Tenured Position (Associate/Full) Professor in Cyber Security
Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS)
Delft University of Technology
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Background

The Faculty Electrical Engineering, Mathematics and Computer Science (EEMCS) and the Faculty Technology, Policy and Management (TPM) jointly established a full professor position (1.0 fte) in the field of cyber security in 2012. The profile of cyber security at TU Delft can be characterized as "theory and engineering of cyber security of distributed systems and networks in a socio-technical context". The current holder of the position, prof.dr.ir. Jan van den Berg, will retire by the end of 2016. The two Faculties have the ambition to continue their joint efforts field of cyber security. However, the Faculties have also concluded that building up the technical – computer science – expertise in cyber security at TU Delft has top priority. For that reason, the position for the senior (associate/full) professor exists within the Faculty of EEMCS; at the same time the position explicitly continues to develop the connections with the socio-technical perspectives on cyber security at TPM organized around the chair of prof van Eeten.

Cyber security research and education at TU Delft

In the Netherlands, the frame of reference for cyber security research and education has been developed by experts from various research disciplines, universities and other centers of expertise, and industry and (semi-) governmental organizations. In line with European and national priorities, the resulting Dutch National Cyber Security Research Agenda (NSCRA-II, 2013)[1] concentrates on two areas, namely (i) security and trust of citizens. This includes privacy protection, security of mobile services, data and policy management, and accountability, and (ii) security and trustworthiness of infrastructure. This includes malware detection and removal, intrusion detection and prevention, trustworthiness of networks and hardware, software security, security of SCADA/industrial control systems (ICS), and secure operating systems.

Cyber security is a national research priority in the Netherlands, as is witnessed by the foundation of the National Cyber Security Centre by the Dutch Ministry of Safety[2], and the position of cyber security research and valorization in the Knowledge and Innovation Agenda on Information and Communication technology (KIA ICT)[3]. Of particular relevance to TU Delft are the regional and international ambitions of "The Hague Security Delta" (HSD)[4]. The HSD initiative entails (inter)national safety and security projects in which businesses, government, and research institutes collaborate. In the context of regional collaboration, TU Delft established the Delft Safety and Security Institute (DSyS)[5], which stimulates interaction and mutual fertilization of safety and security challenges across technical disciplines at TU Delft.

TU Delft's cyber security research and education portfolio is rich and deals with several cyber security themes. Rather than focusing on a narrow theme, we value the diversity of our research and education portfolio within the scope of theory and engineering of cyber security of distributed systems and networks in a socio-technical context.

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[1] https://www.iipvv.nl/sites/stw.demo.infi.nl/files/mediabank/NCSRA-II.pdf
[2] https://www.ncsc.nl/
[3] http://www.nwo.nl/binaries/content/assets/nwo/documents/ew/2015/knowledge-and-innovation-agenda-ict-2016-2019.pdf
[4] https://www.thehaguesecuritydelta.com/
[5] http://www.tudelft.nl/onderzoek/thematische-samenwerking/onderzoeksinstituten/delft-safety-security-institute-dsys/

The vacant cyber security position will function as a point of gravity without assuming that the appointed associate/full professor can and will need to be expert on all aspects of this profile.

The cyber security section[6] at the Faculty of EEMCS – in which the vacant position exists – broadly covers the themes: identity, privacy, and trust management; malware and malicious infrastructures; attack detection & prevention, monitoring; and secure design and engineering. The themes secure design and engineering; data, policy and access management are topics of research and education found at other sections of the Faculty of EEMCS often in the context of software engineering. Relevant research at the Faculty of EEMCS focusses on computer (and data) science theory and engineering of cyber security in distributed systems and networks, with projects on network security, software engineering, privacy and security in peer-to-peer systems, privacy enhancing technology, and malware spreading, detection and modeling. Recently the particular focus on quantum information and security has been added in the context of the QuTech Institute at TU Delft[7].

At the Faculty TPM the focus of cyber security research and education is generally on cybercrime and the underground economy[8]; risk management, economics, and regulation; forensics and incident management; data, policy and access management. The wider socio-technical context of the Faculty of TPM connects cyber security well to the domain of safety and security studies in socio-technical systems such energy networks, transportation, and healthcare systems. The focus of research at TPM is economy and risk of cyber security in multi-actor systems and networks, with projects on economy of cyber security, organization, governance and culture, and fundamental values such as privacy, trust, accountability and transparency.

The 2-years research master's program on Computer Science embeds a cyber security specialization that is organized and lectured in collaboration with University of Twente and TU Eindhoven[9]. The specialization includes a number of courses that are tele-lectured at the remote locations. Together with University of Leiden, we are responsible for the professional 1-years master program for practitioners in cyber security organized by the Cybersecurity Academy (CSA)[10]. At Bachelor level, several courses include elements of cyber security; currently the potential of a cyber security minor program accessible to all engineering disciplines at TU Delft is being investigated.

Description of the (associate/full) professor position

The vacant position for a senior associate or full professor exists in Computer Science at the Faculty of EEMCS within the broad field of theory and engineering of cyber security of distributed systems and networks in a socio-technical context. Although the position primarily has a computer (or data) science profile, TU Delft aims to continue to strengthen collaborations between the Faculties EEMCS and TPM; for that reason the applicant will preferably have experience with socio-technical perspectives on cyber security research and/or education such as ethics, usability and acceptability, legislation and the role of government at large.

The applicant's approach can be characterized as systemic, i.e. while the applicant's research may focus on specific aspects of cyber security, the motivation from an embedding in larger system context plays an important role. The applicant's cyber security specialization may be related to ongoing research activities, but may also add new research branch(es). The applicant is assumed to initiate and drive research and education connections in the diverse field of cyber security fields across the Faculties EEMCS and TPM.

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[6] http://cybersecurity.tudelft.nl/

[7] http://qutech.nl/

[8] http://www.tbm.tudelft.nl/index.php?id=97862

[9] http://www.3tu.nl/cybsec/en/

[10] https://www.csacademy.nl/en/

The applicant will be recognized as a senior academician by (cyber-)security experts at leading institutions such as Radboud University, KU Leuven, Cambridge and ETH Zurich. The applicant is expected to have published in journals and conferences that reflect the domain of (cyber-)security, such as ACM Conference on Computer and Communication's Security (CCS), Computer and Security (Elsevier), IEEE Transactions on Information Forensics and Security (T-IFS), IEEE Workshop on Information Forensics and Security (WIFS).

The applicant brings an established and strong network, connecting cyber security at TU Delft to leading international initiatives. As funding for temporary research positions (PhD candidates, postdocs) at TU Delft is primarily from research grants and industrial contract research, the applicant will be the Principle Investigator of research proposals in national or European context. The applicant's seniority will enable her/him to coach less experienced faculty members in putting together research proposals and in establishing contacts with potential project partners.

The new holder of the position will be involved in teaching in the bachelor and master curricula at TU Delft, and the professional master education program of the Cyber Security Academy (CSA). Teaching obligations are agreed upon with the members of the cyber security section and the head of department INSY (EEMCS). Roughly speaking, the Faculty assumes a time distribution of education:research:admin of 40%:40%:20%, where education also includes supervision of student projects and curricular administrative tasks.