

The department of Earth Systems Analysis (ESA) of the Faculty of Geo-Information Science and Earth Observation (ITC)/ University of Twente in Enschede, the Netherlands, has a vacancy for a

2 year Postdoc "Geoinformatics for disaster damage and recovery assessment"

Your challenge

One of the knowledge fields of the Faculty ITC of the University of Twente (UT; www.itc.nl) is disaster risk management, with different chair groups covering hazard modelling, risk assessment, risk-based urban planning, the role of climate change, but also the link to the humanitarian sector/ the Red Cross. The use of geoinformation is what all research groups have in common. More widely within the UT our research is further strengthened by a research center on resilience engineering, but also work on risk economics.

The focus field of the chair group for this postdoc is the use of remote sensing for the assessment of changing hazards, elements-at-risk, vulnerability and capacity. This could be before a disaster as a contribution to elements-at-risk mapping and characterization, e.g. using machine learning approaches, but also for post-disaster damage assessment and recovery assessment. Extensive research with several completed PhD projects has been done in the last ca. 15 years in this group. The initial focus has moved from the use of satellite imagery to data acquired with drones/UAV, and in ongoing work we also link image-based recovery assessment to macroeconomic modelling to explain the observed recovery. Much of our work has been done in the context of European research projects (FP7/H2020), for example RECONASS (www.reconass.eu), INACHUS (www.inachus.eu), or the ongoing PANOPTIS (www.panoptis.eu) project that focuses on damage to road infrastructure. In September we will start another project that will focus on supporting first responders, including through the use of indoor UAV swarms (see <https://www.ingenious-first-responders.eu/>). In addition we have carried out large international risk management projects, such as CHARIM (www.charim.net), or a national-scale multi-hazard risk assessment project in Georgia (<http://drm.cenn.org/>).

Our research in recent years has focused primarily on the use of advanced computer vision methods for efficient 3D scene reconstruction from stereo imagery, as well as on machine learning to detect damage. Several articles using CNN-based deep learning were recently published by the group. Lastly, the group is also interested in the use of VGI/citizen science to support pre-disaster risk assessment and post-disaster response and recovery, in particular focusing on human factors questions.

Funding is now available for a 2-year full-time postdoc to help advance the research in the group. Given the wide scope of problems addressed and methods used in this chair group, the postdoc can focus on one of the topics below:

- support the ongoing research projects by adding novel and relevant additional research questions that benefit from the ongoing work and expertise in the project consortia;
- support development of machine learning approaches for generation of elements-at-risk and hazard databases using cloud-based computing tools;
- expand our research on recovery assessment that links advanced remote sensing and economic modelling;
- help build up a knowledge node in the field of impact assessment and support of auditing and accountability needs with remote sensing, for example to provide impact evidence for donors who support post-disaster recovery;
- help expand our knowledge on image-based functional damage and recovery assessment, i.e. going beyond the

traditional focus on physical features; or develop research that addresses the geoinformation needs of humanitarian organisations such as the Red Cross, building on existing links with 510 global (www.510.global)

Your profile

We are looking for a creative and highly motivated candidate. You should:

- have a PhD degree related to geoinformatics, with proven expertise in areas such as advanced remote sensing, computer vision or photogrammetry, and good programming skills.
- Prior expertise in disaster risk management will be an asset, though the range of possible research topics allows for some diversity in backgrounds.
- have an interest to work in an highly international environment.

Our offer

We offer you an inspiring multidisciplinary and challenging international and academic environment. The university offers a dynamic ecosystem with enthusiastic colleagues in which internationalization is an important part of the strategic agenda.

You will be fulltime employed for two years. Salary and conditions will be in accordance with the Collective Labour Agreement (CAO-NU) of the Dutch Universities.

- Gross monthly salary between € 2709.- and € 4274.- depending on experience and qualifications (job profile Researcher level 4).
- A holiday allowance of 8% of the gross annual salary and a year-end bonus of 8.3%.
- Excellent support for research and facilities for professional and personal development
- A solid pension scheme.
- Minimum of 41 holiday days in case of full-time employment.

Depending on available finances there may be an opportunity to extend the position.

For more information, you can contact Prof. Dr. Norman Kerle (n.kerle@utwente.nl). You are also invited to visit [our homepage](#).

Please submit your application before 1 July 2019 (on the [job advert page](#) choose "apply now" below). Your application should contain a detailed Curriculum Vitae and a letter elaborating the motivation for the application.

We are aiming at filling the position as soon as possible. Job interviews (likely via Skype) will be held in early-mid July 2019.

Committee members

Prof. Dr. N. Kerle (n.kerle@utwente.nl)

Prof. Dr. Maarten (vanaalst@climatecentre.org)

Dr. Cees van Westen (c.j.vanwesten@utwente.nl)