

Roqaya Elrahwan

705-373-2007 | Roqaya.elrahwan@mail.utoronto.ca | [github](#)

EDUCATION

University of Toronto

Bachelor of Applied Science, Computer Engineering + PEY Co-op

SKILLS

Technical:

Programming Languages: Python, Javascript, Java, C, C++, HTML/CSS,

Other Software: Microsoft Office, Jupyter Notebook, Matplotlib, SQL

Professional:

Teamwork, Leadership, Outreach, Critical thinking, Project management

Experience

Document Intelligence Externship | Python, RAG, LLMs, OCR 2026

Pfizer Extern | 2026 – Present

- Developing an AI-powered document intelligence pipeline to extract, classify, and structure information from pharmaceutical compliance and clinical supply documents using Python, PyMuPDF, OpenCV, and OCR.
- Building and evaluating Retrieval-Augmented Generation (RAG) workflows for semantic search and question answering across complex documents, experimenting with vector databases and open-source/hosted LLMs.
- Comparing OCR and document-processing approaches across complex PDF layouts to improve extraction accuracy and identify compliance-relevant information.
- Integrating document ingestion, classification, retrieval, and LLM-based querying into an interactive Gradio application for document search and analysis.

PROJECTS

Hyperspectral Unmixing using Deep Learning | PyTorch, Python, NumPy, Pandas

University of Toronto Aerospace Team (UTAT) — Deep Learning Onboarding Project

- Developed and evaluated MLP neural networks to predict green vegetation, non-photosynthetic vegetation, and soil abundance fractions from hyperspectral reflectance data
- Processed a dataset of 1,723 samples with 210 spectral features, implementing full train/validation/test workflows in PyTorch
- Improved model Test R^2 from 0.871 to 0.896 through systematic architecture optimization and hyperparameter experimentation
- Visualized model performance using training/validation loss curves and true-vs-predicted analysis to evaluate generalization

F1 Race Prediction Model - Machine Learning Project (Independent project)

- Engineered an end-to-end machine learning pipeline in Python to analyze structured historical Formula 1 race data
- Performed data cleaning, feature engineering, exploratory analysis, and model evaluation
- Implemented predictive algorithms to forecast race outcomes and visualized performance metrics using Matplotlib
- Structured codebase for modular experimentation and model comparison

Engineering Design Project - High Park Nature Centre Accessibility - APS111, University of Toronto

- Collaborated in an engineering team to design accessibility-focused trail infrastructure for a real client
- Translated stakeholder requirements into measurable technical constraints and evaluated multiple design alternatives
- Conducted feasibility analysis balancing environmental impact, cost, and usability considerations

- Produced structured design documentation and formal client presentations

UofTCompass | React, JavaScript | *Personalized Campus Resource Platform*

- Developed a **React-based student support platform** that centralizes U of T academic, career, financial, accessibility, and wellness resources into a single dashboard.
- Built a **multi-step onboarding system** that collects students' faculty, academic needs, challenges, and goals to generate personalized resource recommendations.
- Implemented **dynamic faculty-specific recommendations** and direct routing to relevant university support services.
- Designed an interactive end-to-end user experience including **authentication, personalized onboarding, resource discovery, and dashboard interfaces**.

Neuroimaging Data Analysis - MATLAB Project

- Developed a signal-processing workflow to clean and analyze high-dimensional brain imaging datasets
- Applied statistical analysis and dimensionality-reduction techniques (PCA) to extract meaningful patterns
- Generated data visualizations to support interpretation of neurological trends

UTAT Electrical Team – PCB Design Project - University of Toronto Aerospace Team (UTAT)

- Designed a custom 2-layer printed circuit board (PCB) in Altium Designer following engineering design requirements.
- Created the schematic, selected and placed electronic components, defined the board outline, and routed PCB traces while meeting design constraints.
- Applied PCB design principles including component placement, mounting holes, design rule checks (DRC), and manufacturable layout practices.

EXTRACURRICULAR ACTIVITIES & VOLUNTEER EXPERIENCE

Research Intern - STEMmasterminds & Whereemotionsflow (2023 – 2024)

- Conducted research on STEM topics including health, technology, and psychology
- Gathered findings and used them to create structured research papers
- Supported data collection and analysis for ongoing studies

Volunteer, Blood & Stem Cell Donation Campaigns - Canadian Blood Services & Seeds of leadership Mississauga, ON (July 2024 - December 2024)

- Organized and promoted blood and stem-cell donor recruitment events
- Worked with professionals and volunteers to manage donor flow
- Helped address national blood shortages through community outreach

Volunteer at Smile Canada - Smile Canada & Seeds of leadership (January 2024 - July 2025)

- Developed mentorship program where over 20 children signed for children with disabilities to help them with socialization and teach them life skills and make them feel seen and safe
- Organized an event for children in the program and other disabled children and their families to attend with various accessible activities to enjoy
- Volunteered with two mentees where we had frequent online meetings