

# CHRIS SERRAO

• cserrao@umass.edu • www.linkedin.com/in/chris-serrao-64360a199/ • (617)-893-2697 • uvrays123.github.io/website

## EDUCATION

**University of Massachusetts Amherst, Amherst, MA**  
B.S. in Computer Science, GPA: 3.94/4

Sept 19 - Present

*Relevant Courses:* Introduction to Algorithms, Programming with Data Structures, Artificial Intelligence, Computer Networks, Discrete Mathematics, Probability and Statistics, Linear Algebra, Operating Systems, Programming Methodologies, Algorithms for Data Science, Practical Application of Data Management, Multivariate Calculus

## INTERNSHIP EXPERIENCE

### Bentley Systems

May 22 - Aug 22

*Software Engineering Intern for the Hydraulics Team*

- Developed an admin dashboard using React and C# allowing an admin to remove faulty widgets, pages and features from the WaterSight product to provide a seamless user experience.
- Implemented the download feature using React to allow users to download shape files and model simulation files.
- Improved the error detection system for WaterSight by displaying an error alert for failed model simulation runs.

### UMass URV

June 21- Aug 21

*Junior Research Intern. (Advisor: Kyle Doney), Space efficient Cuckoo Filter*

- Developed an intelligent cuckoo filter by training a random forest model on a dataset of phishing links to predict if a phishing link exists in the database.
- Improved the false positive rate (FPR) of the cuckoo filter from 30% to < 10% while maintaining the property of no false negatives.

### ApTSi

Dec 20 - June 21

*Software Engineering Intern for the Database Solutions Unit*

- Deployed a Java interface to enable communication with MinIO allowing large scale storage of photos and videos regarding medical health records.
- Built a back-end infrastructure to store a patients health check up documents, doctors medical notes and X-ray reports in CouchDB, PostgreSQL and MinIO.
- Built a Java Interface following the Master Data Management (MDM) model to allow easier communication between databases such as CouchDB, MinIO and PostgreSQL using Apache Kafka and Zookeeper.

## TECHNICAL PROJECTS

### Twitter Kafka Data Streams

July 21-Aug 21.

- Implemented a Kafka producer and consumer application on a Kafka cluster setup to scrape real time tweets from the Twitter API and feed into Elasticsearch.
- Implemented parallel threading to boost data transfer speed and efficiency by 5 times, as well as used snappy message compression and larger data packet sizes to give higher data throughput.

### Video Searching Application

Aug 20-Sept 20

- Created and deployed a fully functional ReactJS application which takes in video requests through a search bar and displays the top 10 video results.
- Enhanced user experience by using event handlers to handle keyboard inputs well as used conditional rendering to replicate a YouTube layout of the application.
- The demo can be accessed here: <https://uvrays123.github.io/youtube-clone/>

### Tic Tac Toe AI

June 20-July 20.

- Developed a Tic-Tac-Toe AI agent using ReactJS that uses the Minimax algorithm to decide a valid move.
- Implemented alpha beta pruning to improve the efficiency of the search algorithm by 20 times and to find the best move possible for every scenario in the game.
- The demo can be accessed here: <https://uvrays123.github.io/Tic-Tac-Toe-AI/>

## SKILLS

**Technical:** Python, Java, ReactJS, C#, HTML, CSS. JavaScript, AJAX, C, Octave, SQL, Git  
**Frameworks and Databases:** CouchDB, MinIO, PostgreSQL, Apache Kafka, Apache Zookeeper