

## Professor in Complexity and Network Science

DTU Compute at Technical University of Denmark (DTU) invites applications for an appointment as Professor of Complexity and Network Science at the Section for Cognitive Systems.

DTU Compute is an internationally unique academic environment spanning the science disciplines mathematics, statistics, and computer science. At the same time, DTU Compute is an engineering department covering informatics and communication technologies (ICT) in their broadest sense. Finally, DTU Compute plays a major role in addressing the societal challenges of the digital society where ICT is a part of every industry, service, and human endeavor.

DTU Compute strives to achieve research excellence in its basic science disciplines, to achieve technological leadership in research and innovation, and to address societal challenges in collaboration with partners at DTU and other academic institutions, nationally and internationally, and—equally important—with industry and organizations. DTU Compute interacts with leading centers and strategic partners in order to increase participation in major consortia.

DTU Compute plays a central role in education at all levels of the engineering program at DTU—both in terms of our scientific disciplines and our didactic innovation.

The aim of the new position is to strengthen the Department's teaching and research activities in complexity and network sciences. There is focus on development of new collaborative research and innovation projects, development of research, teaching, innovation, and campus-wide collaboration.

### Responsibilities and tasks

The professorship is a research management position through which DTU wishes to consolidate and further develop its activities in the field of complexity and network science. You will be responsible of this area and, where appropriate, collaborate closely with other faculty in the section, the department, and the university. The tasks include research, teaching as well as innovation.

In the modern world, data is increasingly generated by human beings, reflecting their actions and interactions. Online social networks, telecommunication data, data from web-searches, mobility patterns, credit card records, etc. We also see increasing amounts of data collected by smartphones, fitness trackers, and more general via the internet of things. These complex/social data represent new challenges for statistical methods and machine learning. The challenges are related—in part—to the data analysis itself, for example due to complex internal structures, patterns, and biases in the data, all of which invalidate many of our standard statistical assumptions. However, the challenges are also related to concrete questions of ethics, privacy and fairness.

Your responsibility will be to strengthen research, teaching, and innovation in the area of complex/social data.

You will be responsible for teaching in areas related to these complex/social data (social data analysis, network science, data visualization) and for ensuring that DTU offers a coherent curriculum that meets the demand of the companies and organizations that are the main employers of university candidates. The department has a portfolio of courses in this area. These are given to the education: social graphs and interactions, social data analysis and visualization. A course portfolio for continuing education is also expected.

You are expected to make theoretical contributions to complexity and network science in areas relevant for engineering sciences and to engage in close collaboration with other researchers at the department and the university on applying such methods to the benefit of society. In many cases, such cooperation will involve collaboration with external partners in the form of companies and organizations. You are expected to participate extensively in such activities and take the lead when needed.

We expect you to participate in departmental teaching at all levels so you should value visionary and meaningful communication. The teaching will cover Bachelor's, Master's, PhD level courses, and courses in continuing education. Bachelor courses are taught in Danish, other courses in English. For international candidates, DTU offers Danish language courses, with the purpose of being able to teach in Danish within the first two-three years.

### **Qualifications**

Professors are expected to make a special effort with respect to research and research management. The following qualifications are considered very important:

- A strong research background in network science, demonstrating scientific production at the highest international level.
- Experience in analysing large scale network data (online social media data, nation-scale telecommunication and similar).
- Concrete experience designing and implementation of large scale data collection of complex/social data (e.g. multi-level temporal networks).
- Experience with data visualization and natural language processing for network science.
- Documented experience with course and curriculum development and teaching at all levels within the field.
- A strong international network of collaborators, documented through publications and services to the scientific community (e.g. relevant board memberships and conference organization).
- Experience with research collaboration and research management across scientific disciplines. Due to the focus of this professorship, documented experience in collaboration with social sciences is required.

### **Assessment**

In the assessment of the candidates, consideration will be given to

- Experience and quality of teaching and curriculum development
- Research impact and experience, funding track record, and research vision
- Societal impact
- Documented innovation activities, including commercialization and collaboration with industry
- International impact and experience
- Leadership and collaboration
- Communication skills

For the specific position, consideration will be given to your ability to collaborate and lead projects transcending topical boundaries, and to motivate colleagues to be at their best and achieve ambitious goals. You must be motivated by both personal and team accomplishments and thrive with collaboration and team work.

## **We offer**

DTU is a leading technical university globally recognized for the excellence of its research, education, innovation, and scientific advice. We offer a rewarding and challenging job in an international environment. We strive for academic excellence in an environment characterized by collegial respect and academic freedom tempered by responsibility.

## **Salary and terms of employment**

The appointment will be based on the collective agreement with the Confederation of Professional Associations. The allowance will be agreed with the relevant union.

## **Further information**

Further information may be obtained from Head of Department Per B. Brockhoff, tel.: +45 4525 3365.

You can read more about DTU Compute on [www.compute.dtu.dk](http://www.compute.dtu.dk).

## **Application procedure**

Please submit your online application no later than **XXX 2018 (local time)**. Apply online at [www.career.dtu.dk](http://www.career.dtu.dk).

Applications must be submitted as **one PDF file** containing all materials to be given consideration. To apply, please open the link 'Apply online', fill in the online application form, and attach **all your materials in English in one PDF file**. The file must include:

- Application (cover letter) addressed to the President
- CV
- A vision for future research
- Views regarding teaching and research based on the "Assessment" bullets
- Documentation of previous teaching and research based on the "Assessment" bullets
- List of publications indicating scientific highlights
- H-index, and ORCID (see e.g. <http://orcid.org/>)
- Diploma (MSc/PhD)

Applications and enclosures received after the deadline will not be considered.

All interested candidates irrespective of age, gender, disability, race, religion or ethnic background are encouraged to apply.