

# ALINA CAI

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## EXPERIENCE

- Software Engineer** | *BluWave-ai* May 2023 – Present
- Devised an energy consumption predictor for the state of California, deploying the project on a **Google Cloud Platform VM**
  - Minimized model MAE by **52.3%**, employing **Prophet** and **LightGBM** regressors to optimize **time series forecasting** accuracy
  - Leveraged **data engineering** to automate the processing and storage of historical and live data from the **California ISO API**
  - Applied **data analysis** techniques such as seasonal decomposition and autocorrelation to identify load and weather patterns
  - Achieved real-time **data visualization** of load and weather by developing an interactive **Grafana** dashboard using **SQL** queries
- Club President** | *Lisgar Collegiate Institute Computing Club* Sep 2018 – Jun 2022
- Organized and facilitated weekly technical and networking workshops, fostering programming interest to over **30** students
  - Mentored **Python** foundations utilizing online resources, composing practice exercises to enhance concept comprehension
  - Oversaw the development of an application-based **Arduino** project using **C++**, engaging the concept of traffic management
- Founder** | *Alina's Music Studio* Mar 2019 – Jun 2022
- Established a **start-up business** delivering professional piano and violin instruction, securing over **\$51k** in operating revenue
  - Facilitated excellence to over **50** students, evidenced by prestige competition awards and high scores, through tailored training
- Concertmaster** | *Lisgar Collegiate Institute Symphony Orchestra* Sep 2018 – Jun 2022
- Directed an ensemble of over **30** musicians, providing practical expertise on technical intricacies and expressive interpretation
  - Collaborated with the conductor and section leaders to cultivate a unified artistic vision and assure cohesive performances

## AWARDS

<b>Euclid Mathematics Contest</b>	99.6% percentile out of 22,372 contestants	<i>Apr 2022</i>
<b>Canadian Computing Contest</b>	83.5% percentile out of 3,262 contestants	<i>Feb 2022</i>
<b>Canadian Music Competition</b>	Top 5 national piano finalist	<i>Jun 2018</i>

## PROJECTS

- CITADEL / CITADEL SECURITIES Summer Invitational Terminal** 🐍 | *Python, Java, Rust* Aug 2023
- Competing in AI game where players program algorithms and battle them against each other in a live e-sports tournament
- Weather in Air Traffic (CITADEL Summer Invitational Datathon)** 🐍 | *Python, XGBoost, Google Colab* Jul 2023
- Constructed a model using **XGBoost** predicting USA flight delays with **96%** accuracy, optimizing financial planning for airlines
  - Authored an extensive **quantitative research** report articulating key findings in regional flight delay factors from severe weather
  - Maximized model precision to **95.7%**, administering rigorous **Exploratory Data Analysis** to discover **feature importance**
  - Employed **over-sampling** with **scikit-learn** to solve class imbalance in weather data, increasing model F1-score to **95.9%**
- Titanic Survival Predictor** 🐍 | *Python, Pandas, NumPy, Matplotlib, SciKit-Learn* Jun 2023
- Performed **feature engineering** and **data analysis** to build a **ML** model predicting Titanic survival with an accuracy of **81.5%**
  - Executed the optimization of a RandomForest Classifier from **scikit-learn**, applying train-validation split to mitigate overfitting
- League of Legends Champion Randomizer** 🐍 | *Python, HTML, Flask, CSS, BeautifulSoup* Jan 2023
- Developed a video game web app using **Python, Flask**, and **CSS**, through rigorous web scraping enacting **BeautifulSoup4**
  - Enabled the extraction of over **160** randomized champion profiles, designing an agile **HTML** template for dynamic display
- Portfolio Website** 🐍 | *JavaScript, HTML, CSS* Dec 2022
- Designed and implemented an interactive personal portfolio website showcasing various projects using **HTML** and **JavaScript**
  - Built the **front-end UI** using **CSS**, applying interactive animations and delivering an optimal multi-platform user experience

## SKILLS

**Languages:** Python, C, C++, SQL, HTML, CSS, Java, JavaScript, Ruby, LaTeX, Racket  
**Frameworks/Libraries:** Pandas, NumPy, Matplotlib, SciKit-Learn, TensorFlow, Keras, Flask, Node.js, Kedro  
**Tools:** Git, Linux, Bash, Anaconda, GCP, AWS, Azure, Jupyter Notebook, Seaborn, Prophet, Apache NiFi, Grafana

## EDUCATION

**University of Waterloo** Waterloo, ON  
*Honours Bachelor of Computer Science, Minor in Combinatorics and Optimization* Sep 2022 – Present  
**Coursework:** Algorithm Design and Data Abstraction, Functional Program Designing  
**Clubs:** Women in Computer Science, Computer Science Club, Data Science Club, Intramural Basketball