

# Zachary Macke

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## Education

University of Iowa, Iowa City, IA  
Major: B.S. Computer Science & Mathematics

Anticipated May 2020  
GPA 3.1

## Internship & Work Experience

**University of Iowa Hydroinformatics Lab**, Software Engineer (Web & Data Science) Aug. 2019 – Present

- Refactoring the Clear Creek Watershed Information System (iowawatersheds.org) from Angular to React and converting ArcGIS API's to utilize Google Maps Platform.
- Assist in the development and design, both client and server side, of the information system's decomposition into individual components such as Hydrology, Geomorphology, and Socio-Economic tools.
- Clean, document, and enhance the PHP backend and data acquisition scripts using JavaScript and PHP.

**The Walt Disney Company / ESPN**, Software Engineering Intern Jun. 2019 – Aug. 2019

- Implemented and developed a redesign of ESPN.com's article page which is utilized across all articles on the site. Refactored the page to ReactJS across the data flow from data parsing to content display.
- Assisted the Site Development/Consumer Products team with the development and maintenance of ESPN.com and its editions, from the ESPN.com front page to scoreboards, player cards, and more. Utilized ReactJS, Redux, HTML, Tea and CSS.
- Followed Scrum methodology best practices, with daily stand-ups and two-week sprints, to provide timely product updates that have been thoroughly tested.

**Collins Aerospace**, Data Science Intern May 2018 – May 2019

- Automated the creation of a data dictionary/metadata repository from SAP/HANA to aid an automated data science system.
- Implemented and trained Convolutional Neural Network architectures in Tensorflow to display an emoji corresponding to the user's emotion above their head in real time for use on a Nvidia Jetson TX2.
- Developed an internal tool which utilized facial recognition in Tensorflow, Google Calendar, and Gmail API's to scan a conference room, detect who is missing based upon the Google Calendar guest list, and email said missing attendees.

## Programming Projects

**Finger Game** (JavaScript, Python)

- HackISU Fall 2018 project that is a simple web game that allows the user to hold up corresponding number of fingers to which the game requests as many times as possible within the allotted time.
- Utilized a self-trained object detection system trained using darknet with a tiny yolo model and the Flask microframework with JavaScript on the front-end.

**Rocket Pomodoro Timer** (JavaScript, HTML, Sass)

- Pomodoro timer with a unique space design built entirely with vanilla JavaScript, HTML, Sass.
- Exercise to sharpen fundamental skills such as DOM manipulation, styling, and more advanced JavaScript techniques.

**StackBot** (Python & Natural Language Processing)

- Command line chat-bot, responds with the highest rated Stack Overflow answer to a user-inputted Python related question.
- Utilized Google Big Query and a Natural Language Processing model (doc2vec) to predict the best answer.

## Skills & Involvement

**Proficient:** JavaScript, ReactJS, Redux, Python (Flask and Keras), Haskell, HTML, CSS (Sass), Kotlin, Tableau

**Familiar:** NodeJS (Express), Swift, SQL, C++, PHP, Java, Google Cloud Services / Maps Platform, and AWS

**Relevant Coursework:** Data Structures, Discrete Structures, Object Oriented Development, Algorithms, Calculus I-III, Linear Algebra, Numerical Analysis, Theory of Computation, Parallel & High-Performance Computing, Programming Language Concepts

**Hackathons:** HackISU (Spring & Fall 2018), HackUIowa (Spring & Fall 2018)