Andrew Habib

Personal Data

Place and Date of Birth:	Giza, Egypt | 06 September 1994
Current City:	Rome, Italy
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Education

SEPT 17 - Jan 22	Master of Science in Control Engineering, **Sapienza University**, Rome Grade: 106/110 Thesis: "MPC-Based gait generation for humanoids with non-convex kinematic constraints" Advisors: Giuseppe Oriolo Lab: "DIAG Robotics Lab - Sapienza University of Rome"
Sept 12 - June 17	Bachelor of Science in Mechatronics Engineering **German University**, Cairo Gpa: Very Good Thesis: "Design and control of robotic arm manipulator with flexible joints" Advisor: Amir Roshdy Ali
SEPT 09 - June 12	National General Certificate of Secondary Education **Saint Fatima Language School**, Cairo

Work Experience

Nov 23 - *Current*	PhD candidate in Automatics, Bioengineering and Operational Research (ABRO). Sapienza University of Rome, Rome, Italy
Nov 22 - Nov 23	Researcher at Tampere University, Tampere, Finland Holistic planning and control framework for autonomy and safety prioritization in all electric rough-terrain mobile manipulators
Jan 22 - *October 22*	Junior software Developer at Screevo, Rome, Italy Developing and testing automation agent API for a voice assistant application
March 19 - Dec 19	Assistant and Collaborator in Department of Computer, Automatic and Management Engineering (DIAG), Sapienza University of Rome Working at the international student office. Assisting in evaluating student applications, Facilitating on-boarding process of newcomers international students.
July 15 - Aug 15	Summer intern at BMW, Cairo Responsible for automotive maintenance and software malfunctions. Technical and practical training in different aspects of the automotive field.

Publications

- **Andrew S. Habib**, Filippo M. Smaldone, Nicola Scianca, Leonardo Lanari, and Giuseppe Oriolo. Handling non-convex constraints in mpc-based humanoid gait generation. In 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pages 13167–13173, 2022.
- Mohammad Bahari, Alvaro Paz, **Andrew S. Habib**, and Jouni Mattila. Perfor- mance evaluation of an electromechanical linear actuator with optimal trajecto- ries. In 2023 IEEE 97th Vehicular Technology Conference (VTC2023-Spring), pages 1–7, 2023. 4 .

Projects

- Graph based SLAM and Calibration using Least Squares optimization for a differential drive robot
- Adaptive Trajectory Control for a 3R Manipulator with Unknown Drive Gains
- Visual Coverage Control for Teams of Quadcopters via Control Barrier Functions
- Offline Identification of Dynamic Coefficients for a 3R Manipulator with unknown Drive Gains
- Replication of Nonlinear Control (backstepping) of Quadrotor for Point Tracking
- Unscented Kalman Filtering for Spacecraft Attitude State and Parameter Estimation
- Design of a swing-up control law for an underactuated cart-pendulum model to achieve a desired state trajectory with given desired energy.
- Design and simulation of the sliding mode controller for the vehicle blow-out process control
- Training a Neural Network with a Genetic Algorithm to play the snake game

Languages

Arabic:	Mothertongue
English:	Fluent
German:	Basic Knowledge
Italian:	Beginner

Programming Languages and Software

- Matlab/Simulink
- Python
- C/C++
- C#
- SQL
- Octave
- Bash
- DART
- Solidworks