# Zach Sahlin

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## RELATED COURSEWORK

- Algorithms & Abstract Data Structures
- Machine Learning & Intelligent Systems
- Data Science Algorithms
- Operating Systems
- Database Management Systems
- Programming Languages & Compilers
- Linux & DevOps

## TECHNICAL SKILLS

- Languages: C++, Java, Python, C, SQL
- Tools: Git, Linux, Docker, Jupyter, GitHub Actions, Postgres, AWS Lambda, AWS S3
- Libraries: TensorFlow, PyTorch, pandas, NumPy, scikit-learn, Matplotlib

## EDUCATION

**Gonzaga University** | Spokane, WA                                      August 2019 – May 2023

*BS in Computer Science, Minor in Applied Mathematics*

- Graduated Magna Cum Laude
- President's List: Fall 2019, Spring 2020, Spring 2021
- Dean's List: Fall 2020, Fall 2021, Spring 2022, Spring 2023

## PROJECTS

**Machine Learning for Real Estate** | Python, SQL, PyTorch, JS, Fast API          *Fall 2022 - Spring 2023*

- Senior Design Project
- Collects data on historical rental prices, crime data, and school scores.
- Predicts future rental prices with an LSTM.
- Leverages a REST API to connect the web app to the mySQL database.
- Displays historical prices and predictions as a web app.

**Stock Predictor** ⎋ | Python, TensorFlow, AWS Lambda, AWS EventBridge, selenium          *Spring 2023*

- Collects historical and current data from various sources using APIs and web scraping.
- Stores and retrieves data on AWS S3.
- Uses an LSTM to predict weekly percentage increase.
- Displays predictions on a web app.
- Utilizes GitHub Actions for a CI/CD pipeline to test and publish to AWS Lambda.

**Image Resizing CDN** | Python, AWS CloudFront, AWS Lambda, AWS S3, AWS CDK          *Fall 2022*

- Automatically resizes and formats images using AWS Lambda.
- Uses AWS CDK to deploy the stack.

**Baseball Tracker Android App** ⎋ | Kotlin, Android Studio          *Fall 2022*

- Tracks a baseball game and records player and team stats.
- Uses GPS to measure distance of hit.

**Programming Language and Compiler** | Java          *Spring 2022*

- Compiles and runs on a VM in Java.
- Implements function type inference.

**Fantasy Football Draft Simulator** ⎋ | Python          *Fall 2022*

- Models a fantasy football draft to use for testing different drafting algorithms against each other.
- Executes a Monte Carlo Tree Search for selecting the next player.

**Spotify Predictor** ⎋ | Python, pandas, scikit-learn, Matplotlib          *Fall 2020*

- Uses a decision tree and kNN to predict whether I will skip a song with an 81% accuracy.
- Connects to the Spotify API to gather additional data on each song.

**Linux Kernel Module** ⎋ | C          *Fall 2021*

- Modifies the Linux kernel with a simple module that can be loaded and unloaded.

## RESEARCH

**Long Span Truss Analysis and Optimization** | MATLAB                                   *Spring 2023*
- Worked with Dr. Sara Ganzerli and civil engineering students.
- Developed a script to analyze and optimize a truss to minimize material use within the load constraints.

## WORK EXPERIENCE

**Gonzaga University** | Teaching Assistant                                   *August 2022 – May 2023*
- Teaching assistant for Operating Systems, Computer Security, and Internet of Things.
- Graded programming and written assignments.

**iD Tech** | Online Private Instructor                                   *June 2021 – August 2022*
- Tutored in 8 different computer science topics, including C++, Java, and Python.
- Completed over 200 private lessons.
- Formed relationships with long-term clients, and developed further skills in communication and coding.
- Collaborated with other instructors to improve teaching methods.