

## Job Description

The Computer Graphics and Visualization (CGV) group at the Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS), TU Delft invites applications for full-time doctoral candidates in the area of **Visualization and Visual Analytics in Fine-Art analysis**. The successful candidate will work together with collaborators from the department of Material Science and Engineering at TU Delft and the Rijksmuseum Amsterdam on novel visualization and visual analytics methods, as well as visual workflows. Topics include the identification of pigments or layering structures in historical paintings, the reasoning on the aging process of these pigments, and the simulation of different lighting conditions. For this, we will work with hyperspectral and other high-dimensional imaging data modalities. Besides workflows and design of visual representations, the project will provide different opportunities to work on methodological improvements for the analysis of this data. An example is the adaptation of dimensionality reduction algorithms for information visualization or the improvement of the acquisition process by (partially) predicting modalities using machine learning methods.

Computer Graphics and Visualization is a key element in several domains; medical, architectural, and scientific applications, entertainment (movies and games), simulations, and virtual training are only a few examples on which our work has a strong impact. In these contexts, The CGV group investigates realistic, perceptual, and expressive rendering, visualization of scientific and medical data, interaction and game technologies, and modelling of 3D content. Our goal is to develop methods to produce virtual worlds and provide high-quality display solutions efficiently and effectively. We aim for solutions to produce instructive illustrations with real-world applications (e.g., medical visualization, or flooding simulations) and make use of perceptual findings to increase the effectiveness of the displayed information. Our work is often multi-disciplinary and combines aspects of various fields, such as physics, parallel programming, algorithms, perception, or numerical methods.

## Requirements

Applicants must have the following qualifications:

- Master's degree in computer science, engineering, math or related.
- Strong knowledge background and academic performance in visualization/visual analytics.
- Good programming skills in C++ required, GPU programming in OpenGL or CUDA as well as javascript and D3.js or other visualization languages desired
- The ability to work collaboratively in a group/team.
- Good English communication and writing skills, and international English test qualification, e.g., IELTS ( $\geq 7.0$ ) and TOEFL ( $>100$ ).
- Self-driven and passionate in learning new knowledge.

Doing a PhD at TU Delft requires English proficiency at a certain level to ensure that the candidate is able to communicate and interact well, participate in English-taught Doctoral

Education courses, and write scientific articles and a final thesis. For more details, please check the [Graduate Schools Admission Requirements](#).

## Conditions of employment

Doctoral candidates will be offered a 4-year period of employment in principle, but in the form of 2 employment contracts. An initial 1,5-year contract with an official go/no go progress assessment within 15 months. Followed by an additional contract for the remaining 2,5 years assuming everything goes well, and performance requirements are met.

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities, increasing from € 2443 per month in the first year to € 3122 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 customizable 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 Electrical Engineering, Mathematics and Computer Science

The Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) brings together three disciplines - electrical engineering, mathematics, and computer science.

Combined, they reinforce each other and are the driving force behind the technology we use in our daily lives. Technology such as the electricity grid, which our faculty is helping to make future-proof. We are also working on a world in which humans and computers reinforce each other. We are mapping out disease processes using single cell data and using mathematics to simulate gigantic ash plumes after a volcanic eruption. There is plenty of room here for ground-breaking research. We educate innovative engineers and have excellent labs and facilities that underline our strong international position. In total, more than 1,100 employees and 4,000 students work and study in this innovative environment.

Click [here](#) to go to the website of the Faculty of Electrical Engineering, Mathematics and Computer Science.

## Additional information

For more information about this vacancy, please contact [Thomas Höllt](#)

## Application procedure

Are you interested in this vacancy? Please apply before **December 1, 2022** by sending your motivation letter (1 page) and CV including thesis title, publications and links to published work, grade overview from your studies, and names and contact information for two references via email to [Thomas Höllt](#).

- A pre-employment screening can be part of the selection procedure.
- Acquisition in response to this vacancy is not appreciated.