

# ANDRÉ SCHAKKAL



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Nationality: French | Date of birth: 14/07/2000 | Zurich, Switzerland

Robotics engineer with expertise in RL, robot manipulation, and foundation models. Particularly interested in building intelligent systems that can reason and act over extended tasks. Open to opportunities in robotics research and applied AI.

## EDUCATION

<b>Master Thesis – Massachusetts Institute of Technology (MIT) – Final Grade 6/6</b>	Massachusetts, USA
<b>Hierarchical Vision-Language Planning for Long-Horizon Humanoid Manipulation</b>	November 2024 – May 2025
Developed a full system for long-horizon manipulation with the <b>Unitree G1 humanoid</b> . Trained <b>RL</b> tracking policies in <b>Isaac Gym</b> , deployed them in <b>Mujoco</b> and on the <b>real robot</b> , built a <b>teleoperation</b> pipeline for <b>data collection</b> , trained an <b>imitation learning</b> policy conditioned on vision and proprioception, and integrated a <b>VLM-based planner</b> .	
<b>MSc Robotics with minor in Data Science – Ecole Polytechnique Fédérale de Lausanne (EPFL)</b>	Lausanne, Switzerland
Excellence Fellowship Holder – Graduated with an average of 5.72/6	September 2022 – May 2025
<b>Relevant courses:</b> Machine learning - Deep learning for autonomous vehicles - Learning and adaptive control for robots - Applied data analysis - Basics of mobile robotics - Model predictive control – Multivariable control - Algorithms	
<b>BSc Mechanical Engineering – Ecole Polytechnique Fédérale de Lausanne (EPFL)</b>	Lausanne, Switzerland
Graduated with an average of 5.53/6	September 2019 – June 2022
<b>Relevant courses:</b> Control systems – Dynamical systems - Discrete-time control - Introduction to optimization Numerical analysis - Computer science – Programming for engineers - Probability and statistics – Microcomputers	
<b>French Baccalaureate – Collège de la Sainte Famille - Jésuites</b>	Cairo, Egypt
Graduated with an average of 20/20, mention "Très bien avec Félicitations du jury" - Ranked 1 <sup>st</sup> in Egypt	June 2019

## HONORS AND AWARDS

<b>Faulhaber Best Master Thesis Award – EPFL</b>	Lausanne, Switzerland
Awarded for outstanding master's project in robotics, showing excellence and advancing research in robotics	October 2025
<b>Master Excellence Fellowship – EPFL</b>	Lausanne, Switzerland
Full scholarship granted to one student per master program	September 2022 - May 2025

## PUBLICATIONS

- A. Schakkal, B. Zandonati, Z. Yang, & N. Azizan, "**Hierarchical Vision-Language Planning for Multi-Step Humanoid Manipulation**," RSS 2025 Workshop on Robot Planning in the Era of Foundation Models, June 2025.
- H. Khurana, J. Hermus, M. Gautier, **A. Schakkal** and A. Billard, "**Learning the Inverse Hitting Problem**," in *IEEE Robotics and Automation Letters*, vol. 10, no. 5, pp. 4180-4187, May 2025, doi: 10.1109/LRA.2025.3548496.
- A. Schakkal, G. Bellegarda and A. Ijspeert, "**Dynamic Object Catching with Quadruped Robot Front Legs**," 2024 *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Abu Dhabi, United Arab Emirates, 2024, pp. 6848-6855, doi: 10.1109/IROS58592.2024.10801922.
- S. Rajapakshe, A. Dastenavar, **A. Schakkal** and E. Senft, "**Synergizing Natural Language Towards Enhanced Shared Autonomy**," *Companion of the 2024 ACM/IEEE International Conference on Human-Robot Interaction*, Boulder, CO, USA, 2024, pp. 867–871, doi: 10.1145/3610978.3640720.

## WORK EXPERIENCE

<b>Machine learning engineer</b>	Lausanne, Switzerland
<b>Logitech</b>	February 2024 – August 2024
• Developing a pipeline integrating an Object Detection model (YOLO) to detect graphical UI elements, to subsequently forecast future user intentions and improve the overall pointing experience	
<b>Robotics engineer</b>	Lausanne, Switzerland
<b>Lemo</b>	July 2023 – August 2023
• Optimizing the functionality and performance of an Omron LD-60 Autonomous Mobile Robot using MobilePlanner, enhancing its navigation, efficiency, and safety, and expanding its scope of work within the factory premises	
<b>Robotics engineer</b>	Geneva, Switzerland
<b>Vacheron Constantin</b>	December 2022 – June 2023

- Debugging and troubleshooting a robotic arm system using LabVIEW

### **Control engineer**

Lausanne, Switzerland

### **Swiss Solar Boat - EPFL**

September 2021 – February 2022

- Developing a program combining sources of measurement and filtering noise using a Kalman filter
- Participating in the testing of the solar foiling proa boat on the Lac Léman over a week

### **Maintenance engineering intern**

Cairo, Egypt

### **Ghabbour Auto**

August 2021 – September 2021

- Acquainted with the car assembly production line (body assembly, paint shop, car assembly shop)
- Carrying out a full study of a motorized electrical hoist and determining steps for troubleshooting
- Introduction to Programmable logic controller (PLC) on GX Works 2

### **Teaching assistant - (Applied Machine Learning, Computer Science,**

Lausanne, Switzerland

### **EPFL Calculus III and IV, Probability and Statistics)**

September 2020 – Present

- Answering students' questions and helping them in the comprehension of the courses

### **ACADEMIC PROJECTS**

#### **Tweet Sentiment Classification Challenge – Ranked 1st**

Lausanne, Switzerland

#### **CS 433 Machine Learning - EPFL**

November 2023 – December 2023

- Leveraging the BERTweet pretrained transformer model to classify Tweet Sentiment
- Achieving an accuracy of 92.1%, marking the highest accuracy attained since the start of this yearly challenge in 2019

#### **Actor Fame and Diversity Analysis in Cinema**

Lausanne, Switzerland

#### **CS 401 Applied Data Analysis - EPFL**

November 2023 – December 2023

- Conducting in-depth analyses on actor fame, gender representation, and ethnic diversity in cinema using the [CMU movies dataset](#) – Link to the website: <https://andreschakkal.github.io/ada-actor-website/>

#### **Human Trajectory Prediction through Deep Learning**

Lausanne, Switzerland

#### **VITA - EPFL**

February 2023 – June 2024

- Adapting the Y-Net deep learning architecture to the Nuscenes dataset for human trajectory prediction
  - Video link to the project: [https://www.youtube.com/watch?v=f9-qefGN\\_VM](https://www.youtube.com/watch?v=f9-qefGN_VM)

#### **Object Motion Planning in Unstructured Environments through Principles of Golf**

Lausanne, Switzerland

#### **LASA - EPFL**

February 2023 – June 2024

- Modeling spaces accessible by a KUKA LBR iiwa 7 robot using Gaussian Mixture Models (GMMs)
- Formulating an optimization problem to determine the optimal sequence for hitting an object to reach a specific goal

#### **Bouncing Table Bachelor project**

Lausanne, Switzerland

#### **Automatic Control Laboratory 3 - EPFL**

February 2022 – June 2022

- Designing, building, and programming an automated table which is able to bounce a ball and center it in the middle of the table
  - Video link to the project: <https://youtube.com/shorts/fIEaFoTWYhU>

### **LANGUAGES**

**French:** Bilingual proficiency – **Arabic:** Bilingual proficiency – **English:** Fluent – **Spanish:** Elementary proficiency

### **TECHNICAL SKILLS**

**Programming:** Python, C, MATLAB, Bash, LabVIEW, Arduino, AutoHotKey

**Robotic Frameworks:** ROS, Isaac Gym, Isaac Lab, MuJoCo, Omron MobilePlanner

**Robotic Platforms:** Unitree Go1, Unitree G1, KUKA LBR iiwa 7

**Machine Learning & Big Data:** PyTorch, Pandas, Hugging Face, Hive, Apache Spark

**Platforms & Tools:** Git, WandB, Linux, GX Works2 (PLC), Microsoft Office

### **CORE COMPETENCIES**

Reinforcement Learning (RL), Imitation Learning (IL), Vision-Language Models (VLMs), Long-Horizon Planning, Visual Robotic Teleoperation, Sim2Real Transfer, Motion Planning, Trajectory Prediction, Object Detection, Human-Robot Interaction (HRI), Transformer Architectures, Model Predictive Control (MPC), Real-World Robotic Deployment

### **EXTRACURRICULAR ACTIVITIES**

- Honorable mention delegate at the MUN of the Lycée Français du Caire April 2018
- Cycling 400km from Cairo to Hurghada May 2018
- Walking 100km from Cairo to Suez February 2016
- Volunteering in public service in a village in need in the Nubia region in Upper Egypt February 2018
- Fundraising EGP300'000 (equivalent to USD19'000) to buy an ICU for the Magdi Yacoub Heart Foundation June 2017