Informatics

WE ARE HIRING!

Centre for Visual Analytics Science & Technology

PhD Candidate

Visual Analytics for Event-based Diffusion on Networks

We are hiring a talented PhD candidate in an international project on the visual analytics of complex diffusion processes over temporal networks. You will work in the context of SANE, a project held in cooperation with the University of Cologne (Germany) and the University of Newcastle (United Kingdom). This project arrangement gives you unique career opportunities, including student exchanges abroad, regular meetings with researchers from the other institutions participating to the project. **How to apply instructions on second page!**

We are looking for a PhD candidate to work from the TU Wien, at the **Institute of Visual Computing and Human-Centered Technology**, in the Research Unit of Visual Analytics. We offer a position as project assistant (prae-doc) limited to 3 years for 30 hours/week. Gross annual (monthly) salary of Euro 43,650 (2,464.80) according to FWF regulations.

Pandemics, computer malware attacks, misinformation campaigns – all of these phenomena have one thing in common: some kind of "information" (a pathogen, a virus, fake news) that spreads across an underlying structure of elements interconnected between each other by some kind of relationship (physical contacts, public WiFi, social networks). In Computer Science, such structures are known as graphs or networks – and have been extensively researched. Within this formalization, the phenomena described above are referred to as diffusion processes, and their dynamics have been studied and researched to obtain models that allow researchers and institutions predict, mitigate, and generally understand such complex events. The concept of Event-based networks is known in scientific literature: it describes networks that change in continuous time, therefore without losing any temporal detail. In the SANE project, we aim to apply event-based network visualization and analysis to investigate complex and uncertain diffusion phenomena. We strive to systematically characterize the topic in the visualization research community, developing a common framework to foster research in the area. We will then employ such framework to introduce and refine prototypes to analyze real data about diffusion phenomena, improving current algorithmic solutions, and sharing best practices and lessons learned throughout the project duration.

In the context of this project, you will work on:
- Research activities on cutting edge research in the areas of visual analytics, temporal network visualization, and information diffusion;
- Methods and approaches for visualization in the information diffusion domain with the final objective of publishing and presenting your work at top level conferences and journals around the world;
- Challenges concerning implementing and optimizing algorithms on event-based networks as well as translating them onto realistic application scenarios to be evaluated under real-life conditions;
- Impact on visualization of your discoveries, and their impact on the community and how they integrate with existing theory.

What we expect from you:
- Completed master studies in computer science or equivalent university studies at home or abroad
- Interest and previous knowledge in the field of visual analytics and information visualization

- Excellent programming skills. Experience in visualization/user interfaces and/or graph algorithms are a plus.
- Curiosity, independent working style and problem solving skills
- Ambition for a PhD, writing papers, and travelling to international conferences and project partners to follow the evolution of the project.
- Excellent English communication and writing skills. Knowledge of German (at least level B2) or willingness to learn it in the first year are a plus (for non-native speakers).

We offer:
- Participation to an international project that connects three prestigious European and UK institutions: TU Wien, University of Cologne, Newcastle University.
- An international, vibrant and exciting working team, located in the heart of Europe.
- Hybrid working style with up to 60% home office option.
- A range of attractive social benefits (see Fringe-Benefit Catalogue of TU Wien).
- Wide range of internal and external training opportunities, various career options.
- Student exchanges and collaborations with other non-Austrian institutions in the project for personal and professional growth.
- Central location of workplace as well as good accessibility (U1/U4 Karlsplatz)

How to Apply and Deadline

To apply, please make sure you include the following:

- Motivation letter (statement of interest)
    - Let us know how you plan to contribute to the vision of the project
- Curriculum Vitae
    - Other than your achievements, tell us something about you, interests, hobbies, etc.
- Certificates of degrees and grades in courses taken so far
- A copy of the thesis of the highest obtained degree in PDF form

Send all these separately or in a ZIP file (a OneDrive/Dropbox/etc. link also suffices) by e-mail to **Alessio Arleo** (a.arleo@tue.nl) with the subject:

[SANE] PhD Candidate Application

You can ask informal questions about the application, the project, and selection procedure by writing an e-mail at the same address.

Deadline for Applications: April 15th 2024
Expected start: May/June 2024