Project Name: Aerial Robotic Training for the next generation of European infrastructure and asset maintenance technologies

Acronym: AERO-TRAIN

Project no.: 953454

Start date of project: 01/01/2021 **Duration:** 48 Months

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Table of contents

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1. Intro text

FADA-CATEC is seeking a highly motivated PhD student for the development of new technologies applied to the teleoperation of aerial robots with contact inspection capabilities.

This position is one out of 15 Early-Stage Researcher (ESR) positions offered within the Marie Skłodowska-Curie Innovative Training Network (ITN) "AErial RObotic TRAINing for the next generation of European infrastructure and asset maintenance technologies" (AERO-TRAIN; www.aerotrain-etn.eu).

FADA-CATEC is an aerospace research center (http://www.catec.aero/en) oriented to applied research and technological development, and located in Seville (Spain). FADA-CATEC has an important activity in the development of UAS/aerial robotics technologies, being one of the most important research centers for civil UAS/aerial robotics in Spain. The Department is composed of a team with 30 engineers/technicians and a large international experience, having participated in more than 20 Fp7 and H2020 projects in the last 12 years. Finally, FADA-CATEC has also obtained several international recognitions in the last years: being part of the team that won Challenge 3 of the last MBZIRC international robotics competition, obtained the Overall Innovation Radar Prize by the European Commission in 2017 (first time obtained by a robotics technology) and was the best European aerial robotics team in the framework of EUROC project.

2. Project Background

The AERO-TRAIN project is a Marie Skłodowska-Curie ITN project carried out by a consortium of 14 academic and industrial organizations from Denmark, Sweden, Norway, Finland, Spain, Italy and Switzerland. AERO-TRAIN aims to close the gap between the Infrastructure Operations & Maintenance industry and aerial robotics, with the ambition to keep our invaluable assets operational and safe. The project addresses the fundamental challenges of human-machine interface (e.g., immersive technology, augmented reality) and of precise and robust aerial manipulation for enhanced remote manipulation and inspection evaluation.

3. Job Description

We seek highly motivated engineers with a master degree in Robotics, Mechatronics, Electrical and Computer Engineering, Computer Science or related areas. Previous experience in practical UAS development will be positively considered.

The selected candidate will be working in advanced and challenging UAS technological developments in a collaborative and team environment. The candidate will work on developing novel navigation and guidance systems interfaces that will allow safe and precise navigation of aerial robots in cluttered environments for industrial contact inspections. The PhD thesis will be oriented, depending on the background of the candidate, to one or several of the following topics:

- Design of advanced stabilization and control techniques that allows an easy, robust and stable way to guide the aerial robot.
- Command system for aerial robots when are closed to the locations to be inspected, in a natural and easy-to-learn way.
- Relative localization systems based on on-board sensors and/or minimal infrastructure on

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the ground with minimum deployment time.

The PhD project will be hosted at FADA-CATEC facilities in Seville with excellent working conditions and state of the art research infrastructure. Besides working on their project at FADA-CATEC, the successful candidate will participate in network-wide training events like summer schools and retreats. Moreover, the PhD student will conduct secondments at other network partners.

The successful candidate will receive an employment full time contract (for three years long; 36 months) and a competitive gross salary. The expected start date for the position is May-September 2021.

4. Ideal Candidate Profile

The ESR applicants should have:

- Excellent skills and ideally proven experience in the fields of robotics. Experience in the field of aerial robotics is beneficial.
- Outstanding methodological skills and an analytical mind-set, ability to work both independently and as a member of a research team.
- Great communication skills in English, both oral and written.
- High motivation, ambition and enthusiasm about research in aerial robots.
- Excited to work and collaborate with a diverse team of robotics researchers and engineers.

Eligibility Criteria

- At the time of their recruitment, candidates must be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree.
- Applicants can be of any nationality. However, applicants must not have resided or carried out their main activity (work, studies, etc.) in Switzerland for more than 12 months in the 3 years immediately before the appointment. Short stays, such as holidays are not taken into account.
- Applicants must have a university degree that qualifies for PhD studies at the time of recruitment.

All interested applicants meeting the eligibility requirements, irrespective of age, gender, race, disability, religion or ethnic background are encouraged to apply.

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5. Application

We look forward to receiving your online application with the following documents:

- An up-to-date CV
- A cover letter describing your motivation for applying for the position and the relation to your prior experience.
- A list of Degrees and grade transcripts.
- The position for which you apply is part of a call for 15 candidates within the AERO-TRAIN project. If you have applied or are planning to apply to any of the other positions, please provide a statement containing all the positions you applied for and rank them according to your preferences.

Optional:

- A project proposal for the position (max 2 pages). Proposals can include a research statement, a short plan related to the position, a plan for publications and research risk management.
- A list of scientific and technical publications, awards and certifications that are relevant for the vacancy.
- Up to 3 relevant publications in related scientific fields.
- Up to 3 reference letters.

Candidates will be selected based on their merits in the fields related to the expected ESR area of expertise. The board of the network will evaluate all applications, and the top-ranked candidates will be invited for interviews. Note that your data will be made available to the AERO-TRAIN partners for the purpose of conducting the assessment of all candidates.

Closing date: Applications must be submitted through

http://www.catec.aero/es/trabaja-con-nosotros

http://www.catec.aero/en/work-us

before March 15th. Applications via email or postal services will not be considered.

For further information please contact: matrujillo@catec.aero .

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