

# Hesham Elkaliouby

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## Education

### Univeristy of Calgary

Sep. 2019 – Apr 2024

#### Bachelor of Science in Software Engineering, with Distinction

- Cumulative GPA of 3.8 / 4.0

### GIAC Security Essentials Certification (GSEC)

Jan. 2023 – Expires Jan. 2027

#### Global Information Assurance Certification

- Analyst ID 215797

## Experience

### Software Engineer

Jul. 2024 – Present

#### TerraCortex Spatial Solutions

- Independently developed a **Python ArcGIS pile placer tool** to find and calculate **optimal topsoil and subsoil pile placements** for land lease sites based on geographic and user variables to automate a process that previously required a person of expertise
- Used **test driven development** to drive completion and ensure desired behavior
- Gave progress presentations to **stakeholders** to ensure objectives are met as specified
- Implemented **optimizations** beyond native **ArcPy** to speed up the pile placer tool by **91%** during testing

### Software Engineer Intern

Aug. 2022 – Aug. 2023

#### Cisco Systems

- Wrote **development code** in **C++** and **Python** for the **Cisco Secure Endpoint** Windows product while working on a **Scrum team** to triage and resolve issues and contribute to review
- Provided a foundation for a **Linux and Windows automated malware lab** hosted on **vSphere** by writing **Docker**, **Vagrant**, and **Chef** scripts to create a virtual environment for rapid malware sample testing
- Wrote **markdown documentation** files to outline architecture, development, and usage in a clear manner
- Jointly upgraded **Jenkins** continuous integration **PowerShell pipeline scripts** and segments of the codebase to the **Visual Studio 2022** toolchain which aided in total work to **reduce pipeline processing time by 50%**
- Switched internal logging system to **Spdlog** to enhance message clarity and provide new format options
- Reduced barrier to language support by creating a Python tool to automatically substitute language packs

### Software Developer Intern

May 2022 – Aug. 2022

#### TerraCortex Spatial Solutions

- Developed an **automated Python land survey tool** to find **optimal land lease site positions** in several square kilometers of land
- Created a visualization tool for **ArcGIS** of cut/fill site placements using **Rust** whitebox-tools to increase vertical integration of the Earthworks Engine
- Integrated tools into a **REST API** using the **FastAPI framework** to improve client response times

## Projects

### Drone Prediction Software | Python, QML, PySide6, QT Framework |

Sep. 2023 - Apr. 2024

- Led the development of a framework designed to predict drone specifications and mission performance parameters with at least 60% accuracy
- Implemented as desktop application using the **Model, View, Controller (MVC)** architecture with a supplementary **Power BI** data visualization tool
- Used **ArduPilot** to collect data using validation plans and an autonomous VTOL drone

### ShowCase | React, Node.js, MySQL |

Mar. 2022 - Apr. 2024

- Designed and implemented a full stack portfolio sharing web application similar to LinkedIn
- Development was completed with a **React** front end serving a **Node.js RESTful API** into a **MySQL** database

## Skills and Activities

**Skills:** C, C++, Java, Python, Git, Jenkins, Powershell, JavaScript, React.js, SQL, QT Framework, QML, Selenium, GoogleTest

**Concepts:** OOP, Parallel Programming, Relational Database Design, Agile, CI/CD, Networking, OS Fundamentals

**Activities:** U of C Solar Car Team, U of C Fencing Club, Schulich Ignite, Schulich Mentorship Program