

Bishoy Roufael

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EXPERIENCE

- FARO Technologies** Dresden, Germany
July 2022 - Present
 - Software Engineer | Full Time
 - Improved layout estimation from panoramic images by 30% by utilizing *HoHoNet* neural network for depth estimation, layout estimation, and semantic segmentation.
 - Improved detection of MEP elements by developing a web application using *React*, *FastAPI*, and *Docker* for uploading and storing point clouds and communicating with a neural network for segmentation.
 - Fixed various bugs, improved documentation and refactored legacy C++ codebase in *As-Built* plugin for *Autodesk Revit*.
- FARO Technologies** Stuttgart, Germany
June 2020 - June 2022
 - Software Engineer | Internship, Working Student
 - Developed a *state-of-the-art* autoencoder neural network for denoising high resolution CT scans using *Keras*. This allowed for better edge detection of the scanned surfaces and increased the accuracy of the surface determination algorithm in the pipeline by 40%.
 - Developed a neural network for 3D construction of voxel grids from single and multi-view projection images of different objects using *PyTorch*. This new technology allowed customers to predict scanned objects 3D voxels from few 2D images as an input.
 - Developed a disparity retrieval neural network using *Keras* and *Tensorflow* for generating depth maps from structured light stereo images.
 - Researched and developed super-sampling neural networks to super-scale images.
 - Researched point cloud compression methods and built internal tools for compressing point clouds.
 - Worked with *Amazon SageMaker* on labeling drone aerial images and developed a semantic segmentation model for detecting different objects in the images *i.e cars, roads, walkways, ... etc.*

SKILLS SUMMARY

- Languages** Python, C, C++, JavaScript, Fortran, Rust
- Frameworks** FastAPI, Flask, Scikit, TensorFlow, PyTorch, React, React-Native
- Tools** Docker, GIT, PostgreSQL, Anaconda, NodeJS
- Platforms** Linux, Windows, Raspberry, GCP, Azure
- Soft Skills** Leadership, Time Management, Open For Criticism, Fast Thinker

PROJECTS

- Rustle** 1-Person Project
August 2023
 - Rust Download Manager
 - A robust download manager and accelerator built in *Rust*, featuring resumable downloads and advanced techniques like parallel connections to enhance download speeds and ensure uninterrupted user experiences.
- Lighthouse** | **JacobsHack 2021** Team Project
20th November 2021 - 21th November 2021
 - Backend API
 - Developed a full backend service with *Fortran* and *SQLite* to match the hackathon theme, *Lost City Of Atlantis*, for our lost-and-found (L&F) web app and deployed it on *Google Cloud Platforms (GCP)*.
- Explore App** 1-Person Project
February 2021 - April 2021
 - Android, iOS App
 - Developed a unified app for e-commerce, news browsing, and downloading free images using *React-Native*.
 - App features :**
 - Search and fetch products from *Amazon* and *eBay*.
 - Read the latest 30 articles from *New York Times*.
 - Browse and download random images from *Unsplash*.

SECURITY ACHIEVEMENTS

- Miele** CVE-2022-3589
October, 2022
 - appWash
 - Detected a high severity security issue (8.1 CVSS score) in the *appWash* API by *Miele* which exposed user data and introduced potential unauthorized usage of credit money from an account to another.

HONORS AND AWARDS

- Best Jazz Musician, Ismailia STEM High School Music Club - August, 2018
- Starks 4th Place, Robot Line Follower - May, 2017
- 1st Place *World Robotics Olympiad* (Local Round), Open Category (Sustainability) - June, 2018

EDUCATION

- Jacobs University Bremen** Bremen, Germany
August 2019 - August 2022
 - Bachelor of Science - Intelligent Mobile Systems | Minor in Computer Science
 - Courses: Algorithms and Data Structures, Artificial Intelligence, Machine Learning, Databases and Web Services, Software Engineering