SMARTi
European Training Network
2017-2021

Early Stage Researcher with PhD enrolment

Sustainable **M**ulti-functional **A**utomated **R**esilient **T**ransport **I**nfrastructures **ETN** will bring together a stimulating platform where the stakeholders of the transport infrastructure sector will work alongside world-wide experts in smartening of systems (developers of high-tech sensors, advanced monitoring equipment, automated structures, etc.,) with direct support from the roads, railways and airports managers. As a result, SMARTI ETN will create a new generation of highly-skilled and appealing professionals that will be in great demand in this rapidly expanding field and will benefit Europe and developing countries. *Do you want to be one of them?*

Project 4

"RaCoMo": Railways system component remote condition monitoring methodology and analysis to predict future system deterioration (WP2-ESR4)

AECOM (UK)

AECOM

Expected Collaborators

The University of Nottingham (UK), Senceive (UK), Eiffage (France)

Project Objectives

- Improve industry understanding of the link between railway asset component deterioration (e.g. earthworks, track transitions, trackbed and drainage) and impact upon both cumulative track settlement and catastrophic track failure.
- Use remote condition monitoring technology to measure multi asset component deterioration and system performance.
- Develop modelling algorithms to assess historical or ongoing performance of components and predict asset component deterioration and failure over a range of timescales.
- Develop a methodology for assessing the impact of individual component failure on overall track performance and failure.
- Develop analysis tools to visualise and present modelling outcomes in a way that is easy for railway maintenance engineers to understand and use.

Environment

The research is carried out within the framework of the Marie Curie European Training Network 'SMARTI' with opportunities to join network wide training events and international collaboration. The candidate will work within the Work Package SMARTI Prototypes that will investigate innovative transport infrastructure prototypes for roads, pavements and airports. Furthermore the candidate will benefit from collaborative research with 14 similar research positions in the network.

The project will be developed through planned international collaborations with at least two international partners. AECOM will provide expertise with railway trackbed design, monitoring, field trial, site experience and performance modelling. The partnership with strategic partners will provide:
- The University of Nottingham: design and concept development, synergy with other research initiatives.
- Senceive: transfer of current remote condition monitoring RCM practice and technology to novel applications
- EIFFAGE: on-site experience, real "live" infrastructure and problem sites

The successful applicant will be recruited by AECOM and will register for a 3 year PhD at The University of Nottingham. The total funding available for each position is in line with the Marie Curie ETN Scheme,

and comes to €37320 per year. This amount will be multiplied by a country factor[1] and on top an extra allowance will be available to cover mobility expenses. The fellows will pay taxes according to the rules of the country of recruitment. A career development plan will be prepared for each fellow in accordance with his supervisor and will include training, planned secondments and outreach activities.

Application Process

(1) **SMARTI ETN** will perform the recruitment of all the Early stage Researchers (ESR) through **smartietn.eu** website

(2) Check you meet Eligibility criteria and Specific requirements for the ESR position project/s you are applying for.

(3) Prepare the following application documents (in English):

1. A curriculum vitae, including contact details, education (at University level and other), work experience, prizes/awards, language skills, etc… (max. 2 pages). The CV should reflect a representative array of achievements and qualifications appropriate to the post for which application is being made.
2. Official academic record of undertaken courses & grades for Bachelor (and Master if required in specific criteria) degree.
3. A motivational letter in which the applicant describes his or her motivation to pursue postgraduate studies and to conduct the research project/s applied for. Mention the ESR project number or numbers (in the latter indicate order of preference if any) on your motivational letter and the subject of the email.
4. A reference letter.

(4) Upload your documents in smartietn.eu before the 1st June 2017 deadline.

(5) The documents provided will be used to select the best candidates. Applications will be analysed by a **selection committee led by the coordinator and formed by both academic and industry partners**. Recruitment procedures will be open, efficient, transparent and supportive, as well as tailored to the type of positions advertised. All Institutions value diversity and are committed to equality of opportunity.

Eligibility criteria

- Applicants can be of any nationality. They are required to undertake transnational mobility (i.e. move from one country to another) when taking up their appointment. Nationality is therefore not a criterion. Rather the location of the researcher's residence or main activity during the 3 years prior to their recruitment is determining. (*This means: You can only apply to a project which is hosted in a country in which you did not reside or carry your main activities (such as work or study) for more than 12 months within the last 3 years. This excludes short stays such as holidays or compulsory national service*).

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[1] UK factor = 1.203

- Applicants must be Early-Stage Researchers (ESRs) which means, at the time of recruitment by the host organisation, they must be in the <u>first four years</u> (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. For research experience it is meant since the date that the graduate has been awarded with a degree allowing him/her to embark on a PhD programme (e.g. date of completing a masters degree).

Specific Requirements

	Essential	Desirable
Qualifications/ Education	Master's degree in Engineering, Mathematics or Computer Science, qualifying the candidate for PhD studies. At the time of recruitment, candidates must be in the first four years of their research careers (full-time equivalent research experience after qualifying degree) and have not yet been awarded a doctoral degree	
Skills/Training	• Strong mathematical and statistical ability and an understanding of mathematical coding (R, Python, Matlab etc.)	• Background in predictive analytical models, tools and processes and RAMS (Reliability, Availability, Maintainability and Safety)
Experience	• Previous work experience is NOT necessary. However these are essentials: • Willingness to think out-of-the-box and use background to adapt into a new context	• Already worked within a research team • Scientific Papers published
Personal Qualities	• Ability to work independently • Ability to work efficiently in a team • Pro-active • Good communication skills	
Other	• Fluent in oral and written English. • Ability to present scientific work in oral and written format.	

SMARTi

Do not wait, apply for this position via the following link
http://smartietn.eu

Any question on:
- this specific project, contact Craig Govan, craig.govan@aecom.com
- the SMARTI ETN project, contact Dr Davide Lo Presti, Davide.Lopresti@nottingham.ac.uk

Please note that applications sent directly to these email addresses will not be accepted.