

Nabil Mansour

Toronto, Ontario | [@website](#) | [@youtube](#) | [@linkedin](#) | [@github](#) | [@medium](#) | [@mail](#)

PRODUCTS

ExcaliHub | TS/JS, Next.js, Clerk, Drizzle, better-sqlite3, Mantine UI

[Web app](#)

- Built a free platform for creating and sharing **Excalidraw drawings** where users can create, save, and share whiteboard drawings online.
- Utilized **Clerk** and used best practices for ensuring **security**, **authentication** of users, and **authorization** of server actions
- Employed **Drizzle ORM** with **better-sqlite3** to manage database interactions, improving query performance and code maintainability.
- Established a **CI/CD pipeline** with **GitHub actions** and hosted the web app in a self-managed VPS with **DigitalOcean**.

FRACTAL GLIDE | C#, HLSL, Unity Game Engine, MonoBehaviour, Steamworks

[Website](#)

- Conceptualized, designed, and shipped an indie game available on [Steam](#) made with my custom-made ray/cone marching rendering engine [Fractix](#).
- Sold over **100+ units** to players all around the world.
- Documented the process of development in my [YouTube channel](#).

WORK EXPERIENCE

Software and Data Engineer | Fairly AI

May 2022 – Sep 2022 | Jan 2023 – May 2023

- Developed a **pip-installable** Python library for enhanced code maintenance and future project extensions.
- Implemented big data verification functions that evaluate the potential risk of datasets and AI models.
- Optimized **Streamlit** applications and **Jupyter** notebooks for dynamic compatibility with diverse datasets and AI models, improving user experience.
- Designed a secure role-based access control system (**RBAC**) utilizing [Oso](#) and Redesigned the database for the back-end: resulting in enhanced data integrity and improved system security.
- Created a dynamic user department front-end system using **React** and **Flask** for efficient organization within companies.
- Participated in a **Scrum** team, contributing to sprint planning, backlog refinement, and daily stand-up meetings.
- Restructured Data Validation processes, utilizing **Dask** to manage Big Data efficiently, resulting in improved accuracy and processing speed.

Research/Teaching Assistant | Toronto Metropolitan University

May 2021 – May 2022 | Sep 2023 - Jan 2024

- Redesigned and modified CPS 305 (**Data Structures**) labs by improving on the instructions of the first drafts of the labs and providing solutions for them as supervised by [Dr. Marcus Santos](#)
- 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.
- Administered weekly tutorials, critiqued students' code, and provided guidance for writing more efficient and readable code by discussing with them good standards and practices.
- Also TA-ed in other courses like CPS 506: **Comparative Programming Languages (SmallTalk, Elixir, Haskell)**.

SIDE PROJECTS

Medium 2 Markdown | TS/JS, Next.js, Mantine UI

[Web app](#)

- A web app that allows users to convert Medium articles into Markdown format by providing the link.
- Made in order to convert some of my Medium articles to Markdown so that I could publish them on [my personal website](#).

ThreeJS Ray Marcher | TS/JS, GLSL, React, Three.js, CodeMirror, MUI

[Website](#)

- Created an interactive web app to visualize **SDFs** by allowing the user to modify the shader code in real time with **CodeMirror**.
- Implemented a cone marcher to assist in the marching process: resulting in a drastic increase in FPS of the whole web app.
- Used **three.js** for the general 3D scene setup and **React** for the interactivity with the scene.

TECHNICAL SKILLS

Languages : TypeScript, JavaScript, Python, C#, SQL (Postgres, MySQL, sqlite), HTML5, CSS, GLSL, HLSL, LISP, Java, C/C++, Haskell, Elixir, Ruby

Frameworks : Node.js, Next.js, React, Clerk, Stripe, Drizzle, Flask, ExpressJS, SQLAlchemy, Pytorch, Numpy, Pandas, Dask, OpenGL, DirectX, ModernGL, Three.js, R3F, Material UI, Mantine UI, Socket.io, Selenium, Playwright

Developer Tools : Git, Talend, DigitalOcean, Linux, Jira, Arduino, VS code, VS studio, Vim, Emacs

Others : Unity Game Engine, Blender, Photoshop, Illustrator, ShaderToy, MATLAB, VirtualBox, Fusion360

ACADEMIC EDUCATION

Toronto Metropolitan (formerly Ryerson) University

GPA : 3.92/4.33 | B. Sc in Computer Science

2019 – 2024