

Position Description

Group of research topics: New Aero and Space Technology Research

Position is funded by	<ul style="list-style-type: none"> - COFUND, Marie Skłodowska-Curie Actions (MSCA), Horizon 2020, European Union - BOGGI Aeronautics SRL, Italy - RMIT University (RMIT), Australia
Research Host	BOGGI Aeronautics SRL, Italy
PhD awarding institution/s:	Dual PhD awarded by University of Bologna (UNIBO), Italy and RMIT
Locations	<ul style="list-style-type: none"> - Primary: Arceto di Scandiano, Italy - Secondary: Melbourne, Australia - Annual workshops in Barcelona, Spain
Contract	Full time, 3 rd level (36 months)
Gross annual salary	29.078 EUR per year approx. (gross amount before employee's taxes and contributions)
Preferred start date	01/01/2023 (tentative)
Deadline for applications	19/09/2022 (Reference: BOGGI-DC1)

Your choice of research topics (only one of these projects will be funded):

Project 1: Unmanned Aerial System for commercial operations	Project 2: Electric Hybrid General Aviation Aircraft	Project 3: Smart Space structures
<p>The development of Unmanned Aerial Systems is at a mature stage where regulation plays an important role in further advances. EASA certified autopilots, lightweight structures, reliable dynamics simulation models, automated image analysis from payload video stream, telecommunication systems for BLOS operations, environment for mission planning, application of artificial intelligence are worth of investigation in the near future. These technologies could be tested on the Boggi's Eagle Scan UAV.</p>	<p>The need for preserving the environment is pushing aviation towards a more sustainable approach to travel. However, nowadays electric technologies can only assure low endurances and a realistic approach to the green transition could be the hybrid aircraft concept in General Aviation. The development of a methodology to design hybrid aircraft in compliance with EASA rules deserves a deep investigation. A market analysis, the use of flight simulators and the development of dynamics models are part of the work.</p>	<p>Space structures must be lightweight and sustain high vibrations during the launch. Therefore, innovative optimized structures must be developed, based on recent manufacturing technologies and new materials. On the other hand, NASA, ESA and Australian Space Agency regulations must be considered in the development of these structures to allow further introduction into the market. CAD and FEM tools can support this effort and reduce the need for experimental tests.</p>
Supervisors:		
MSc. Stefano Boggi (BOGGI) and Prof. Pier Marzocca, Prof. Cees Bil (RMIT) and Prof. Alessandro Ceruti (UNIBO)		

Research Fields: Aerospace engineering and aviation, Environmental and sustainable engineering, Artificial intelligence, Telecommunications engineering, Computer and network engineering	Research Fields: Aerospace engineering and aviation, Environmental and sustainable engineering, Electrical and electronic engineering, Sustainability and urban planning, Project management	Research Fields: Aerospace engineering and aviation, Environmental and sustainable engineering, Advanced manufacturing and mechatronics, Digital design, Industrial design
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Are you REDI? (Expected Profile)

Project 1

Your background and skills: You should possess the following abilities: radio-control model pilot; skilled with Arduino and electronic board programming; skilled in CAD modelling and manufacturing technologies for composite materials; basic programming skills in c++ (or Matlab/Octave).

Your work experience: Professional experience is welcome but not required.

Your research experience: Research experience is welcome but not required.

Project 2

Your background and skills: You should possess the following abilities: Basic knowledge of Aircraft design methodologies; skills in CAD, FEM and CFD software; basic knowledge of certification process in aeronautics; General Aviation/ultralight pilot; flight simulation.

Your work experience: Professional experience is welcome but not required.

Your research experience: Research experience is welcome but not required.

Project 3

Your background and skills: You should possess the following abilities: CAD modelling; FEM analyses (static, dynamics, PSD and random analysis); design for lightweight and additive manufacturing structures; knowledge of main problems related to space operations and products certification.

Your work experience: Professional experience is welcome but not required.

Your research experience: Research experience is welcome but not required.

For more information about the general conditions of the REDI Program and the Eligibility Criteria, please visit: <https://www.rediprogram.eu/>

Employment Benefits and Conditions

BOGGI offers a 36-month position, extendable up to 48 months in duly justified cases. The position will be based in Arceto di Scandiano (Italy). International travel is foreseen, including to Australia (up to 12 months) and Spain (one week per year). There is no probation period and there are 40 working hours per week.

The remuneration, in line with the European Commission rules for Marie Skłodowska-Curie grant holders, will consist of a gross annual salary of est. 29.078 EUR gross per year (gross amount before employee's taxes and contributions). Of this amount, the estimated net salary* to be perceived by the Researcher is est. 1.490 EUR per month. However,



the definite amount to be received by the Researcher is subject to national tax legislation. For more information on the estimated net salary, please use the [net salary calculator](#).

**Net salaries can fluctuate in accordance with an individual's personal circumstances (marital status, age, disability, family and dependents, etc. The above indicative net salaries offer an approximation of what a single person in their early 20s could expect to receive in their bank account after taxes.*

Benefits include:

- Approximately 20 days paid holiday leave
- Sick / injury leave
- Parental leave
- Social security contributions
- Family allowance as per Italian law
- 1,000€ yearly travel allowance to cover flights and accommodation to participate in the annual workshop at RMIT Europe in Barcelona (Spain)
- 10,000€ allowance to cover flights and living expenses for up to 12 months in Australia

Learn more on [RMIT](#), [UNIBO](#), and [BOGGI](#) on our website:
<http://www.rediprogram.eu/about/#hostinstitutions>

PhD enrolment. Successful candidates for this position will be enrolled by the following institutions:

BOGGI

Admission

As part of the admission at BOGGI, you will need to supply:

- Degree certificate and transcript of records of a Master of Science diploma or certificate, from the University issuing the grade. The minimum qualification that candidates must hold to be eligible for this position is a MSc. in Aerospace Engineering.
- Candidates with a foreign academic degree should present Certification from issuing University in English (or translation certified by Embassy / Another recognized agency).
- Proof of English proficiency (certificates from IELTS or Cambridge English Advanced, level C1 is expected – native speakers are exempt from the certificate requirement).
- Motivation of the candidate; Scientific/Working experience in aerospace engineering, both in companies and universities/research centres; Technical competence; proficiency in the use of CAD, FEM, CFD tools; basic knowledge of the Italian language are considered as well.

UNIBO

Admission

You will be enrolled as Doctoral Student at UNIBO for the entire duration of the assignment. At admission, you will need to supply:

- Degree certificate and transcript of records of a second cycle degree such as a MA or a MSc conferred by Italian or non-Italian institutions and recognized as equivalent to an Italian degree. Qualifications are accepted if written in Italian, English, German, French or Spanish. Otherwise, candidates must present a certified translation of their qualifications in Italian or English.



- Candidates with a foreign academic degree (MA or MSc) must attach to their application their degree certificate (including the list of the exams taken). In order to apply, candidates must hold a second cycle degree and submit to the Admission Board their ID and curriculum vitae.
- In some cases, the submission of an innovative research project may also be required. Other skills and proficiencies obtained through education, training, work, volunteering and internships may be taken into account, together with any scientific paper published on peer-reviewed journals.

More information: <https://phd.unibo.it/dast/en/admission/who-can-apply>

RMIT

Admission

You will also be enrolled as Doctoral Student at RMIT for the entire duration of the assignment. At admission, you will need to supply:

- CV
- Complete transcripts for all academic qualifications
- Research proposal or statement of interest in an available research project
- Language certificates
- List of referees

More information: <https://www.rmit.edu.au/research/research-degrees/how-to-apply>

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