# Franco Aparicio

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## Education

**University of Toronto** — Greater Toronto Area, CAN
*Honours Bachelor of Science in Computer Science* — *September 2022 – Present*

**St. George's The British International School** — Düsseldorf, DE
*International Baccalaureate Diploma: 40/45* — *August 2020 – May 2022*
*International General Certificate of Secondary Education (IGCSE): 9 in total* — *August 2019 – May 2020*

**California High School** — San Ramon, USA
*High School Diploma: 1st year GPA: 4.0* — *August 2018 – June 2019*

## Experience

**By George! (Student Podcast) Co-Founder** — August 2021 – June 2022
*St. George's The British International School* — *Düsseldorf, DE*

- Founded, set-up, and helped produce the first podcast
- Worked in a team to plan, research, record, and edit each episode
- Established a working production model for the future of the podcast

**Introduction to Artificial Intelligence with Python** — June 2020 – January 2021
*HarvardX* — *Remote*

- Finding a solution to a problem using various search algorithms
- Representing information and drawing inferences using AI
- Creating AI that makes optimal decisions given limited information and uncertainty
- Algorithms to solve optimization problems
- Using data to train AI to recognize patterns and become able to execute tasks on its own
- Implement a *convolutional neural network* using *Tensorflow*
- Perform simple natural language processing such as tokenization

## Projects

**IB Timetabler** | *Blazor, Electron.NET, C#, HTML, CSS, SQLite* — September 2021 – March 2022

- Developed a full-stack desktop application using Blazer server application framework and Electron.NET
- Implemented a modified version of the *Forward Checking* algorithm to generate timetables without conflicts
- Created an intuitive UI to view, manage, and export timetables
- Used various asynchronous processes and custom events/event listeners
- Produced UML, entity relationship, and flowchart diagrams along with concise documentation for the project

**Sudoku as a Constraint Satisfaction Problem (CSP)** | *C#, Python* — May 2021 – August 2022

- Implemented a Sudoku grid generator capable of creating boards of up to $25 \times 25$
- Posed Sudoku problems as CSPs in C# using OOP
- Coded the *Forward Checking* (FC) and *Maintaining Arc Consistency* (MAC) algorithms
- Collected and processed data comparing FC and MAC in a Microsoft Excel spreadsheet using Python
- Produced an extended piece of writing ($\sim$ 4000 words) on the topic and findings

**Connect4 Game** | *Python* — January 2020 – Present

- Continuously revisit and improve upon previous versions
- Programmed local multiplayer and an AI of variable difficulty
- Implemented the *minimax* algorithm including alpha-beta pruning and a depth limit

## Technical Skills

**Languages**: C#, Python, SQL (SQLite), HTML/CSS
**Frameworks**: Blazor, Electron.NET, Flask, Bootstrap, Bulma
**Developer Tools**: Git, Rider, PyCharm, Visual Studio, Atom, DB Browser
**Libraries**: NumPy, Tensorflow, Scikit-learn, RegEx, Openpyxl
**Other**: Regular Linux and Windows user