Andreu Matoses Gimenez

Leeghwaterstraat (3mE) – TU Delft – Netherlands
June 1998, Spain • A.MatosesGimenez@tudelft.nl
andreumatoses.github.io • andreu-matoses • AndreuMatoses

Education

Delft University of Technology **Delft, Netherlands.**
PhD. on Interaction-Aware Multi-robot Task Planning *Jun. 2023–Present*

- Supervised by Prof. Javier Alonso-Mora, head of the Autonomous Multi-Robots Laboratory at the Cognitive Robotics research group (CoR).
- PhD founded by the ERC grant: Intuitive Interaction for Robots among Humans - INTERACT.

KTH Royal Institute of Technology **Stockholm, Sweden.**
MSc. in Aerospace Engineering *Aug. 2020–Sep. 2022*

- **Specialization in systems engineering and control theory**. *Relevant Courses:* Reinforcement learning, Mathematical modeling of biological systems, Hybrid and Embedded Control Systems, Geometric Control Theory, Applied non-linear optimization, Control Theory and Practice Advanced Course.
- **Mater Thesis:** Scalable multi-agent reinforcement learning for formation control with collision avoidance.
  - *Advisors:* Prof. Dr. Alexandre Proutiere, Dr. Ingvar Max Ziemann.
  - Adapted a distributed, actor-critic based multi agent RL algorithm, with local approximations of Q and and the gradient with respect the policy parameters.
  - Simulations and implementations with neural networks using PyTorch.

Universitat Politècnica de València **València, Spain**
BSc. in Aerospace Engineering *Sep. 2016–Jul. 2020*

- Grade: 8.7/10. ARA group (High Academic Performance), Education imparted in English.
- Final-year exchange at the University of Leeds (United Kingdom). Achieved top 5% marks.
- **Thesis:** Geometry optimization of metallurgic lances with FEA and thermal analysis, collaboration with MONOCON International Refractories Ltd. (United Kingdom).

Experience & Projects

KTH Smart Mobility Lab (SML) **Stockholm, Sweden.**
Research Engineer *Sep. 2022–May 2023*

Implemented the research of the Distributed and Hybrid Systems Group under Prof. Dimos V. Dimarogonas.

- Implemented high level and low level control algorithms with explicit and implicit human interaction for the EU-funded CANOPIES project.
- Worked with HEBI's robotics platforms, ROS 2 and gazebo.
- Improving and upgrading the ROS package for human-In-the-loop planning and control under linear Temporal Logic Tasks

Alpha UAV project **Stockholm, Sweden.**
Flight testing responsible *Oct. 2021–Sep. 2022*

Design of an autonomous high altitude long endurance UAV to study optical phenomena in the upper atmosphere using scientific imaging instruments. Project under the KTH Space Physics department.

- In charge of flight testing, flight control and telemetry
- Presented in the 33rd Congress of the International Council of the Aeronautical Sciences (ICAS 2022)

MIST (MIniature STudent satellite) **Stockholm, Sweden.**
Functional testing *Jan. 2021–Oct. 2021*

3U CubeSat built primarily by students under the supervision of Dr. Sven Grahn with collaboration of the Swedish Institute of Space Physics.

- Developed calibration and filtering software for the on board IMUs.

KTH MoveAbility Lab **Stockholm, Sweden.**
Research Assistant *Jan. 2021–Jul. 2021*
Laboratory for the bio-mechanics research group led by Professor Lanie Gutierrez-Farewik.
- Design and manufacture of a measuring device for muscle spasticity in ankles.

Publications

Sep. 2022: Nan Fernandez-Ayala V, Vimlati L, Matoses Gimenez A, Delmotte H, Ivchenko M and Mariani R. "Design of a HALE UAV for atmospheric imaging". *33rd Congress of the International Council of the Aeronautical Sciences*, Stockholm, Sweden, 2022.

Awards & Scholarships

2021: Prize for the best final year average grade of the BSc. in Aerospace engineering 2020, Universitat Politècnica de València.

2021, 2023: Scholarship from the Svensk-Spanska Stiftelsen, obtained during my Master of Science degree.

2019-2020: ERASMUS+ and Santander Erasmus mobility grant for the 1 year exchange at University of Leeds, UK

Oct. 2018: First Place at the *I Concurso de Ideas y Proyectos Empresariales del Sector Espacial*, organized by the Space week in Seville. Proposed a start up to manage and reduce space debris.

Courses & Workshops Attended

Autum 2022: *FEL3330 PhD Course on Networked and Multi-Agent Control Systems*, imparted by Professor Dimos V. Dimarogonas at KTH Royal Institute of Technology, Sweden

Languages

Spanish: Native

Catalan: Native. Certificate C1

English: Proficient. TOEFL iBT (2022): 106/120, Cambridge C1 (2018): 198/210

German: Basic. A2

Software & Tools

Programming:: Python and PyTorch, MATLAB/Simulink, C/C++

Productivity:: Microsoft Office, LaTeX, Git

Simulations:: Ansys Fluent, Abaqus, Comsol, Gazebo

CAD:: Fusion 360, Cura

Robotics:: ROS 1 & 2, Arduino, Raspberry Pi

OS:: Ubuntu Linux, Windows

References

References available on request.