Fidel Echevarría

Aerospace Engineer

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https://fidelechevarria.github.io/
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Proactive aerospace engineer. Creative and agile problem solver, strongly motivated to teamwork. In continuous search of learning. Really interested in vehicle automation, computer vision, artificial intelligence and sustainable engineering.

Experience

since feb22 **Navigation Systems Engineer**, *Airbus Defence and Space*, Madrid.

Involved in development and integration of navigation systems for military transport aircraft.

jun16-feb22 **Flight Control Engineer - Sensor Fusion**, *UAV Navigation*, Madrid.

Responsible for software development of perception solutions. Areas of work:

- Managing projects with large innovation components in dynamic state estimation.
- Sensor fusion techniques for aircraft dynamic estimation.
- Sensor calibration techniques.
- Computer vision systems for autonomous aircraft navigation.
- Simulation. Dynamics, kinematics, atmospheric perturbances.
- Flight control algorithms and logics.
- Preparation, revision and maintenance of test cases, requirements and technical documentation.
- Technical support for international clients and internal departments.
- Internship mentor for flight dynamics department.

sep15-jun16 **Flight Control Engineering Intern**, *UAV Navigation*, Madrid.

Involved in the development and validation process of several aircraft simulators and control systems.

Education

sep19-sep21 **M.Sc. Research in Artificial Intelligence**, *Universidad Nacional de Educación a Distancia (UNED)*.

Key subjects: Bio-inspired neural methods, evolutionary computation, computer vision, perceptual and autonomous robotics, machine learning methods, research methodology for intelligent systems.

Thesis: *Artificial intelligence methods for identification of aerodynamic coefficients from flight data*.
Link: `https://fidelechevarria.github.io/MSc-Thesis.pdf`

oct18-jun19 **Self-Driving Car Engineering Nanodegree**, *Udacity*.

Key subjects: Deep learning, computer vision, sensor fusion, localization, model predictive control, optimal path algorithms, system integration (ROS).

sep10-sep16 **B.Sc. Aerospace Engineering**, *Universidad Politécnica de Madrid (UPM)*.

Key subjects: Mechanical design, flight mechanics, aerodynamics, fluid mechanics, thermodynamics, aerospace materials, structures, electronics, project management, aerospace propulsion.

Thesis: *Design of a Flight Control System Optimization Tool for Aerial Vehicles*.
Link: `https://fidelechevarria.github.io/BSc-Thesis.pdf`

Languages

Spanish Fluent. Mother tongue.

English Fluent. CEFR Level C1 (2014).

French Basic skills. CEFR Level A2 (2007).

Skills

Experience fields. Aircraft avionics systems, artificial intelligence, computer vision, numerical optimization, sensor fusion, automation and control, dynamic system simulation, data analysis, embedded software development, user interface design, graphical design, version control.

Tools and technologies. C/C++, Python, R, Fortran, Dart, MATLAB, Simulink, Tensorflow, Keras, OpenCV, Qt, Flutter, Latex, MS Office, Git, SVN, Linux, Bash, CATIA, SketchUp.

Projects

since feb21 **Visual Based Human-Computer Interaction.** Development of a Microsoft Windows application which allows control of the mouse cursor by detected head movement, facial expressions and voice commands using a standard webcam. Conceived as an accessibility feature for people who are not able to use common human-computer interface devices, such as the mouse or keyboard.

Link: `https://fidelechevarria.github.io/visual-based-human-computer-interaction/`

feb18-sep18 **Aircraft Trajectory Optimization.** Development of an analysis tool for estimation of optimal aircraft trajectories in air races. The tool is designed for use in Red Bull Air Race World Championship, and released as open-source software.

Link: `https://fidelechevarria.github.io/aircraft-trajectory-optimization`

Publications

1. F. Echevarría Corrales, J. M. Pulido Fernández and M. A. de Frutos Carro, "Efficient visual navigation applied to unmanned aerial systems in GNSS-denied environments," presented at the 8th Annu. National R&D Security and Defence Conf. (DESEi+d), León, Spain, 2020.

Additional Training

2021 **Avionics Ecosystem: DO-178C, DO-254 & ARP 4754A**, *AFuzion*, Vance Hilderman.

2018 **Python Courses**, *Packt Publishing*.

2017 **RPAS Pilot Certification**, *Cinetic Plus*, Madrid.

2015 **Advanced CATIA V5 Certification**, *ETSIAE (UPM)*, Madrid.

2014 **MATLAB Course**, *ETSIAE (UPM)*, Madrid.