1 Postdoc and 1 research student vacancies in Civil / Geotechnical / Digital / Tunnelling Engineering at UCC & CERN

Project title: Investigation of large-scale aging underground infrastructure using data-driven deep learning

Supervision team: Dr. Zili Li (UCC) and CERN (the European Centre for Nuclear research)

Project description:

Many kilometres of underground infrastructure in a large-scale network (e.g., tunnel, pipelines) may heavily encounter performance degradations during long-term service. The resultant crack image data, GPR image data, continuous strain sensor data, and historical borehole logs were used to evaluate the long-term safety and structural health. However, evaluation tasks are always implemented on the independent dataset, instead of a comprehensive combination of them. This study addressed this issue by proposing a systematic framework for integrating diverse data to construct a deep learning-based condition assessment model of underground infrastructure. The condition assessment model is dedicated to bridging underlying correlations between the information of diverse data and the condition of concrete lining, and bring insights into the long-term behaviour of large-scale underground infrastructure in different hydrogeological conditions.

Position Description: In this project, a research master will focus on data acquisition, data transformation, and feature extraction. The one-year research master (may be extended to a PhD position) will be based at UCC, whilst the Postdoc will work at UCC in her/his first year and then work at CERN in the second & third years.

Candidate Experience: The postgraduate student candidate should have a minimum 2.1 in an honours Bachelor's degree in Civil Engineering, or an equivalent standard from an overseas university. The postgraduate student whose first language is not English must provide evidence of English language proficiency (e.g. IELTS or TOEFL) according to UCC entry requirement. Some experience in structural health monitoring and machine learning for civil / geotechnical / geological engineering would be an advantage.

Application:
- Master / PhD student applicant

Please e-mail a CV (max. 2 pages) and a cover letter outlining your experience and motivation to Dr. Zili Li (zili.li@ucc.ie).
- Postdoc applicant

Please submit your application materials via the link below:
https://my.corehr.com/pls/uccrecruit/erq_search_package.search_form?p_company=5023&p_internal_external=E#

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