Nabil Mansour

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Education

Toronto Metropolitan *(formerly Ryerson)* University Toronto, ON
Computer Science (B. Sc) Co-op *Expected May 2024*

- **3.95/4.33** CGPA
- Relevant Courses: Data Structures and Algorithms, Intro to C and Linux/Unix, Computer Graphics, Machine Learning, Computer Vision

Technical Skills

Languages: TS/JS, HTML5, CSS, Python, C/C++/C#, GLSL
Frameworks and Libraries: OpenGL, Node.js, React, Material UI, Cypress, Redux, Socket.io, Flask, SQLalchemy, Pandas, Dask
Developer Tools: VS Code, Visual Studio, Git, Arduino, Linux
Applications: Unity Game Engine, ShaderToy, MATLab, Fusion360

Experience

Full Stack and Data Engineer May 2022 – August 2022
Fairly AI *Toronto, ON*

- Cleaned and **redesigned** the database for the back-end and established an **authentication** system using **Oso**.
- Developed a department system to organize users within an organization using **React** and **Flask**.
- Refactored **Data Validation** processes and implemented techniques to handle **Big Data** using **Python**.

Teaching Assistant Sep 2021 – May 2022
Toronto Metropolitan (formerly Ryerson) University *Toronto, ON*

- Course taught:
  - CPS 305 (**Data structures**) in **LISP**
  - CPS 506 (**Comparative Programming Languages**) in **SmallTalk**, **Elixir** and **Haskell**.
- Administered weekly tutorials for students that thoroughly explained the requirements of the respective lab and assisted them when necessary.
- Read and critiqued students' code and provided guidance for writing more efficient and readable code by discussing with them good standards and practices.

Research Assistant/Developer May 2021 – August 2021
Toronto Metropolitan (formerly Ryerson) University *Toronto, ON*

- **Developed** an auto-marking program in **LISP** that runs student programs and grades them automatically while also reporting any problems and handling any raised errors in their programs.
- Redesigned and modified CPS 305 (**Data Structures**) labs by following the instructions of the first drafts of the labs and providing solutions for them as supervised by Professor Marcus Santos.

Projects

Shaders | *GLSL* **ShaderToy profile**

- Made various shaders that utilize signed distance fields for rendering different mathematical shapes.
- Some shaders visualize **3D raycasted objects** and others visualize mathematical concepts like the **Mandelbrot set**.

Voxel Terrain | *C#, Unity Game Engine, MonoBehaviour, .NET Framework* **GitHub**

- Created a Unity demo that showcased a 3D random procedural generation of terrain, mountains, and caves by utilizing **Perlin noise**.
- Designed the software such that the user can modify the terrain by placing and removing blocks.

Self Parallel-Parking Arduino Car | *C++, Arduino* **GitHub**

- Developed the software for the Embedded system that allowed a robotic Arduino car to parallel park on its own given a 35cm by 20cm parking slot that is between two parked objects.
- Utilized an ultrasonic sensor that was able to rotate accordingly by a servo motor.
- Controlled the voltage for the wheels of the robotic car using the **DRV-8835** module.
- Received a grade of **10/10** as part of the final exercise for CPS 607: **Autonomous Mobile Robotics** course.