**PhD Position Spread in Networks**

**[Specifications]**

Faculty/Department Faculty of Electrical Engineering, Mathematics and Computer Science

Job type PhD position

Scientific field Xxx

Hours per week XX

Salary - € X.XXX,- - X.XXX,-

Desired level of education: MSc

Vacancy number [generated automatically]

**Challenge**: Developing non-Markovian models to prevent spread in networks.

**Change**: Adopting the theory of non-Markovian processes on networks.

**Impact**: Robust networks to reduce the impact of network failures or epidemics.

**[Job description]**

The common denominator of epidemics, computer network viruses, or for instance cascading failures in power grids, is network dynamics and the underlying physics. The models used so far are mostly based on Markovian processes. And as the recent panic throughout the global banking system has shown, dramatic improvements in modelling spread in networks is crucial to better respond to such crises. As a PhD student at TU Delft, you will conduct research into and develop non-Markovian models based on the network science view and geared to predicting and preventing spread in networks.

Depending on your interests, your research may be dedicated to data communications, energy networks, and even pandemics within the scope of the ERC-funded ViSioN project. Once you’ve mastered the theory, you’ll build models, describing nature with mathematical precision. Your software will convince decision makers of realistic scenarios and help reduce response times. You’ll be building your network of relevant stakeholders, e.g. in industry or among academics at university hospitals. As a PhD student, you will also be coaching and supervising Master students with their thesis projects.

You’ll be joining the diverse and driven team of academic staff, PhD students and postdocs of the [Network Architectures and Services Group](https://www.nas.ewi.tudelft.nl/). We share a drive to understand the characteristics of and processes running on complex networks, ranging from man-made infrastructures to biological, brain and social networks. Fostering an inspiring, friendly and supportive environment, we meet regularly, and share ideas and knowledge. And you will receive all the training you need to evolve as a scientist.

**[Requirements}**

You are driven to reduce the impact of spread in networks using mathematical modelling. For your research you harness your in-depth knowledge of mathematics, algorithms, probability theory and network science. In addition, you thrive on seeing your models applied, for which you reach out to relevant stakeholders using your communication and networking skills. In addition, you enjoy writing scientific articles and disseminating your findings in relevant communities. In view of the often privacy-sensitive nature of our research, you are an EU citizen.

You also have:

* An MSc in Physics, Mathematics, Computer Science, System Physics, Electrical Engineering or another relevant subject.
* Extensive experience of modelling.
* An eagerness to learn all about the latest technologies and their potential for mathematical modelling and prediction.
* Excellent programming skills.
* A good command of English, as you’ll be working in an international environment.

**[Conditions of employment]**

[Automatically completed by recruitment system]

**[TU Delft (Delft University of Technology)]**

[Automatically completed by recruitment system]

**[Department]**

[Automatically completed by recruitment system

**Additional information**

If you would like more information about this role, please contact please contact [name], [role], email [email address].

**Application procedure**

To apply, please complete the application form [link] and add the following documents to your application:

1. Motivation letter, including: (1) a brief introduction of yourself, (2) an explanation how your previous studies and experience have prepared you for this PhD position, and (3) a motivation why you are interested in this specific position. Maximum length 1 page.
2. Detailed CV.
3. Copies of your BSc and MSc degrees and transcripts.
4. Names and contact information of at least three relevant references. We will not contact references without your consent.

Please apply before [date].

After the first selection, video interviews will be held on [dates]. The interviews at TU Delft will take place on [dates].

**[Metatitle]**

PhD Position: Spread in Networks | TU Delft

**[Metadescription]**

Develop non-Markovian models to predict and prevent spread in networks, such as epidemics or cascading power grid failure, as a PhD student at TU Delft.

**[Intro’s social media 3x]**

As a PhD student at TU Delft you will model complex networks, developing and adopting the theory of non-Markovian processes on networks. Your work will help reduce the impact of epidemics and other serious network-related disasters. Are you up for the challenge? Apply now!

Would you like to contribute to groundbreaking research geared to the understanding of complex networks and the processes run on them? Join TU Delft as a PhD student and help reduce the impact of spread on networks. Check the job post.

To predict and prevent spread in networks, e.g. avoiding cascading power grid failures and reducing the impact of epidemics, new ways of modelling are crucial. As a PhD student at TU Delft you will conduct research into and develop non-Markovian models based on the network science view. Would you like to help reduce the impact of spread in networks? Apply now!

**[Relevante hashtags]**

#vacancy #workingatTUDelft #PhDposition #spreadinnetworks #epidemicprocesses #nonMarkovian #virusspread #cascadingfailure #powergrid #computernetworks #socialnetworks #energynetworks #financialnetworks