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EXPERIENCE

● QUALCOMM

Bordeaux, France

→ Senior Machine Learning Engineer

Mar 2024 - Present

- Part of Inputs Team in Qualcomm XR Labs, R&D for VR/XR devices. Main focus on perception services for device inputs.
- Worked on enhancing the performance and capabilities of machine learning models for hand tracking SDK.
- Worked on benchmarking and optimization of inference time for Hand Tracking models.

● AUTOMATIKA ROBOTICS

Grenoble, France

→ R&D Engineer

July 2023 - Feb 2024

- Worked on **visual social navigation** for mobile robots to collaborate with humans in crowded environments.
- Built the perception module used in navigation: **Semantic segmentation**, 3D projection, **Object Tracking** over time.
- Responsible for deployment on different robotic platforms and to build development environment in simulators.

● NAVER LABS EUROPE

Grenoble, France

→ Research Engineer - PhD Resident - ANRT CIFRE Fund

June 2020 - June 2023

- Main focus is to research and develop agent that leverage hybrid navigation policies.
- Leading the deployment and conducting experiments on **LoCoBot**, a mobile robotic platform inside Naver Labs Europe.
- Worked on evaluating and interpreting the behavior of End-to-End neural agents in real-world scenarios.
- Implemented **deep learning**-based and **geometry-based** techniques, to be evaluated in **real-world** environments.
- Contributed to different tasks in the Embodied AI community: **exploration**, **way-point** and **Multi-Objects navigation** tasks.
- Worked with geometry-based algorithms for **mapping and planning** such as SLAM, D* and Fast Marching Method.

→ Research Engineer

Nov 2019 - May 2020

- Conducted research on applying **domain adaptation** techniques for 3D-Vision.
- Focused on **visual localization** tasks: Absolute and Relative **Camera Pose Estimation** from images.
- Worked on applying **domain adaptation** for ordinal regression tasks such as facial age estimation .

→ Research Engineer, Intern

Feb 2019 - Aug 2019

- Worked on 3D vision tasks for **monocular depth** and **ego-motion estimation** from sequences of images.
- Main contribution is to implement new **self-supervised** geometric losses in order to tackle the two tasks jointly.

● MICROSOFT

Cairo, Egypt

→ Research Software Development Engineer

Feb 2018 - Aug 2018

- Worked on the full-stack of **LUIS** (Azure Cognitive Service - www.luis.ai), service for Language Understanding (LU).
- Maintained databases, designed schemas, created file servers, developed APIs end-to-end..
- Used **C#** and Microsoft technology Stack to align with **GDPR** compliance and to optimize database queries for LU apps.
- Responsible for maintaing, refactoring and optimizing the user LU apps and settings web pages.

● VALEO

Cairo, Egypt

→ Software Engineer, Intern

June 2017 - Aug 2017

- Implemented a Eclipse plugin that serves as a tool that generates standard C file templates.
- The tool is used by software engineers to generated interfaces and core logic for microcontrollers in vehicles systems.
- It has been developed using **Java**.

● MENTOR GRAPHICS (SIEMENS)

Cairo, Egypt

→ Software Engineer, Intern

July 2016 - Aug 2016

- Initiated the UI testing for two different software solutions from Mentor Graphics: Certus Implementor and Analyzer.
- The library has been used to build 100+ test cases integrated in the CI/CD Cycles.
- It has been developed using **python** and **PyQT**.

EDUCATION

● INSTITUT NATIONAL DES SCIENCES APPLIQUÉES DE LYON (INSA LYON)

Lyon, France

→ PhD in Computer Science

June 2020 - Feb 2024

- Research Focus: 3D Vision, Mobile Robotics, Reinforcement Learning, Sim2Real Transfer.

- **Supervisors:** Boris Chidlovskii, Christian Wolf and Atilla Baskurt.
- **Industrial Collaboration:** Naver Labs Europe (ANRT CIFRE Fund).

● INSTITUT NATIONAL POLYTECHNIQUE DE GRENOBLE (INP GRENOBLE - ENSIMAG)

Grenoble, France

→ *M.S. in Data Science & Machine Learning*

Sep 2018 - Sep 2019

- **Thesis:** 3D Scene Understanding: Self-supervised Learning for Monocular Depth Estimation and Ego-motion Estimation.
- **Relevant Courses:** Computer Vision, Advanced Learning Models, Convex optimization, Probabilistic Data Mining.

● CAIRO UNIVERSITY

Cairo, Egypt

→ *B.S. in Computer Science*

Sep 2013 - June 2018

- **GPA:** 3.7/4. Ranked 8th.

TEACHING EXPERIENCE

● COLLEGE DE LA MERE DE DIEU

Cairo, Egypt

→ *High School Teacher*

Feb 2016 - June 2018

- Physics & Chemistry Teacher in the French Baccalaureate Department.

PUBLICATIONS

- Bono G; Antsfeld L; **Sadek, A**; Monaci G; Wolf C - Learning with a Mole: Transferable latent spatial representations for navigation without reconstruction (ICLR24).
- Dey, S; **Sadek, A**; Monaci G; Chidlovskii, B; Wolf C - Learning whom to trust in navigation: dynamically switching between classical and neural planning (IROS23).
- **Sadek, A**; et al.- Multi-Object Navigation in real environments using hybrid policies(ICRA23).
- **Sadek, A**; Bono G; Chidlovskii, B; Wolf C - An in-depth experimental study of sensor usage and visual reasoning of robots navigating in real environments (ICRA22).
- Chidlovskii, B; **Sadek, A**; Wolf C. - Universal Domain Adaptation in Ordinal Regression (Arxiv).
- Chidlovskii, B; **Sadek, A** - Adversarial Transfer of Camera Pose Regression (ECCV20, TASK-CV-Workshop).
- **Sadek, A**; Chidlovskii, B - Self-Supervised Attention Learning for Depth and Ego-motion Estimation (IROS20).

AWARDS

- **Hackathon Prize:** Ranked **22nd out of +250 team submissions** in **HuggingFace LeRobot** Worldwide Robotics Hackathon.
- **Scholarships:** Dean's Honour's List, Excellence scholarship (All Semesters in Cairo University).
- **Prize:** **2nd** in outstanding students competition of the academic year 2016-2017.
- **Certificate of Achievement** for research contributions: **2nd place** in the Intern Day at Naver Labs Europe.

SKILLS

- **Languages:** Arabic (Native), French (Fluent), English (Fluent), Spanish (Advanced).
- **Programming:** Python, C++, C#, TypeScript, JavaScript, MATLAB, Java.
- **Simulators:** Habitat AI, Carla, Gazebo.
- **Hardware Platforms:** LoCoBot, Raspberry Pi, NVIDIA Jetson, Scout Mobile Robot, ROSMASTER R2, Private Delivery Robot.
- **Frameworks/Libraries/Tools:** PyTorch, Tensorflow, Keras, ROS, Angular, Docker, Singularity, SLURM, PyQT.

SUPERVISION & MENTORING

- **Sombit Dey:** Msc Robotics Student, ETH Zürich during his internship at Naver Labs Europe.

INDEPENDENT PROJECTS

- **DNA Sequence Binding:** Implemented from scratch several discriminant models and kernel methods to classify whether a DNA sequence region is binding site to a specific transcription factor.
- **Elections Prediction:** Used **R** and **GraphLab** to implement several models (Logistic Regression, Decision Trees and Random Forest) to predict the voting using an online dataset (Kaggle).
- **Image Style Transfer:** Implemented neural style transfer on images using deep learning models (ConvNet) using **TensorFlow**. Used PyQT to implement a simple GUI that allows users to adjust the percentage of the style effect on the original image.