ANDRÉ SCHAKKAL

+41 76 422 45 59 | Nationality: French | Date of birth: 14/07/2000
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Robotics engineer with expertise in RL, robot manipulation, and foundation models. I'm particularly interested in building intelligent systems that can reason and act over extended tasks. Open to opportunities in robotics research and applied AI.

EDUCATION

Master Thesis – Massachusetts Institute of Technology (MIT) – Final Grade 6/6 Massachusetts, USA
Hierarchical Vision-Language Planning for Long-Horizon Humanoid Manipulation November 2024 – May 2025
Developed a full system for long-horizon manipulation with the Unitree G1 humanoid. Trained RL tracking policies in Isaac Gym, deployed them in Mujoco and on the real robot, built a teleoperation pipeline for data collection, trained an imitation learning policy conditioned on vision and proprioception, and integrated a VLM-based planner.

MSc Robotics with minor in Data Science – Ecole Polytechnique Fédérale de Lausanne (EPFL) Lausanne, Switzerland
Excellence Fellowship Holder – Graduated with an average of 5.72/6 September 2022 – May 2025
Relevant courses: 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

BSc Mechanical Engineering – Ecole Polytechnique Fédérale de Lausanne (EPFL) Lausanne, Switzerland
Graduated with an average of 5.53/6 September 2019 – June 2022
Relevant courses: Control systems – Dynamical systems - Discrete-time control - Introduction to optimization Numerical analysis - Computer science – Programming for engineers - Probability and statistics – Microcomputers

French Baccalaureate – Collège de la Sainte Famille - Jésuites Cairo, Egypt
Graduated with an average of 20/20, mention "Très bien avec Félicitations du jury" - Ranked 1st in Egypt June 2019

HONORS AND AWARDS

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

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

Machine learning engineer Lausanne, Switzerland
Logitech 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

Robotics engineer Lausanne, Switzerland
Lemo 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

Robotics engineer Geneva, Switzerland
Vacheron Constantin 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

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