International PhD offer at INSA-Lyon and UNSW

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Offer Description

The Australia France Network of Doctoral Excellence (AUFRANDE) is a highly ambitious interdisciplinary doctoral program linking France and Australia, with a strong support from the industry. AUFRANDE seeks to recruit excellent doctoral researchers of any nationality, gender, and background from around the world.

AUFRANDE offers the recruited researchers an outstanding experience with excellent working conditions, including full-time employment contract in France with attractive salaries including social security benefits, a unique international research environment, and an innovative research training program in which they will deepen core scientific skills and develop new ones in complementary disciplines and sectors.

International mobility is a core feature of the program with a residential year in Australia and participation in regular events where researchers share common experiences and build a sustainable community, laying a strong foundation for long-term impact on future collaborations and careers.

Awarding institutions:

- Primary: INSA Lyon, France
- Secondary: UNSW Sydney, Australia

PhD title:

Industry 4.0 sensing for machine condition monitoring

PhD description: Machine condition monitoring (MCM) is still largely based on the installation of a few expensive accelerometers on few critical machines, acquired by means of expensive and centralised electronics. In a world moving towards fleets of assets (e.g., wind farms, drones for delivery) it is paramount that this approach is replaced by more affordable, scalable and self-sufficient senor technologies. This thesis aims at exploring self-powered, inexpensive sensor network technologies for MCM. Alternatives to traditional piezoelectric accelerometers (e.g., MEMS) will be investigated, both in terms of diagnostic capabilities but also in their suitability for integration with non-invasive, easy-to-install and self-powered data-acquisition systems, able to communicate a sufficient amount of diagnostic information wirelessly in a network of monitored machines. This thesis aims at

revolutionising the way diagnostic data is collected, thus enabling the collection of big-data necessary for popular data-driven approaches (artificial intelligence) and the Industry 4.0 transformation.

Research Fields: Applied science, mechanics, signal processing, machine learning

Supervisors:

- Professor Jerome Antoni, INSA-Lyon, France
- Prof. Zhongxiao Peng & A/Prof. Pietro Borghesani, UNSW Sydney, Australia
- Non-academic partner: SAFRAN-TECH, Paris Saclay

Benefits for recruited researchers include:

- Enrolment in a doctoral program in 2 entities in France and Australia, with the chance to be awarded dual doctorates;
- Work on innovative projects of high commercial and societal value;
- Be recruited in France under a full-time employment contract for a minimum period of 36-months;
- Earn an above-national standard salary including social security coverage;
- See the world with once-in-a-lifetime experiences, including a 6 to 12 months residential stay in Australia;
- Form part of a rich multidisciplinary network of researchers and supervisors;
- Work closely with industry leaders and gain experience with the AUFRANDE'S pool of industry supporters.

Requirements:

- Education Level: Master Degree or equivalent
- Languages: ENGLISH
- Level: Excellent
- Eligibility criteria:
  1. MSCA Early-stage Researcher rule: Applicants must have not yet been awarded a doctoral degree. Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will NOT be considered eligible to apply.
  2. MSCA Mobility rule: Applicants may not have resided or carried out their main activity (work, studies, etc.) in France for more than 12 months in the 3 years immediately before the call deadline (i.e., since 11 April 2020). Time spent as part of a procedure for obtaining refugee status under the Geneva Convention (1951 Refugee Convention and the 1967 Protocol), compulsory national service and/or short stays such as holidays are not taken into account.
  3. MSCA Employment rule: Applicants may not be already permanently employed by the chosen Research Host at the time of call deadline.
  4. Minimum level of studies: Applicants must meet the academic criteria for admission to the doctoral programs at both the French and the Australian enrolling universities.

5. English proficiency*: Applicants must have a demonstrable C1 level of English (both speaking and in writing).

Contact (please check that all eligibility criteria 1-5 are met before contacting us):

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