

# AUSTIN MAC

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## EXPERIENCE

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### Media Skill Research Lab

*Research Assistant*

May 2021 - Present

*Santa Barbara, CA*

- Developed email client simulator (EMPTI) with text prediction to measure user behavior data for analysis (Express, Node.js, OpenAI GPT-3, PostgreSQL, Heroku)
- Repo: <https://github.com/austinmacmath/EMPTI>
- Studying algorithmic bias and bias detection in context of predictive text algorithms
- Co-authoring paper to be submitted to National Communication Association

### Roblox

*Software Engineering Intern*

June 2021 - Sept 2021

*San Mateo, CA*

- Built CLI and HTTP server to restart Nomad jobs (Go, Nomad)
- Added features to a Nomad Node Problem Detector to programatically build Docker images (Go, Docker)

### Citadel

*Software Engineering Intern*

March 2021 - June 2021

*Chicago, IL*

- Deployed SNMP trap receiver on Kubernetes (Docker, Bash, Python, Splunk, Vault, Kerberos, Pagerduty)
- Built a data collector to publish stored procedure outputs to Kafka and consume outputs from Kafka to Clickhouse (Python)
- Created command line tool to suppress PagerDuty Alerts (Python)

### Tesla

*Data Analytics Intern*

August 2020 - December 2020

*Fremont, CA*

- Built ETL data pipeline for predictive analysis of job efficiency using historical weather patterns (Python, Pandas, SciKit-Learn, SQLAlchemy, SQL Server, MySQL, Ansible)
- Built dashboards to flag unusual install jobs, plan capacity, and visualize office jurisdiction (SQL Server, Tableau)
- Automated crew capacity modeling process (Python, Excel)

### Roblox

*Software Engineering Intern*

June 2020 - August 2020

*San Mateo, CA*

- Built monitoring dashboard to track resource usage on container orchestration servers (Hashicorp Nomad), calculate waste, aid capacity planning (Docker, Go, Grafana, SQL Server)
- Built RESTful API on CI/CD with unit & integration testing (CircleCI)
- Open source project repo: [https://github.com/Roblox/rblx\\_nurd](https://github.com/Roblox/rblx_nurd)

## EDUCATION

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### University of California, Santa Barbara

*Major: Computer Science, Minor: Statistics & Data Science*

September 2018 - June 2022

*GPA: 3.76/4.00*

## PROJECTS/RESEARCH

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### EMPTI

EMPTI (EMail Predictive Text Imitator) is a proof of concept platform used to measure and detect automation bias in the context of text based communication. Built with Express.js, Node.js, Postgres, and GPT-3. Repo: <https://github.com/austinmacmath/EMPTI>

### **Airbnb Machine Learning**

Supervised machine learning to predict prices of Airbnb properties in New York. Random Forests, Bagged/Boosted Models, Radial/Polynomial Kernel SVM, KNN, Regularization, LDA/QDA, Models optimized with K-fold Cross Validation (R).

### **the drop. (2nd Place at SB Hacks 2019)**

GPS location based scavenger hunt game for web, Android, and iOS. Implemented back-end database (Firestore), trigger functions (JavaScript), automated SMS system (Twilio API), scheduled releases (CRON).

### **Forest Fires Regression Analysis**

Regression analysis of Forest Fires data set from UCI Machine Learning Repository. Stepwise regression, model fitting, model transformations, hypothesis testing (F-test, t-test), prediction intervals, residual/normality analysis (R).

### **Ceramic Classification & Data Cleaning**

Classified ceramics based off of variables *Form* and *Group*. Ceramics with conflicting variables were sorted by other factors using machine learning random forests/decision trees (SciKit-Learn, Pandas).

### **Jar Analysis**

In order to sort jars into narrow and wide groups based off of rim diameter and group number, R, Python (Seaborn, Pandas), and Microsoft Access were utilized to perform quantitative data analysis.

## **PUBLICATIONS**

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Mac, Austin R. "Don't Get Stuck." *Starting Lines*, 18th ed., Bedford Freeman & Worth, 2019, pp. 145-147.

## **VOLUNTEERING**

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### **UCSB Running Club - President**

UCSB Running Club is an entirely student run organization with over 300 registered members. Our goal is to provide an inclusive, welcoming community for runners of all levels. I am responsible for delegating to other officers, organizing practice schedules, coordinating race carpools, applying for race registration discounts, purchasing uniforms, and other management tasks.

## **SKILLS**

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### **Languages**

C++, Python, Go, SQL, R, HTML, CSS

### **Tools**

L<sup>A</sup>T<sub>E</sub>X, Jira, Confluence, Sketch, Figma, Tableau, Git, Docker, Kubernetes