Aitor Ramirez Gomez

Control Engineer

PERSONAL INFORMATION

Nationality	Spanish
Address(es)	Barcelona, Spain / Aalborg, Denmark
Date of birth	25-Nov-1993 (28yo)
Phone/Skype	(+45) 50 20 00 86
E-mail	arg@es.aau.dk
Portfolio	aitor-rg.github.io

ABOUT ME

I am an avid reader of science-fiction and fantasy, my all-time personal favorite being *Speaker for the Dead*, by Orson Scott. Strongly connected lies my passion for science and engineering, fueled by the mind-bending discoveries and challenges related to space exploration. In my spare time, one can often find me covering my favorite songs on the guitar and the piano, and occasionally, out in the wild climbing or scuba diving.

EDUCATION

Title	**Ph.D. in Control**
Organization issuing the title	Aalborg Universitet, AAU
Location	Aalborg, Denmark
Dates	2020-2023
Advisor(s)	Prof. Rafal Wisniewski – raf@es.aau.dk
Principal subject(s)	*Space Situational Awareness, Collision Avoidance, GNC and Constellations.*
Relevant covered	∗ *Constructing novel methods for satellite conjunctions risk mitigation.* ∗ *Collaborating in the MARIOT project building an end-to-end satellite constellation network simulation.* ∗ *International networking and Scientific writing.* ∗ *Advisor for 3 Master's students' space projects.*

Title	**M.S. in Control and Automation**
Organization issuing the title	Aalborg Universitet, AAU
Location	Aalborg, Denmark
Dates	2017-2019
Principal subject(s)	*Modeling, Estimation and Control of Dynamical Systems, Stochastic Processes, Optimization and Robustness, Fault-detection and Recovery, Distributed Control, Machine-Learning.*
Relevant covered	∗ *Education based on Project-Based Learning enhancing critical assessment, literature retrieval and teamwork.* ∗ *Multi-cultural and multi-disciplinary cooperation with other colleague students.* ∗ *Collaboration with danish company **Novo Nordisk A/S** developing control algorithms for T2D patients.* ∗ *Involved in the tasks conducted by the **AAU space club** which launched 5 student-built Cubesat since 2003.* ∗ *Gained expertise in Lissajous orbit design and station-keeping control around unstable Lagrange points.* ∗ *Strong foundation of spacecraft modeling and control [space systems memorandum].* ∗ *Thesis on control and navigation of CubeSats for rendezvous and docking, obtaining the highest grade.*

Title	**B.S. in Industrial Engineering**
Organization issuing the title	Polytechnic University of Catalonia, UPC – Barcelona School of Industrial Engineering, ETSEIB.
Location	Barcelona, Spain
Dates	2012-2017
Principal subject(s)	*Fundamental of Mathematics, Mechanical and Electrical systems, Electronics, Control, Materials and Resistivity, Programming, Economics and Company administration.*
Relevant covered	∗ *Strong mathematical background.* ∗ *Education highly focused on acquiring solid theoretical foundation of many engineering disciplines* ∗ *Combined with teaching of large groups of other Industrial engineers during 5 years.* ∗ *Thesis supervised by Prof. Federico Thomas. Developed in the Laboratory of Parallel Robots of the **Institute of Robotics and industrial Informatics (IRI, CSIC-UPC)**, obtaining the highest grade.*

AWARDS AND MEMBERSHIPS

1– Member of the **AAU Space Group**.
2– Young Researcher, Awards *XXIV Certamen de Jóvenes Investigadores*, 2011.
3– Award *Fundació Salas*, 2011
4– Award *Argó*, Autonomous University of Barcelona, 2011

PUBLICATIONS

Conference papers

[$C1$] **Gomez, A. R.** & Wisniewski, R.,"Stochastic Safety in Short-term Space Conjunctions", *IEEE Conference on Decision and Control, 2022.*

[$C2$] **Gomez, A. R.** & la Cour-Harbo, A., "Emergency Landing Decision Method for Unmanned Aircraft", *International Conference on Unmanned Aircraft Systems (ICUAS), 2021*.

[$C3$] Bektash, O. M., Pedersen, J. N., **Gomez, A. R.** & la Cour-Harbo, A., "Automated Emergency Landing System for Drones: SafeEYE Project", *International Conference on Unmanned Aircraft Systems (ICUAS), 2020.*

LARGE PROJECTS

Name of the project — **MARitime Internet of Things (MARIOT) Project.** (Supported by Innovation Fund Denmark)
Dates — 2020-2023
Collaborators — Sternula, AAU, Gatehouse, Satlab, Space Inventor and Danmark Meteorologiske Institut.
General mission — *Building a global satellite constellation equipped with a novel communication solution, the VHF Data Exchange System, to provide maritime safety and navigational services*.

Name of the project — **SafeEYE Project.**
Dates — 2019-2020
Collaborators — SenseAble and AAU.
General mission — *Design, build and test an automated emergency landing system for risk mitigation of big drones (>7kg).*

RELEVANT EXPERIENCE

Occupation — **Research Assistant in Drone Research Lab**
Employer — Aalborg University, AAU.
Advisor(s) — Dr. Anders la Cour-Harbo
Dates — 2019-2020
Description — *Involved on the SafeEYE project.*
Main responsibilities —
∗ *Design lab and air-borne tests.*
∗ *Organize and assist air-borne tests in specialized locations.*
∗ *Acquire and analyze vibration data from IMU sensors and VICON motion capture.*
∗ *Develop an emergency decision method to determine where and if the drone should perform landing.*

Occupation — **Research Assistant in Perception and Manipulation Department**.
Employer — Institute of Robotics and industrial Informatics, IRI (CSIC - UPC).
Advisor(s) — Dr. Francesc Moreno-Noguer and Dr. Antonio Agudo.
Dates — 2017 (7 months)
Description — *Human image synthesis and 3d human modeling.*
Main responsibilities —
∗ *Test deep convolutional neural network models trained for 3d-pose estimation from still images.*
∗ *Incorporate mesh representation models that encode human shape and pose in 3d.*

Occupation — **Teacher in Mathematics**
Employer — Centre d'Estudis Universitaris Superiors, CEUS Academy.
Dates — 2012-2017.
Description — *Tutoring and teaching **Linear Algebra** and **Differential Equations** to large groups of students coursing Industrial Engineering at UPC, ETSEIB*.

PERSONAL SKILLS

Programming — C++ — Python — Bash — LaTeX® — HTML/CSS — Vim
Simulation/Modeling Sftwr — MATLAB® — Simulink® — ANSYS® — SolidWorks® — AutoCAD®
Phd Courses — Stochastic Safety — Optimal Control — LMIs for Optimization and Control — Advanced Mathematics.

Miscellaneous Certificates — PADI Open Water — Climbing Certificate — Driving License (Category B)
Social competences — Good leadership and communication skills acquired through my experience teaching. Efficient, strategical and focused person with good ability to adapt in different environments. Capable of working by myself, as well as in collaboration with others.

LANGUAGES

Catalan and Spanish — *Native and bilingual*
English — *High competence* - Cambridge Certificate in Advanced English (CAE) C1 - 2017
French — *Basic competence* - Diplôme d'Études en Langue Française (DELF) A1 - 2007
Danish and Portuguese — *Elementary*