PhD in Applied Probability; Datamining for (Cyber) Threat Intelligence, Delft University of Technology, Faculty Electrical Engineering, Mathematics and Computer Science, Netherlands.

Department/faculty: Faculty Electrical Engineering, Mathematics and Computer Science

Level: University Graduate

Working hours: 38-40 hours weekly

Contract: 4 years

Salary: 2325 - 2972 euros monthly (full-time basis)

Faculty Electrical Engineering, Mathematics and Computer Science

The Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) is known worldwide for its high academic quality and the social relevance of its research programmes. The faculty’s excellent facilities accentuate its international position in teaching and research. Within this interdisciplinary and international setting the faculty employs more than 1100 employees, including about 400 graduate students and about 2100 students. Together they work on a broad range of technical innovations in the fields of sustainable energy, telecommunications, microelectronics, embedded systems, computer and software engineering, interactive multimedia and applied mathematics.

Research at the Delft Institute of Applied Mathematics (DIAM) centres around the analysis of mathematical models arising in science and engineering. This research is both fundamental and applied in nature, and is often inspired by technical applications. The department plays an active role in translating research results into concrete, practical applications. It maintains intensive contacts with other TU Delft departments, the major technological institutes, and the research laboratories of major companies. Within its own subject field, the department provides teaching for the Applied Mathematics BSc and MSc programmes, and also contributes to the teaching of mathematics courses within other academic programmes at the TU Delft and within national programmes such as “MasterMath”.


The project is in close cooperation with the Faculty of Military Science of the Netherlands Defence Academy (NLDA) in Breda. The Netherlands Defence Academy is a unique institute in the Netherlands that combines military education with university-level education and has been giving Officer’s training for more than 180 years. The Faculty of Military Science provides academic education both at the bachelor and master level and consists of three groups: War Studies, Military Management and Military Technology. Research is conducted in various fields, ranging from military technology, counter-insurgency, data analysis for intelligence and security to military history. This research is regularly conducted for and applied within the several organizations within the Dutch Defence Department.

The project will be performed within the Applied Probability Group of the Delft Institute of Applied Mathematics tudelft.nl/en/eemcs/the-faculty/departments/applied-mathematics and at the Intelligence and Security section of the FMS of the Netherlands Defence Academy.
Job description

The increased digitalisation of our society provides the intelligence community with opportunities to uncover information, insights and hidden patterns on a scale as never seen before. Hidden in this immense volume of data are new information, facts, relationships, indicators and points that either could not be practically discovered in the past or simply did not exist before. However, despite these developments, the structural integration of big data-analytic methodology within the intelligence community is still relatively new and requires a paradigm shift.

“Datamining for (Cyber) Threat Intelligence” concerns the development and testing of methods from cooperative game theory to better understand adversary networks (terrorist, insurgent, criminal) and to identify central individuals and communities in social networks. The application of game theory to network analysis is relatively new and needs to be developed further. Existing methods have not yet been tested against data. The aim of this project is to develop operational tools. That is why this project will be carried out at TU Delft, which provides the theoretical input, and NLDA Breda, which provides the operational input. The successful candidate will be stationed at both institutes.

Requirements

The candidate possesses an MSc degree in mathematics or computer science. Some experience with data analysis, stochastic networks, or game theory is advantageous but not a necessary requirement.

We require very good communication skills and fluently spoken and written English. The position includes some modest teaching duties. Candidates are expected to finish their project with a PhD thesis, and disseminate the results through publications in peer-reviewed journals, and presentations at international conferences.

Conditions of employment

TU Delft offers a customizable compensation package, a discount for health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged. The An International Children’s Centre offers childcare and an international primary school. Dual Career Services offers support to accompanying partners. Salary and benefits are in accordance with the Collective Labor Agreement for Dutch Universities.

As a PhD candidate you will be enrolled in the TU Delft Graduate School. TU Delft Graduate School provides an inspiring research environment; an excellent team of supervisors, academic staff and a mentor; and a Doctoral Education Programme aimed at developing your transferable, discipline-related and research skills. Please visit tudelft.nl/phd for more information.

Information and application

For information about this vacancy, you can contact Roy Lindelauf, Assistant Professor, NLDA email: rha.lindelauf.01@mindef.nl and Robbert Fokkink, Assistant Professor, TU Delft, email: r.j.fokkink@tudelft.nl.

Provisional starting date: 1 July 2019 (flexible).

Location: Breda and Delft.
To apply, please email your letter of application and CV before May 1st, 2019 to hr-eemcs@tudelft.nl. Attach with your application:

- full list of courses with grades
- (draft) MSc thesis
- BSC thesis, if available
- contact details of two referees.