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PhD Designing Intelligence – Socially-Aware Conversational Robots

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FACULTY/DEPARTMENT

Faculty of Electrical Engineering, Mathematics & Computer Science

JOB TYPE

PhD

SCIENTIFIC FIELD

Engineering

HOURS PER WEEK

32-38

SALARY

€ 2.395,00 - € 3.061,00

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TUD00513

Challenge Develop AI and machine learning algorithms for conversational social robots

Change Humans and AI designing the future in dialogue

Impact Creation of a conversational hybrid-intelligence for collaborative design settings

Job description

In this position you will have the possibility to develop AI and machine learning algorithms that enable conversational social robots to partake in and contribute to collaborative design settings. This position will have a strong focus on working with data gathered from sensors such as audio, video etc. to explore how verbal and non-verbal communication seen in humans can also be used for human-robot interaction. Therefore, the ideal candidate should have a background in computer science/engineering. He/she should be enthusiastic about developing interactive conversational systems and carry out human-robot experiments in real-life settings. He/she should be interested in collaborating with and learning from colleagues in industrial design. Target venues for publication include, next to top tier journals, the international conference of human-robot interaction (HRI) as well as the interactional conference of multi-modal interaction (ICMI).

Together with 3 other PhD students the candidate would be a part of the new Designing Intelligence lab that works on investigating how humans and an artificial intelligence can work together creatively over extended periods of time. The goal of the Lab is to move the idea of design thinking closer to that of artificial intelligence, developing new types of design methods to help design professionals in their design processes.

The Designing Intelligence Lab is a collaboration between computer science and industrial design and is led by Catharine Oertel and Senthil Chandrasegaran. Successful candidate will be affiliated to the Faculty of Electrical Engineering, Mathematics, and Computer Science (Section: Interactive Intelligence) but will collaborate closely with the Faculty of Industrial Design and Engineering.

The Interactive Intelligence (II) section focuses on socially interactive, intelligent agents. They research the intelligence that underlies and co-evolves during the repeated interactions of human and technology "agents" who cooperate to achieve a joint goal. Their research program aims for synergy and social interaction between humans and technology, to empower humans in their social context. The new technological challenges we face arise from the need to integrate Artificial Intelligence, Cognitive Engineering, and behavioural sciences.

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- The ability to learn fast, to communicate well, and to be willing to experiment with new research practices and methods.
- Proficiency in expressing yourself verbally and in writing in English.
- The ability to work in a team, take initiative, be results oriented and systematic.

Conditions of employment

TU Delft offers DAI-Lab PhD-candidates a 5-year contract (as opposed to the normal 4-years), with an official go/no go progress assessment after one year. Approximately a fifth of your time will be allocated to developing ground-breaking learning materials and educating students in these new subjects.

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities, increasing from € 2395 per month in the first year to € 3217 in the fifth year. As a PhD candidate you will be enrolled in the TU Delft Graduate School. The TU Delft Graduate School provides an inspiring research environment with an excellent team of supervisors, academic staff and a mentor. The Doctoral Education Programme is aimed at developing your transferable, discipline-related and research skills.

The TU Delft offers a customisable compensation package, discounts on health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged. For international applicants we offer the Coming to Delft Service and Partner Career Advice to assist you with your relocation.

TU Delft (Delft University of Technology)

Delft University of Technology is built on strong foundations. As creators of the world-famous Dutch waterworks and pioneers in biotech, TU Delft is a top international university combining science, engineering and design. It delivers world class results in education, research and innovation to address challenges in the areas of energy, climate, mobility, health and digital society. For generations, our engineers have proven to be entrepreneurial problem-solvers, both in business and in a social context. At TU Delft we embrace diversity and aim to be as inclusive as possible (see our Code of Conduct (<https://www.tudelft.nl/en/about-tu-delft/strategy/integrity-policy/tu-delft-code-of-conduct/>)). Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale.

Challenge. Change. Impact!

Faculty Electrical Engineering, Mathematics and Computer Science

The Designing Intelligence Lab is a TU Delft Artificial Intelligence Lab. Artificial

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Instead of the usual 4-year contract, you will receive a 5-year contract. Approximately a fifth of your time will be allocated to developing ground-breaking learning materials and educating students in these new subjects. The experience you will gain by teaching will be invaluable for future career prospects. All team members have many opportunities for self-development. You will be a member of the thriving DAI-Lab community that fosters cross-fertilization between talents with different expertise and disciplines.

The Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) brings together three disciplines - electrical engineering, mathematics and computer science. Combined, they reinforce each other and are the driving force behind the technology we use in our daily lives. Technology such as the electricity grid, which our faculty is helping to make future-proof. We are also working on a world in which humans and computers reinforce each other. We are mapping out disease processes using single cell data, and using mathematics to simulate gigantic ash plumes after a volcanic eruption. There is plenty of room here for ground-breaking research. We educate innovative engineers and have excellent labs and facilities that underline our strong international position. In total, more than 1,100 employees and 4,000 students work and study in this innovative environment.

Click here (<https://www.tudelft.nl/en/eemcs/the-faculty/>) to go to the website of the Faculty of Electrical Engineering, Mathematics and Computer Science.

Additional information

For further information please contact Catharine Oertel (c.r.m.m.oertel@tudelft.nl) (mailto:c.r.m.m.oertel@tudelft.nl) in the Computer Science Faculty.

Application procedure

Submit the following in two pdf files:

(pdf 1) 1-page Motivation letter specific to this and CV;

(pdf 2) a (part of your) Master's thesis or a paper that you have written, in which you demonstrate your writing skills.

Please highlight in your motivation letter and/or CV examples of projects and achievements that demonstrate your relevant competences.

A pre-employment screening can be part of the application procedure.

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