

SUMMARY

Currently, I am a doctoral candidate, teaching, and research assistant in aerospace engineering with a specialization in control systems, reinforcement learning, and applied AI.

EDUCATION

PH.D. IN AEROSPACE ENGINEERING.

2023-Ongoing

CARLETON UNIVERSITY/ CANADA.

- Thesis: Nonlinear adaptive robust feedback control on Lie groups.

M.Sc IN CONTROL ENGINEERING.

2022

SAPIENZA UNIVERSITY ROMA / ITALY.

- Thesis: Sparse deep reinforcement learning of controlling industrial assembly lines.

M.ENG/Bs.C IN MECHANICAL ENGINEERING.

2019

ALEXANDRIA UNIVERSITY / EGYPT.

- Capstone project: Design and fabrication of heavy loaded Unnamed aerial vehicle under power and dimensions constraints.

EXPERIENCE

FLIGHT RESEARCH LABORATORY - NATIONAL RESEARCH COUNCIL (NRC).

05/2024 - Ongoing Ottawa/Canada.

RESEARCH ASSISTANT.

- I am working on the development of a simulation package and an AI-based advanced motion planning algorithms for a full-scale helicopter.

TEACHING ASSISTANT - CARLETON UNIVERSITY.

01/2023 - Ongoing Ottawa/Canada.

TEACHING ASSISTANT.

- I teach problem analysis sessions for: Dynamics (ECOR1048), Machine Learning (MAAE 4904), and Feedback Control systems (MAAE3500).

INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT CANADA.

01/2024 -04/2024 Ottawa/Canada.

MACHINE LEARNING ENGINEER.

- As a part of the transparency and integrity team, my main role was building machine learning model to predict fraudulent activities in the corporations level.

SESAME - H2020.

10/2021 -10/2022 Rome/Italy.

RESEARCH INTERN.

- SESAME stands for Smart European Space Access through Modern Exploitation of Data Science. Project funded by the European Union. My main role was developing AI-based tools for decision support systems as a part of my Ms.c. thesis.

SAE-AERO DESIGN COMPETITION.

7/2015-3/2017/Texas-USA.

FLIGHT DYNAMICS LEAD.

- My main role was the Optimization process of the design meeting the competition requirements and preparing technical data sheet of the aircraft performance.

AWARDS & GRANTS

- STUDENT TRAVEL AWARD - 2024.

American Control Conference.

- R.D. RICHMOND TRAVEL BURSARY - 2024.

Carleton University.

- NOMINATION FOR OUTSTANDING TEACHING ASSISTANTS - 2024.

Carleton University.

- BEST PAPER IN AUTOMATIC CONTROL TRACK - 2023.

IEEE World AIoT Congress.

- BEST PRESENTER IN ARTIFICIAL INTELLIGENCE TOOLS - 2023.

IEEE World AIoT Congress.

- PATH OF EXCELLENCE IN CONTROL ENGINEERING - 2022.

University of Rome la Sapienza.

ADMINISTRATIVE & EDITORIAL POSITIONS

- IEEE STUDENT MEMBER.

2023 - Ongoing / IEEE.

- STUDENT REPRESENTATIVE FOR CONTROL ENGINEERING.

2021 - 2022 / University of Rome la Sapienza.

- REVIEWER: IEEE/ASME TRANSACTIONS ON MECHATRONICS.

2024 - Ongoing / IEEE/ASME.

- REVIEWER: IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS.

2024 - Ongoing/IEEE.

- REVIEWER: IEEE AMERICAN CONTROL CONFERENCE (ACC).

2024 - Ongoing / IEEE.

- REVIEWER: IEEE CONFERENCE ON DECISION AND CONTROL (CDC).

2024 - Ongoing / IEEE.

- REVIEWER: IET CONTROL THEORY & APPLICATIONS.

2023 - Ongoing / Wiley.

PUBLICATIONS

- 1) Ali Mohamed Ali, Luca Tirel, "Action Masked Deep Reinforcement learning for Controlling Industrial Assembly Lines" 2023 IEEE World AI IoT Congress (AIIoT), Seattle, WA, USA.
- 2) Ali Mohamed Ali, Hashim A. Hashim, and Chao Shen "MPC for Safety-Critical Navigation of VTOL-UAVs", 2024 IEEE American Control Conference (ACC).
- 3) Ali Mohamed Ali, Chao Shen, Hashim A. Hashim "A Linear MPC with Control Barrier Functions for Differential Drive Robots", IET Control Theory and Applications. .
- 4) Ali Mohamed Ali, Aryaman Gupta, and Hashim A. Hashim "Deep Reinforcement Learning for Sim-to-Real Policy Transfer of VTOL-UAVs Offshore Docking Operations" Applied Soft Computing.
- 5) Luca Tirel, Ali Mohamed Ali, and Hashim A. Hashim "Hybrid Integrated Pix2Pix and WGAN Model with Gradient Penalty for Binary Images Denoising" Systems and Soft Computing.