

# Caijun Qin

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## EDUCATION

- Aug 2019 – May 2022     **University of Florida** ♦ Gainesville, FL  
**Major:** Computer Science B.S.  
**Minor:** Statistics  
**Major GPA:** 3.92 / 4.00  
**Relevant Coursework:** Data Structures and Algorithms, Machine Learning, Performant Programming in Python, Competitive Programming, Principles of Programming Language, Intro to Data Science, Programming with Data in R, Intro to Software Engineering
- Aug 2018 – May 2019     **Florida State University** ♦ Tallahassee, FL  
**Major:** Computer Science B.S.  
**Major GPA:** 4.00 / 4.00  
**Relevant Coursework:** Intro Programming I (C++), OO Programming, Linear Algebra, Calculus III

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## RESEARCH INTERESTS

Machine Learning, Big Data Analytics, Graph Theory, Network Algorithms, Optimization

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## RESEARCH EXPERIENCE

- Mar 2021 – Present     **Theoretical Modeling of Dynamic Vegetation in Agricultural Terrains for Active Passive Microwave Retrieval of Soil and Crop Parameters**  
*Undergraduate Research Assistant* ♦ *Institute of Food and Agricultural Sciences, University of Florida*  
*Advisor: Jasmeet Judge*  
Developing functional-structural plant model (FSPM) in Blender to simulate crops at different growth stages
- May 2020 – April 2021     **Predictive Sampling Method for Spread Models in Networks**  
*Undergraduate Researcher* ♦ *University Scholars program, University of Florida*  
*Advisor: Peter Dobbins*  
Author of research paper to be published April 2021 to the UF's *Journal of Undergraduate Research*  
Developed new sampling method for large networks based on quota sampling of high-degree nodes  
Used varying statistics of samples to evaluate proposed algorithm against other sampling algorithms
- Jan 2019 – May 2019     **Cost Minimization and Optimization of Criteria-based Matchings**  
*Honors Credit Project (3 credits)* ♦ *University Honors Program, Florida State University*  
*Advisor: Peixiang Zhao*  
Implemented Hungarian Algorithm in C++ to optimally choose pair from bipartite graph representing costs  
Designed comparable algorithm but optimally chooses pair based on multiple positive attribute values

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## PROJECT EXPERIENCE

- Feb 2021 – Feb 2021     **DocVR: Virtual Reality AI Health Assistant**  
*Database Engineer* ♦ *BrickHack 7 (RIT Hackathon)*  
Virtual doctor powered by Google DialogFlow and Unity game engine  
Configured CockroachDB distributed database with NLP capabilities to log virtual doctor's speech
- Feb 2021 – Feb 2021     **Summarify**  
*Backend Engineer* ♦ *AngelHacks 2.0*  
Created console application to summarize text from any number of uploaded .txt, .docx, or .pdf files  
Created wireframe for web application interface allowing user selection of summarization algorithm
- Feb 2021 – Feb 2021     **TournamentMaster**  
*Solo Team* ♦ *EconHacks 2021 (Economics Hackathon)*  
Developed customizable Solidity script to simulate a tournament through many rounds, pertaining to business applications such as contract bids and job candidate selections  
Tournament tree data structure with customizable winning conditions and number of winners
- Jan 2021 – Jan 2021     **Sentinel**  
*Backend Engineer* ♦ *SwampHacks VII (UF Hackathon)*

Website displays interactive and colored world map based on selectable social indexes across nations  
Constructed a CSV-to-JSON converter to facilitate importing custom datasets to *Cloud Firestore* database

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|------------------------|---|
| May 2020 –<br>Aug 2020 | <b>OCR Note-taking Application</b><br><i>Backend Engineer ♦ UF Performant Programming Course</i><br>Maintained customizable pipeline to preprocess text images with OpenCV and Pillow library tools<br>Optimized parameter values for different image preprocessing functions and experimentally determined the best selection and order of functions to boost optical character recognition (OCR) accuracy |
| Jan 2020 –<br>Apr 2020 | <b>American Sign Language Image-to-Letter Translator</b><br><i>Student / Group Member ♦ UF Machine Learning Course</i><br>Collaboratively built classification system to translate ASL hand images with supervised ML paradigm<br>Engineered pipeline that preprocesses image, trains classifier, predicts letter, and evaluates accuracy   |
| Sept 2019 -<br>Present | <b>JTreeLib</b><br><i>Individual Contributor ♦ Open-Source Project</i><br>Java library of tree and tree-like data structures including trie, b-tree, ternary tree, segment tree, and more   |

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## AWARDS & HONORS

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| Feb 2021 | <b>Best Covid-19 Hack</b><br><i>BrickHack 7 ♦ Rochester Institute of Technology, Rochester, NY</i>  |
| Feb 2021 | <b>4<sup>th</sup> Place</b><br><i>EconHacks 2021 ♦ Virtual Hackathon</i>  |
| Jan 2021 | <b>InfoTech Challenge</b> for most innovative use of a public dataset for the public good<br><i>SwampHacks VII ♦ University of Florida</i>  |
| Mar 2019 | <b>1<sup>st</sup> Place in Lower Division</b><br><i>FSU Spring 2019 Programming Competition ♦ Florida State University, Tallahassee, FL</i> |
| Jan 2019 | <b>University Scholars Program</b><br><i>Lateral Admission into Honors Program ♦ Florida State University, Tallahassee, FL</i>              |

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## FUNDING & SCHOLARSHIPS

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|------------------------|--|
| Jun 2021 –<br>Aug 2021 | <b>NSF REU: College of Information at UNT</b><br><i>\$7000 ♦ University of North Texas, Denton, TX</i>         |
| Mar 2021               | <b>Gartner Group Information Technology Fund</b><br><i>\$1000 ♦ University of Florida, Gainesville, FL</i>     |
| May 2020               | <b>Russell and Mary Hyatt McCaughan Scholarship</b><br><i>\$1000 ♦ University of Florida, Gainesville, FL</i>  |
| Feb 2020               | <b>University Scholars Program</b><br><i>\$1750 ♦ University of Florida, Gainesville, FL</i>                   |
| May 2018               | <b>University Freshman Scholarship</b><br><i>\$1200 / Semester ♦ Florida State University, Tallahassee, FL</i> |

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## QUALIFICATIONS

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| Apr 2021 | <b>MATLAB Machine Learning Onramp</b>               |
| Apr 2021 | <b>MATLAB Onramp</b>                                |
| Jul 2020 | <b>M001: MongoDB Basics</b>                         |
| May 2015 | <b>Microsoft Office Specialist: Word 2013</b>       |
| May 2015 | <b>Microsoft Office Specialist: Excel 2013</b>      |
| May 2015 | <b>Microsoft Office Specialist: PowerPoint 2013</b> |

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## PROFESSIONAL SKILLS

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|-------------------------------|---|
| <b>Languages</b>              | English, Mandarin Chinese                                 |
| <b>Programming Languages</b>  | Python, Java, C++, C#, Solidity, MATLAB, R, Go, Julia, JS |
| <b>Markup Languages</b>       | HTML, CSS, XML, YAML                                      |
| <b>Databases</b>              | MySQL, SQLite, CockroachDB, MongoDB, Cloud Firestore      |
| <b>Frameworks &amp; Tools</b> | Node.js, React, JQuery, Bootstrap                         |