Mohamed El Amine BOUDJOGHRA

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Date of birth: 01/12/1999   **Nationality:** Algerian

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 Polytechnic School.

EDUCATION AND TRAINING

[08/09/2017 – 29/07/2022]

Control Systems and Automation Engineering

National Polytechnic School

City: Algiers
Country: Algeria

[15/08/2022 – Current]

MSc in Computer Vision

Mohamed Bin Zayed University of Artificial Intelligence

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

[01/11/2021 – 01/06/2022]   **Visual SLAM on Lie groups**

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

[01/02/2023 – 15/05/2023]   **Robust Model poisoning attack to fake clients defense**

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

[01/02/2023 – 01/05/2023]   **YOLOngv8: From Imbalanced to Accurate Object Detection in Long Tailed iSAID Dataset**

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

[01/02/2023 – 15/05/2023]

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

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

[01/10/2022 – 01/11/2022]   **DeepLabV3+ and SegFormer robustness analysis**

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.

[01/11/2022 – 01/12/2022] Human Pose Estimation

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

[09/2020 – 02/2021] Arduino-based autonomous robot

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

[06/2021 – Current] Indoor localization and navigation for an autonomous drone

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

[12/2019 – 02/2020] ESP32-based teleguided robot

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

[25/05/2023 – 10/07/2023] Intern

Inception Institute of Artificial Intelligence

City: Abu Dhabi
Country: United Arab Emirates
Worked on improving face-swapping models for videos.

[23/12/2019 – 02/01/2020] Intern

SONATRACH

City: Ouargla
Country: Algeria
Learned about the principles and applications of sensors used in the oil and gas industries.

[28/01/2021 – 11/02/2021] Intern

GICA group

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

[13/11/2021 – 28/12/2021] Coursera

• 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

[09/2019] National competition for engineering schools Awarding institution: Ministry of higher education and scientific research

Ranked 3rd nationally out of 1037 students.

[13/11/2020] ACTINSPACE hackathon 2020 Awarding institution: CNES, ESA and Aerospace valley

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

[31/12/2020 – 28/02/2021] **Member of the communication department**   Vision and Innovation Club

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

[31/12/2019 – 31/12/2020] **Co-founder and Head of department**   Vision and Innovation Club

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

[08/09/2018 – 31/12/2019] **Member of the training department**   Vision and Innovation Club

- 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)