SCHOOL OF SCIENCE, ENGINEERING & ENVIRONMENT

Research & Enterprise

Job Opportunity
Engineer in Aeroacoustics
(KTP Associate)
University of Salford &
Greenjets Ltd

Based in Oakley, Bedfordshire, MK43 7TA

Overview, Job Description and Person Specification

KTP Associate with Greenjets Ltd

Overview

In collaboration with Greenjets Limited, the University of Salford has been awarded a Knowledge Transfer Partnership (KTP). The project's aim is to develop a rapid and easy-to-use conceptual toolset to predict and analyse the noise signature of electric propulsion systems, leading to the design and manufacture of a new generation of quieter and zero-carbon electric jet engines to power drones.

Based primarily at Greenjets Limited research facility in Oakley, Bedfordshire, (MK43 7TA) the successful applicant will manage the project supported by experienced staff from both Greenjets Limited and the University of Salford. The company are an aerospace SME who have identified an opportunity for new propulsion products for the zero-emission aviation market.

The Academic team at the University of Salford consists of Dr Antonio Torija Martinez, a Reader in Acoustic Engineering and Dr Olga Umnova, Reader in Theoretical Acoustics from the School of Science, Engineering and Environment. The lead academic supervisor Dr Antonio Torija Martinez is also a member of the NASA Urban Air Mobility (UAM) Noise Working Group, and an expert contributor to the NASA white paper on UAM noise.

The University of Salford has been carrying out acoustics research for over 60 years and has extensive laboratories for building acoustics research. The Acoustics Research Centre's research has been recognised in the Research Excellence Framework (REF 2014), with the REF panel singling out the University's outputs as showing "particular strengths in acoustics" and said that there was "outstanding impact in acoustics for the built environment."

Job Purpose

Greenjets Limited has developed innovative electric propulsion products that are quiet, safe and efficient to accelerate the adoption of sustainable aviation. They are aware that the noise levels of its customer's aircraft are closely linked to the propulsion system, with this an important barrier to address in order to ensure the public acceptance of their products.

This KTP is therefore critical to the strategic aim of Greenjets Limited's capability to design the quietest product in its class by appropriately linking multidisciplinary product design to the acoustic prediction at the design stage. The focus of this is to develop a rapid and easy-to-use conceptual toolset to predict and analyse the noise signature of electric propulsion systems; leading to the design and manufacture a new generation of quieter and zero-carbon electric jet engines to power drones.

As a result of the embedded capability Greenjets Limited will have the ability to quickly respond to customer needs and produce tailored low noise by design concepts for customer evaluation improving Greenjets market competitiveness. The KTP will create a certifiable key system, essential for aerospace products, enabling Greenjets to compete in markets with high regulatory barriers to entry; be able to study new product concepts and launch product development programmes.

In addition, the Associate will have the opportunity to work at a strategic level within a dynamic company under commercial pressures, with the support of the Academic team from the University of Salford.

Responsibilities

The Associate will take on the challenging task of running this 30-month program of research and implementation as the Project Manager. This is an opportunity for the right candidate to become a key player within a business, together with an awareness of strategic and operational decision-making processes.

The key objectives for this KTP Project are as below:
1. Detailed review of best practice for prediction of tonal noise in propulsion systems
2. Acoustic testing of design iterations of IPM prototypes
3. Tonal noise modelling of IPM prototypes
4. Acoustic testing outdoors to check compliance with state-of-the-art drone noise regulation
5. Psychoacoustic Assessment

This Job Description is a guide to the work you will initially be required to undertake. It may be changed from time to time to meet changing circumstances. It does not form part of your Contract of Employment.

Person Specification

Qualifications

	The successful candidate should possess one of the following	E / D*	Tested by
1	A minimum 2.1 BEng or BSc in Acoustic Engineering, Mechanical Engineering, Aerospace Engineering or related discipline. The successful candidate will be encouraged to register for a higher degree (fees waived).	E	A
2	Masters qualification or PhD in related subject	D	A

Background & Experience

	The successful candidate should have		
3	Knowledge & Experience of acoustic engineering, mechanical engineering, aerospace engineering or related engineering field	E	A/I
4	Knowledge and experience of aeroacoustics and/or computational acoustics.	E	A/I
5	Knowledge & understanding of acoustic testing and signal processing.	E	A/I
6	Experience in experimental methods	D	A/I
7	Understanding of aircraft/rotor noise modelling and/or measurement	D	A/I
8	Understanding of Computational Fluid Dynamics and acoustic measurement methods are desirable but not essential.	D	A/I
9	Experience in planning, tracking and status reporting of own workload	E	A/I

Skills

	The successful candidate should		
9	Be highly capable in analytical and/or semi-empirical methods in aeroacoustics	E	A/I
10	Have proven experience in programming / Good coding skills are expected (e.g., in MATLAB, Python).	E	A/I
11	Possess excellent mathematical skills	E	A/I
12	Understand signal processing and metrics for aircraft noise assessment.	D	A/I

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Competencies

	The successful candidate should demonstrate		
13	Good interpersonal and communication skills with the ability to elicit information	D	A/I
14	Ability to efficiently communicate complex concepts, and ability to liaise with colleagues of other disciplines	D	A/I
15	Ability to engage with and influence stakeholders, as well as work with and through others to generate the best possible ideas and solutions for the project	D	A/I
16	A high level of personal motivation and self-directed management of goals and objectives	D	A/I
17	The ability to be assertive and to drive the project forward is essential as is the ability to undertake multiple tasks and to work individually and as part of a small team	D	A/I
18	The ability to be inquisitive, curious and critical with a methodical approach to problem solving	D	A/I

*Essential or Desirable requirement