.
- Provided insight into how Yelp engineers query the data warehouse, guiding decisions to improve system performance.
- Redesigned React user interface for data documentation service in order to improve developer workflow.

Cornell Database Group, Data Vocalization Project *Research Assistant* *Ithaca, NY Jan 2017 – Present*
- Research optimization problem of how to efficiently represent relational data through audio interfaces by applying data mining algorithms to translate data into natural language speech.
- Collaborate with Professor Immanuel Trummer to develop a database system funded by a Google Faculty Research Award.
- Implemented and refined exhaustive and polynomial time approximation algorithms that translate datasets into speech output. These algorithms minimize speaking time subject to user-defined precision constraints.

Cornell University Computer Science Dept. *Teaching Assistant, Database Systems* *Ithaca, NY Aug 2016 – Present*
- Conducted weekly office hours, created and updated problem sets and solutions, and graded problem sets for Database Systems course.
- Developed automated grading scripts used by team of 20 teaching assistants to optimize grading processes.

Toast *Software Engineer Intern* *Boston, MA Jun 2016 – Aug 2016*
- Improved database layer of Toast's core web application by refactoring the way developers write and release changes to data sources, increasing the reliability of deploying database schema migrations in both development and production environments and improving the efficiency of the engineering team.
- Presented new development workflow to 40+ member engineering team and developed tooling and documentation to facilitate the transition to the new schema migration process.

Publications, Presentations, and Awards

Immanuel Trummer, **Mark Bryan**, Ramya Narasimha. "Vocalizing Large Time Series Efficiently." PVLDB Volume 11, No. 11, July 2018.
- Paper available at http://www.vldb.org/pvldb/vol11/p1563-trummer.pdf

Immanuel Trummer, Jiancheng Zhu, **Mark Bryan**. "Data Vocalization: Optimizing Voice Output of Relational Data." PVLDB Volume 10, No. 11, August 2017.
- Paper available at http://www.vldb.org/pvldb/vol10/p1574-trummer.pdf
- Presented research at the September 2017 VLDB Conference in Munich, Germany.
- Received Lockheed Martin Award at BOOM 2017, Cornell's annual showcase of student research and creativity in digital technology and applications.

Projects

Podcast Client *iOS Developer* *Ithaca, NY Aug 2016 – Aug 2017*
- Contributed to a podcast player application as a member of the Cornell App Development project team.
- Built audio player infrastructure and user interface for audio playback.

Tempo – Discover New Sounds *iOS Developer* *Ithaca, NY Aug 2015 – Aug 2016*
- Contributed to iOS application that provides a unique way to share and discover music with friends.
- Available on the App Store at https://itunes.apple.com/us/app/tempo-discover-new-sounds/id1158693533

Programming Skills and Technologies

Java · Python · C++ · SQL · Linux · Windows · JavaScript · React

Interests

Guitar · Cold-brewed coffee · *The Office* · St. Bernard dogs