

# Bishoy Roufael

[bishoyroufael@gmail.com](mailto:bishoyroufael@gmail.com) | [linkedin.com/in/bishoyroufael](https://www.linkedin.com/in/bishoyroufael) | [github.com/bishoyroufael](https://github.com/bishoyroufael) | +49-1523-6403935

## 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
- 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, Good Multitasker

## PROJECTS

- Lighthouse** | **JacobsHack 2021** Team Project  
20th November 2021 - 21th November 2021
  - Fortran Backend
  - 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*.
- Crypto Whisper** 1-Person Project  
November 2021 - December 2021
  - Python analytical tool
  - Developed a *Python* tool for monitoring cryptocurrencies prices trends using *Kraken* API and sending a notification alert to a *Telegram* bot.

## 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