Nicholas Ratner

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EDUCATION

Toronto Metropolitan University   Sept. 2021 – April 2026
Bachelor of Science in Computer Science, Co-op   *Toronto, ON*

TECHNICAL SKILLS

Languages: Python, Java, C, C#, C++, HTML/CSS, JavaScript, SQL, R, Smalltalk, Elixir, Rust
Developer Tools: Git, Azure, Linux, Bash, VS Code, Visual Studio, PyCharm, MySQL, Oracle, Unity, Power BI
Libraries: Spark, Pandas, NumPy, React, JQuery, Bootstrap, OpenGL, Pygame

EXPERIENCE

Data Engineer   May 2024 – December 2024
Workplace Safety and Insurance Board (WSIB)   *Toronto, ON*
- Developed **Python** scripts to automate common business tasks, reducing manual effort by **40%** and improving efficiency across various departments.
- Utilized **Python** and **Apache Spark** in **Azure Synapse** notebooks to process and analyze databases with over **10 million** records.
- Leveraged a suite of Azure cloud products, including **Azure Data Lake Storage** and **Azure Blob Storage**, to design and implement data pipelines and storage solutions.
- Created **SQL** queries to efficiently extract and transform data from large-scale databases with over **100 million rows** while improving the efficiency of retrieval by over **50%**.
- Designed **Power BI** dataflows and dashboards, enhancing data accessibility and visualization across 5+ departments, enabling more informed business decisions.

Program Instructor   September 2021 – June 2024
City of Vaughan   *Vaughan, ON*
- Developed detailed lesson plans and adapted existing ones for different classes and students' needs.
- Collaborated with colleagues to teach various classes, including coding, sports, and computer skills, increasing participation by over 30% over several sessions.

PROJECTS

Concert Database System | *HTML/CSS, JavaScript, PHP, MySQL, Linux/Bash*
- * Worked in a **team environment** to create a simulation concert ticket management system.
- * Utilized **MySQL database** to store and retrieve all necessary data for the system.
- * Created both a **GUI** and a **command-line interface** for users to interact with the system.
- * Collaborated with peers by utilizing **Git** for version control.

Multiplayer Chess Game with AI | *Python*
- * Created an interactive chess game using various Python libraries including **TKinter**, **Pygame**, and **PIL**.
- * Developed a multiplayer mode allowing players to play against one another locally. The UI includes a user-friendly design, music, sound effects, and various quality-of-life features such as allowing users to undo a move and reset the game.
- * Engineered the AI component of the game using the **Minimax** algorithm with **Alpha-Beta pruning**.
- * Using a complex heuristic function the AI can evaluate any board and calculate several moves ahead.

Food Drawing Classifier | *Python, PyTorch*
- * Developed an interactive program allowing users to draw a picture of food, process the image, and use a **PyTorch** machine learning model to classify the food.
- * Created and trained a convolutional neural network (CNN) using on theFood101 dataset, improving classification accuracy by over 83%.

TV Show Recommendation Website | *JavaScript, React, HTML, CSS*
- * Created a website using the **React framework**, which allows users to answer questions and get a list of corresponding TV show recommendations based on their preferences.
- * Utilized **GraphQL** queries to access information from a database to use in my website.