europass

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ABOUT ME

I am pursuing a Master's in computer vision with a focus on 3D scene understanding under Dr. Fahad Khan's, and Dr.Jean Lahoud's supervision. Before joining MBZUAI, I received my engineering degree in control systems and automation from The National Polytechnique School.

EDUCATION AND TRAINING

Control Systems and Automation Engineering

National Polytechnic School [08/09/2017 – 29/07/2022]

City: Algiers

Country: Algeria

MSc in Computer Vision

Mohamed Bin Zayed University of Artificial Intelligence [15/08/2022 – Current]

City: Abu Dhabi

Country: United Arab Emirates

PUBLICATIONS

Enhancing Spatial and Semantic Supervision for Hybrid-Based 3D Instance Segmentation

Accepted into ICCV2023

State-Domain Equations and Their Quantum Computing Solution Based HHL Algorithm

Accepted into MMEP

PROJECTS

Visual SLAM on Lie groups

[01/11/2021 – 01/06/2022]

Proved the convergence of a Lie groups-based nonlinear observer for Visual Simultaneous Localization And Mapping (SLAM) using Lyapunov analysis.

Robust Model poisoning attack to fake clients defense

[01/02/2023 – 15/05/2023]

Proposed a robust attack based on fake clients in a Federated Learning setting.

YOLOngv8: From Imbalanced to Accurate Object Detection in Long Tailed iSAID Dataset

[01/02/2023 – 01/05/2023]

Proposed two modules that improve the performance of YOLOv8 model for long-tailed object detection.

Drawing Attention to Detail: Pose Alignment through Self-Attention for Fine-Grained Object Classification

[01/02/2023 – 15/05/2023]

Proposed a transformer-based pose alignment module to improve fine-grained classification.

DeepLabV3+ and SegFormer robustness analysis

[01/10/2022 – 01/11/2022]

The study offers a thorough comparison in performance between a Vision transformers-based semantic segmentation model and a CNN-based one when dealing with noisy, perturbed, and stylized input images.

Human Pose Estimation

[01/11/2022 – 01/12/2022]

Proposed numerous modifications to improve the speed and accuracy of Stacked Hourglass Networks.

Arduino-based autonomous robot

[09/2020 – 02/2021]

Implemented odometry, obstacle avoidance, and control algorithms in C++ to build an Arduino-based autonomous robot.

Indoor localization and navigation for an autonomous drone

[06/2021 – Current]

Working on indoor navigation for the X500 drone using a PX4FLOW sensor and a Pixhawk4.

ESP32-based teleguided robot

[12/2019 – 02/2020]

Worked on a 4-member team, where I designed a 3D model for a teleguided robot using SolidWorks. I also wrote a c++ code to remotely control the motors using a smartphone application connected to an ESP32 through WIFI.

WORK EXPERIENCE

Intern
Inception Institute of Artificial Intelligence [25/05/2023 – 10/07/2023]

City: Abu Dhabi
Country: United Arab Emirates

Worked on improving face-swapping models for videos.

Intern
SONATRACH [23/12/2019 – 02/01/2020]

City: Ouargla
Country: Algeria

Learned about the principles and applications of sensors used in the oil and gas industries.

Intern
GICA group [28/01/2021 – 11/02/2021]

City: Constantine
Country: Algeria

Polished my knowledge of the exploitation of SIEMENS PLCs in industry and the types of communication protocols used between them, like PROFIBUS and ETHERNET.

CERTIFICATIONS

Coursera

[13/11/2021 – 28/12/2021]

- Introduction to the Internet of Things and Embedded Systems
- The Raspberry Pi Platform and Python Programming for the Raspberry Pi
- The Arduino Platform and C Programming
- Interfacing with the Raspberry Pi
- Interfacing with the Arduino

HONOURS AND AWARDS

National competition for engineering schools

Ministry of higher education and scientific research [09/2019]

Ranked 3rd nationally out of 1037 students.

ACTINSPACE hackathon 2020

CNES, ESA and Aerospace valley [13/11/2020]

Ranked 2nd with the theme "Assessing water volume in dams using satellite imagery and monitoring dam structural health using InSAR technology and artificial intelligence".

VOLUNTEERING

Member of the communication department

[Vision and Innovation Club, 31/12/2020 – 28/02/2021]

- Organized the first Algerian robotics competition "SPARK VIC POLYMAZE", with over 10 participating teams and 70 spectators.

Co-founder and Head of department

[Vision and Innovation Club, 31/12/2019 – 31/12/2020]

- Co-founder and head of the scientific department "SPARK VIC" with over 40 members within the vision and innovation club.

Member of the training department

[Vision and Innovation Club, 08/09/2018 – 31/12/2019]

- A volunteer in the Algerian Engineering Competition, which took place in 6 provinces.

DIGITAL SKILLS

Programming languages, frameworks, and python libraries

C++ / C / Python / Pytorch / OpenCV / Open3D

Software

MATLAB / Siemens Step7, WinCC / Simulink / Zelio soft / Blender, 3D modeling / SolidWorks / Multisim / Proteus

Hardware

Arduino / ESP32 / Raspberry Pi / Pixhawk 4 / px4flow

LANGUAGE SKILLS

Mother tongue(s): **Arabic**

Other language(s): **French (Intermediate)** | **Japanese (Intermediate)** | **English (IELTS 7)**