

# ALINA CAI

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## EXPERIENCE

- Software Engineer** | *WATonomous* Sep 2023 – Present
- Student design team at the forefront of design, creation, and neural training for the building of autonomous self-driving vehicles
- Director of Engineering & Operations** | *Google Developer Student Club University of Waterloo* Aug 2023 – Present
- Coordinated **software developer** and **data science** teams, ensuring optimized resource allocation on new technology initiatives
  - Orchestrated code reviews, continuous integration, and automated testing for open-source projects servicing **300** members
- Software Engineer** | *BluWave-ai* May 2023 – Present
- Devised an energy consumption predictor for California, deploying the project pipeline on a **Google Cloud VM** through **Docker**
  - Minimized mean average error by **52.3%**, employing **Prophet** and **LGBM** regressors to optimize **time series forecasting** accuracy
  - Leveraged big **data engineering** to automate the processing and storage into relational databases from the **California ISO API**
  - Administered extensive **data analysis**, achieving real-time **visualization** through an interactive **Grafana** dashboard with **SQL**
- 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 and oversaw the development of an **Arduino** traffic project using **C++**

## AWARDS

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

## PROJECTS

- AI Tower Defense (Citadel | Citadel Securities Summer Invitational Terminal)** 🌀 | *Python, VS Code, GitHub* Aug 2023
- Formulated a custom **object-oriented** algorithm, integrating concurrent simulation of proactive offense/defense pathfinding
- Weather in Air Traffic (Citadel | Citadel Securities Summer Invitational Datathon)** 🌀 | *Python, XGBoost, Google Colab* Jul 2023
- Constructed an air traffic model using **XGBoost** with **96%** accuracy, articulating key findings in a **quantitative research** report
  - Maximized model precision to **95.7%**, conducting **Exploratory Data Analysis** to discover **feature importance** in flight delays
  - Employed **over-sampling** with **scikit-learn** to solve class imbalance in regional weather, increasing model F1-score to **95.9%**
- Titanic Survival Predictor** 🌀 | *Python, Pandas, NumPy, Matplotlib, SciKit-Learn* Jun 2023
- Performed **feature engineering** to build a **supervised machine learning** model predicting Titanic survival with **81.5%** accuracy
  - 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 full-stack 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**, assembling customized 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:** Azure, Visual Studio, Office, Git, Linux, Bash, Anaconda, Jupyter Notebook, Seaborn, Prophet, Apache NiFi, Grafana

## LEADERSHIP

- 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 **80** students through tailored training, evidenced by prestige awards in competitions and exams
- Concertmaster** | *Lisgar Collegiate Institute Symphony Orchestra* Sep 2018 – Jun 2022
- Directed an ensemble of over **50** musicians, providing practical expertise on technical intricacies and expressive interpretation
  - Initiated weekly stand-ups with the conductor and section heads to cultivate a unified artistic vision and cohesive performances

## 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  
**Interests:** Piano, Basketball, Violin, Photography, Video Games, Finance, Digital Art, Sneaker Collecting, Cocktail Mixing