

PhD Position Coupled Multiprocess Research for Reducing Landfill Emissions

Job description

The aim of the project CURE (Coupled Multiprocess Research for Reducing Landfill Emissions) is to develop a tool for predicting settlement and emissions from landfills during and after full scale in situ treatment that includes aeration and/or leachate recirculation. This knowledge is vital to reduce the long-term cost of landfill operations and to assess the viability of sustainable landfilling practices.

This particular PhD project searches for a fundamental stochastic framework that explains the dynamics in the observed leachate quantity, quality and waste stabilization. Based on evidence by laboratory experiments, in situ field and modelled data, this framework has to take into account a variety of landfill characteristics and processes, such as gas, water and solute dynamics, biogeochemical reactivity, as well as mobile and immobile porosity. Calibration of this framework will require the use of Travel Time Distributions (TTD), Storage Age Selection functions (SAS) and Bayesian Inference (BI). The research requires a significant amount of data handling in the form of Extract, Transform, and Load (ETL) processes and querying (SQL) due to the great variety in data sources, time and dimensional scales.

Requirements

As a successful applicant you will have:

- An MSc degree related to the fields of geo-hydrology, environmental engineering, geo-mechanics or geotechnical engineering. Knowledge on biogeochemical, hydrological and mechanical processes is highly desired.
- A strong motivation for stochastic analysis and working with large datasets.
- Proficient in programming and data management systems (such as C++, python, Matlab and SQL).
- An intrinsic inclination and ability to work in a team with fellow academics, technicians and industrial partners.
- Good proficiency in spoken and written English language; Dutch language skills are desired or should be acquired.
- A driver's license.

Conditions of employment

TU Delft offers PhD-candidates a 4-year contract, with an official go/no go progress assessment after one year. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities, increasing from € 2395 per month in the first year to € 3061 in the fourth year. As a PhD candidate you will be enrolled in the TU Delft Graduate School. The TU Delft Graduate School provides an inspiring research environment with an excellent team of supervisors, academic staff and a mentor. The Doctoral Education Programme is aimed at developing your transferable, discipline-related and research skills.

The TU Delft offers a customisable compensation package, discounts on health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged. For international applicants we offer the Coming to Delft Service and Partner Career Advice to assist you with your relocation.

TU Delft (Delft University of Technology)

Delft University of Technology is built on strong foundations. As creators of the world-famous Dutch waterworks and pioneers in biotech, TU Delft is a top international university combining science, engineering and design. It delivers world class results in education, research and innovation to address challenges in the areas of energy, climate, mobility, health and digital society. For generations, our engineers have proven to be entrepreneurial problem-solvers, both in business and in a social context. At TU Delft we embrace diversity and aim to be as inclusive as possible (see our [Code of Conduct](#)). Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale.

Challenge. Change. Impact!

Faculty Civil Engineering & Geosciences

The Faculty of Civil Engineering & Geosciences (CEG) is committed to outstanding international research and education in the field of civil engineering, applied earth sciences, traffic and transport, water technology, and delta technology. Our research feeds into our educational programmes and covers societal challenges such as climate change, energy transition, resource depletion, urbanisation and the availability of clean water, conducted in close cooperation with a wide range of research institutions. CEG is convinced that Open Science helps to achieve our goals and supports its scientists in integrating Open Science in their research practice. The Faculty of CEG comprises 28 research groups in the following seven departments: Materials Mechanics Management & Design, Engineering Structures, Geoscience and Engineering, Geoscience and Remote Sensing, Transport & Planning, Hydraulic Engineering and Water Management.

Click [here](#) to go to the website of the Faculty of Civil Engineering & Geosciences.

Additional information

For more information about this vacancy, please contact Julia Gebert, Associate Professor Soil Science, email: j.gebert@tudelft.nl.

Application procedure

The application should include a motivation letter, a detailed CV, names of 2 references, abstract of MSc thesis and copies of your BSc and MSc degrees and transcripts. English language certificates, if available, are desirable.

Applications should be received before Jan 11th 2021.

Starting date is as soon as possible.

A pre-employment screening can be part of the application procedure.

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