

ANDRÉ SCHAKKAL

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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 Nov 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, CH
Excellence Fellowship Holder – Graduated with an average of 5.72/6 Sep 2022 – May 2025
Relevant courses: Machine learning - Deep learning for autonomous vehicles - Learning & adaptive control for robots
Applied data analysis - Basics of mobile robotics - Model predictive control - Multivariable control - Algorithms - Deep Learning for NLP
- BSc Mechanical Engineering – Ecole Polytechnique Fédérale de Lausanne (EPFL)** Lausanne, CH
Graduated with an average of 5.53/6 Sep 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, Ranked 1st in Egypt** Cairo, Egy
Graduated with an average of 20/20, mention "Très bien avec Félicitations du jury" Jun 2019

HONORS AND AWARDS

- Faulhaber Best Master Thesis Award – EPFL** Lausanne, CH
Awarded for outstanding master's project in robotics, showing excellence and advancing research in robotics Oct 2025
- Master Excellence Fellowship – EPFL** Lausanne, CH
Full scholarship granted to one student per master program Sep 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. [paper](#)
- 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. [paper](#)
- **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. [paper](#)
- S. Rajapakshe, A. Dastanavar, **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. [paper](#)

WORK EXPERIENCE

- Logitech, Machine learning engineer** Lausanne, CH (Feb 2024 – Aug 2024)
• Developing a pipeline integrating an Object Detection model (YOLO) to detect graphical UI elements, to subsequently forecast future user intentions using an LSTM and improve the overall pointing experience
- Lemo, Robotics engineer** Lausanne, CH (Jul 2023 – Aug 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
- Vacheron Constantin, Robotics engineer** Geneva, CH (Dec 2022 – Jun 2023)
• Diagnosing and resolving integration issues in a robotic arm system using LabVIEW, improving reliability
- Swiss Solar Boat – EPFL, Control engineer** Lausanne, CH (Sep 2021 – Feb 2022)
• Developing a Kalman filter for sensor fusion and tested the solar foiling proa on Lac Léman over a week.

- Ghabbour Auto, Maintenance engineering intern**

Cairo, Egy (Aug 2021 – Sep 2021)
- Gaining hands-on experience with automated production systems and PLC-based control through study of car assembly line operations and troubleshooting of electrical hoist systems.
- EPFL, Teaching assistant - (Applied Machine Learning, Computer Science, Calculus III and IV, Probability and Statistics)**

Lausanne, CH (Sep 2021 – Feb 2024)
- Answering students’ questions & helping them in the comprehension of the courses

SELECTED PROJECTS

- Dynamic Object Catching with Quadruped Robot Front Legs, BioRob - EPFL**

Lausanne, CH (Feb 2024)
- Enabling a Unitree Go1 to catch thrown objects with its front legs by using a fine-tuned YOLOv8 detector, predicting trajectories, and selecting optimal catch poses via a Gaussian Mixture Model, achieving an 80% success rate across trials – [Project Video](#)
- Synergizing Natural Language Towards Enhanced Shared Autonomy, EE608 - EPFL**

Lausanne, CH (Feb 2024)
- Building a shared-autonomy framework where a fine-tuned DistilBERT interprets natural language corrections to adjust robot behavior, inferring correction directions and separating environment-dependent from independent instructions
- Object Motion Planning in Unstructured Environments through Principles of Golf, LASA - EPFL**

Lausanne, CH (Jun 2023)
- Modeling accessible spaces for a KUKA LBR iiwa 7 using GMMs and formulated an optimization problem to determine the optimal sequence for hitting an object to reach a specific goal
- Vision-Based Autonomy on Quadrotor, MICRO502 - EPFL**

Lausanne, CH (Jun 2023)
- Developing a vision-guided autonomy stack on a Crazyflie 2.0 quadrotor, combining monocular visual odometry, obstacle detection and avoidance, waypoint tracking, and trajectory generation, validated in Webots simulation and on hardware - [Video](#)
- Human Trajectory Prediction through Deep Learning, VITA - EPFL**

Lausanne, CH (Jun 2023)
- Adapting the Y-Net deep learning architecture to the Nuscenes dataset for human trajectory prediction – [Project Video](#)
- Tweet Sentiment Classification Challenge – Ranked 1st, CS433 - EPFL**

Lausanne, CH (Dec 2023)
- Leveraging the BERTweet pretrained transformer model to classify Tweet Sentiment. Achieving an accuracy of 92.1%, making the highest accuracy attained since the start of this yearly challenge in 2019 in the Machine Learning course
- Actor Fame and Diversity Analysis in Cinema, CS401 - EPFL**

Lausanne, CH (Dec 2023)
- Conducting in-depth analyses on actor fame, gender representation, and ethnic diversity in cinema using the CMU movies dataset – [Project Page](#)
- Bouncing Table Bachelor Project, Automatic Control Laboratory 3 - EPFL**

Lausanne, CH (Jun 2022)
- Designing, building, and programming an automated table which is able to bounce a ball and center it in the middle of the table [Project Video](#)

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, Webots
- Robotic Platforms:** Unitree Go1, Unitree G1, KUKA LBR iiwa 7, Thymio, Crazyflie 2.0
- 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, Transformer Architectures, LSTM Networks, Fully Sharded Data Parallel (FSDP), 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