

# ERIC LIU

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## Education

University of Waterloo

Bachelors of Computer Science

September 2021 – April 2026

Waterloo, Ontario

## Technical Skills

**Languages** : JavaScript, C++, Python, HTML, CSS, C, TypeScript, SQL, Bash

**Libraries and Frameworks** : React, Playwright, Node.js, Express.js, Angular, Scrapy, Pandas, NumPy, Selenium

## Experience

SynMatrix Technologies Inc 📄

January 2023 – April 2023

**Software Developer** | React, JavaScript, Playwright, Express.js, HTML, CSS, JSON

Richmond Hill, ON

- Utilized JavaScript, Playwright, and **TDD** to innovate a JSON-driven, **object-oriented** web automation and front-end testing software tool that performs unit, integration, performance, and end-to-end testing for the enterprise software, ultimately expediting the SDLC
- Leveraged **modularization**, **page-object model**, **polymorphism**, and the **factory method** to improve program encapsulation, scalability, abstraction, and cohesion
- Developed a single-page application with **React and Express.js**, enabling users to upload, edit, execute and visualize input JSON files
- The tool served as a prototype to drive the AI based technical support platform and was recognized by multiple development teams

## GrantMatch

May 2022 – August 2022

**Data Engineer** | Python, SQL, Pandas, NumPy

Oakville, ON

- Utilized **HTTP Requests**, **BeautifulSoup** and **Selenium** to program **automated scripts** which perform user login and extract desired information from online database platforms
- Created **over 50** web scrapers in Python using Scrapy, Selenium, and BeautifulSoup with **multithreaded design** to extract data from static and dynamic websites
- Maintained and designed the user interface of the data catalog web application using Python Dash and Dash Bootstrap components
- Built pipelines to transform **semi-structured and unstructured data** and implemented lambda triggers to map **549** scraped funding programs into the intermediate PostgreSQL database

## Projects

**Chess Game** | C++

December 2022

- Developed an **object-oriented** chess game in C++, utilizing polymorphism and inheritance concepts to implement chess piece movements while ensuring encapsulation
- Designed **3 levels of AI** difficulties, each following a distinct algorithm to perform randomized AI moves in player versus AI mode
- Built a clean graphical user interface using the **Decorator and Observer** design patterns

**Steam Specials Scraper** | Python, Pandas, BeautifulSoup, Numpy, JSON 📄

May 2022

- Created a bot to scrape the name, original price, discount amount, discounted price, as well as the links to web pages of **all discounted games** on Steam
- Extracted data from the Steam Web API and utilized **parallel programming** concepts to improve program efficiency by **230%**
- Cleaned and transformed the data and outputted results into a CSV file with UTF-8 encoding

**Personal AlgoBot** | Python, Pandas, Matplotlib, Numpy, yFinance 📄

November 2021

- Collaborated with a team of **3 developers** to develop an Algo-Trading Bot that creates a safe portfolio, intended to minimize risk and maintain portfolio value
- Designed the AlgoBot to consume a random CSV file containing any number of tickers and selects **20 of the safest stocks** for the formation of the portfolio
- Employed Jupyter Notebook, Pandas, Matplotlib, NumPy, and yFinance to dynamically code functions to provide calculations for beta, alpha, maximum drawdown, as well as analysis and data visualization on these factors