

# Justin Lai

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## EDUCATION

### University of California, Santa Barbara

*Bachelor of Science in Computer Science, College of Engineering*

September 2019 – June 2023

*GPA: 3.61*

## EXPERIENCE

### Machine Learning Engineer Intern

*Sermonis.ai*

June 2022 – August 2022

*Berlin, Germany*

- Diversified training data by developing a series of text scrapers for a variety of data sources
- Accelerated data processing speeds by automating data cleaning, labeling, and lemmatization processes
- Tokenized text data using the BERT transformer for improved natural language processing model training
- Deployed Elasticsearch to index and search tokenized data for efficient querying and retrieval

### Frontend Web Developer Intern

*University of California, San Francisco*

June 2018 – August 2018

*San Francisco, California*

- Improved usability and user productivity by developing frontend features such as task lists, reminders, and toolbars
- Enhanced accessibility, viewing experience, and content delivery speed by revising backend elements
- Automated medical document processing for metadata extraction and redaction for confidentiality and compliance
- Performed rigorous unit and integration testing with JUnit, Selenium, and Mockito

## TECHNICAL SKILLS

**Languages:** Python, C++, C, R, OCaml, JavaScript, TypeScript, Java, SQL, MIPS, C#, HTML5, CSS, LaTeX

**Tools:** Git, VS Code, Unix/Linux, Anaconda, Postman, PostgreSQL, Docker, Elasticsearch, Kibana, AWS EC2, Kanban

**Frameworks:** React, Node, MongoDB, Express, Flask, JUnit, RESTful API, Spring Boot, CodeCov, Storybook

**Processes:** Agile, Continuous Integration and Delivery, Object-Oriented Programming, Waterfall Development

**Libraries:** Numpy, Pandas, Seaborn, RSQLite, Scikit-Learn, TensorFlow, PyTorch, HuggingFace, Keras, OpenCV, Spark

## PROJECTS

### CIFAR-10 Convolutional Neural Network Image Classifier | *Python, TensorFlow, Keras, Scikit-Learn, Matplotlib*

- Developed a deep learning model for classifying 32x32 colored images of objects, based on the CIFAR-10 dataset
- Implemented a multi-layer CNN with batch normalization, max pooling, and dropout layers
- Monitored training and validation convergence using EarlyStopping
- Visualized model training and outputs to analyze CNN feature extraction and model learning

### Four Year Schedule Planner | *JavaScript, Python, React.js, Node.js, Express.js, Mongoose*

- Developed a MERN-based course scheduling web app for UC Santa Barbara students to plan four-year schedules
- Implemented a web scraper to gather up-to-date course IDs, titles, and grade distributions
- Utilized Mongoose and React.js for efficient data storage and dynamic, responsive user experience
- Ensured relevance and usability by surveying professors and peers to improve and iterate over application features

### Ecommerce Linear Regression and Data Analysis | *Python, Pandas, Seaborn, Matplotlib, Scikit-Learn*

- Analyzed customer purchase data to optimize online storefronts and increase annual sales for a clothing retailer
- Conducted exploratory data analysis on key purchasing metrics such as customer application usage
- Identified factors influencing annual customer spending by training a Linear Regression model
- Evaluated model performance and accuracy using metrics such as Root Mean Squared Error
- Provided actionable insights to improve customer experience and increase annual sales

### Temperature-based Automated Window Control Software | *Python, GPIOZero, PostgreSQL, Flask, Request*

- Developed an automated window control software using a Raspberry Pi, temperature sensors, and motors
- Integrated geolocation and NationalWeatherService APIs to fetch outdoor temperature and other weather data
- Utilized PostgreSQL to store indoor temperature data for machine learning analysis
- Created a Flask server to display real-time indoor/outdoor temperatures and window status