# JONATHAN XUE

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## EDUCATION

**08/2018-05/2021**  **Bachelor of Science, Computer Science** – University of Illinois at Urbana-Champaign
**Bachelor of Science, Psychology** – University of Illinois at Urbana-Champaign
- Dual Degree, GPA: 3.98

**08/2021-05/2022**  **Master of Computer Science** – University of Illinois at Urbana-Champaign

## EXPERIENCE

**06/2021-08/2021**  **Citadel Securities** – Software Engineer Intern
- Developed multiple FIX simulators mirroring session and application level UAT behavior.
- Optimized native C++ functions with SIMD SSE2 processor instructions leading to a 400% speedup.
- Benchmarked end-to-end functionality of a particular system searching for further optimizations. Proposed changes to specific function calls result in a 50% speedup.

**06/2020-08/2020**  **Amazon** – Software Engineer Intern
- Developed an analytics tool analyzing AWS Lifecycle metrics from data logs with the Elastic Stack. Sample use cases include identifying the driving growth behind a given workflow and generating the corresponding aggregate statistics.
- Deployed the tool to multiple AWS regions and extended support for additional data sources.

**06/2019-08/2019**  **Capital One** – Software Engineer Intern
- Developed a web application to organize data labeling for machine learning solutions using React.js + Redux with a Python Flask server and PostgreSQL database. Datasets are uploaded, annotated, and exported in both raw (JSON) and parsed (CoNLL, CSV, TSV) formats for different training models.
- Designed and implemented a separate text annotation module optimized for performance and stability.

**11/2018-05/2019**  **CME Group** – Robotic Process Automation Intern
- Architected digital worker to automate employee termination/resignation processes. Tasks include disabling the employee account from the Active Directory, terminating VPN/Remote-Desktop access, disabling access to remote web tools and business applications, and removing the account from email and distribution lists.
- Parsed emails to retrieve necessary employee identification information with C# .NET

**09/2018-12/2018**  **University of Illinois at Urbana Champaign** – Research Assistant
- Developed two separate Maven plugins to analyze and accommodate test dependencies in regression testing algorithms, namely test prioritization, test parallelization, and test selection. Helps developers locate and verify false positives/negatives.
- Work is 7.1% faster at producing reliable outcomes than algorithms which assume test independence.

## SELECTED PROJECTS

**CourseAssign**                                                            *https://jonathanxue.com/CourseAssign*
- Developed a web application that analyzes teaching assignment and grade distribution data of past Computer Science courses at UIUC and their faculty instructors to determine best-fit matches between courses and faculty.
- Calculated semantic similarity between a course's description and an instructor's research interests with spaCy by comparing multi-dimensional meaning representations of keywords.

## RELEVANT COURSEWORK

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|---|---|---|
| Advanced Data Management | Algorithms & Models of Computation | Art of Web Programming |
| Artificial Intelligence | Communication Networks | Compiler Construction |
| Computer System Organization | Computer Architecture | Data Structures |
| Database Systems | Distributed Systems | Internet of Things |
| Natural Language Processing | Neural Network Modeling | Numerical Methods |
| Programming Languages & Compilers | Software Design Studio | System Programming |

## SKILLS

**Languages:** C, C++, HTML/CSS, Go, Java, JavaScript, Python, R
**Database and Client/Server Technologies:** Express, Flask, Mongo, Node.js, SQL