

# SELIM ELBINDARY

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selim-el-bindary

selimbin



## EXPERIENCE

### Research Assistant

#### Fraunhofer IPA

February 2024 – Ongoing Stuttgart, Germany

- Work focused on Safe Human-Robot Collaboration using machine learning
- Worked on generating synthetic datasets using omniverse in order to train Machine Learning models with a focus on safety in warehouses.
- Developed an Isaac Sim extension that allows user to generated synthetic datasets in warehouses, custom scenes and with the possibility to include digital twins. An asset library was designed and added in order to allow users to tailor the dataset generation to their needs.

Omniverse Ubuntu Python Isaac Sim

### Junior Data Scientist

#### HYVE Technology Consulting

April 2023 – Januaery 2024 Cairo, Egypt

- Worked on Large Language Models including local LLMs (with Ubuntu) and GPT-4, integrating them in projects and building applications and chatbots using Langchain.
- Worked on projects using Prefect to automate workflows.
- Built custom chatbots that use GPT-4 along with vector databases, dashboards and other tools. Focus on improving chatbot agents response time.

Langchain Ubuntu Python LocalLLM Prefect ChromaDB

DuckDB Redis

### Wildfire Detection Research

#### GUC

Oct 2021 – Feb 2022 Cairo, Egypt

- Worked with Dr. Mohammed Salem on CNNs to study, review and work on existing methods and design new ones to detect Wildfires.
- Focus on Wildfire detection in images and videos.
- Designing a lightweight architecture that can detect early stages of wild-fires and be used in an easily distributed system.
- Worked on using smoke to detect areas where there are wildfires and incorporating active learning.

Python TensorFlow ImageClassification ImageSegmentation

### Data Analytics Trainee

#### HYVE Technology Consulting

July 2020 – Sep 2020 Cairo, Egypt

- Worked on a dataset on interactions between consumers and customer service that allowed me to find concerns and detect insights.
- Worked using Apache Spark to Extract, Transform and Load (ETL) large datasets. Used PowerBI to visualize and create reports for end-users.

## ACHIEVEMENTS



### Conference Paper

Presented a conference paper in 2021 at the ICICIS Conference

## SKILLS

### Programming

- Firm Knowledge

Python Java SQL

NOSQL SpringBoot

- Base Knowledge

JavaScript C++ C#

- Familiar

C Assembly VHDL Prolog

### Tools & Frameworks

Linux Git NVIDIA Omniverse ISAAC SIM

Spring Kafka NodeJS React Docker

MongoDB PostgreSQL PowerBI

Figma Quartus Prime

### Soft Skills

Time Management Teamwork & Leadership

Communication

## LANGUAGES

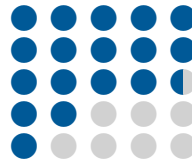
English

Arabic

French

German (A2)

Spanish



## EDUCATION

M.S. in Computer Science

Specialization Autonomous Systems

University of Stuttgart

Oct 2023 – Present

B.S. in Computer Science

German University in Cairo (GUC)

Sept 2017 – June 2022

- Learned the basics of Machine Learning using TensorFlow.

Python PowerBI TensorFlow SQL Apache Spark Pandas  
Keras

## INTERESTS

Research Machine Learning Data Science  
Back-End Engineering

### CS1 Junior Teaching Assistant (TA)

GUC

Oct 2019 – Jan 2020 Cairo, Egypt

- Lab instructor for the python CS102 (Introduction to Computer Science) course.
- Supervising 2 weekly labs, explaining concepts, aiding students, supervising quizzes and grading lab assignments.

## PUBLICATIONS

### Conference Proceedings

- S. Elbindary, D. M. A. Latif, and M. A.-M. Salem, "Satellite imagery road segmentation using a dual network approach with enhancement blocks," in *2021 Tenth International Conference on Intelligent Computing and Information Systems (ICICIS)*, 2021, pp. 80–87. DOI: 10.1109/ICICIS52592.2021.9694133.

## PROJECTS

### Mid-Air Typing in AR/VR: User Identification and Authentication

University of Stuttgart

Nov 2023 – Feb 2024 Stuttgart, Germany

- Propose and compare different approaches for User Identification and Authentication using keyboard typing data.
- Our proposal achieved the highest results when compared with the existing baseline approaches.
- Leveraging the unique typing patterns of individuals, including timing and rhythm of keystrokes, to accurately identify and authenticate users.

Research Machine Learning Python

### Distributed File Management System

University of Stuttgart

Nov 2023 – Feb 2024 Stuttgart, Germany

- Implementating a Distributed File Management System using Python.
- The project delivers scalable and fault-tolerant file management, including leader election, dynamic host discovery, replication management, reliable ordered multicast and fault tolerance.

Distributed Systems Python

### Massively Scalable Application

GUC

Feb 2022 – June 2022 Cairo, Egypt

- Implementing in a team the Piazza website.
- Coded using java spring boot, with NOSQL & SQL databases.
- Used Command Design Pattern with Apache Kafka for message queues and a redis cache.

Spring Boot MongoDB SQL NOSQL Redis Java Kafka  
PostgreSQL

## Bachelor Thesis on Road Network Extraction using a Deep Learning Model

GUC

📅 Mar 2021 – Aug 2021 📍 Cairo, Egypt

- Designed a CNN consisting of two models to extract road networks from high resolution satellite images from 4 datasets.
- Testing outperformed existing state of the art methods, and a post-processing operation improved results.
- Thesis resulted in a conference paper presented in 2021.

Python TensorFlow CNN

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## Full Stack Development

GUC

📅 Oct 2020 – Jan 2021 📍 Cairo, Egypt

- Group Project focused on creating the GUC staff portal by building the backend using NodeJS and a mongoose database and building a front-end using REACT.

NodeJS React MongoDB

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## Software Engineering

GUC

📅 Feb 2020 – June 2020 📍 Cairo, Egypt

- Project designing an enhanced version of the GUC system.
- Designed a UX mockup of the system using Figma following a sprint backlog to organize how the team works.

FIGMA

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## Database Management System (DBMS)

GUC

📅 Feb 2020 – May 2020 📍 Cairo, Egypt

- Built a DBMS using java in a team as part of the DBII course.

Java