

PhD Position in Cutting-Edge Control Systems

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Design the Future of Control Engineering with IMAGINE!

Job description

Are you ready to take control engineering to unprecedented heights? Join the cutting-edge research consortium IMAGINE! (Innovative Microscopy And Guidance of cells In their Native Environment) and become a key player in reshaping the world of control systems.

About IMAGINE!:

IMAGINE! is on a mission to revolutionize cell biology through advanced microscopy and real-time molecular manipulation techniques. Our interdisciplinary team of experts merges control engineering principles with cell, organoid, and tissue biology to unlock the secrets of cell behavior in development, cancer, and targeted drug delivery.

Your Role as a PhD Student:

Get ready to lead the charge in developing cutting-edge control systems for event-driven super-resolution visualization and high-precision regulation - the era of smart control engineering begins with you! Your ultimate goal will be to pioneer microscopy-guided automated real-time control of biological processes. Imagine having the power to identify specific cellular states or events within a tissue and then seamlessly alter them through light-driven perturbations! From dynamically reorienting the mitotic spindle to precisely directing cells to specific locations, you'll be at the forefront of revolutionary control engineering in cell biology.

Welcome to the Carlas Smith Lab:

Step into the internationally acclaimed hub for next-generation microscopy systems - the Carlas Smith Lab. Situated within the prestigious Department of Delft Center for Systems and Control (DCSC) at the TU Delft, our lab is driven by the vision of making the invisible visible to enable groundbreaking scientific discoveries. By synergistically combining cutting-edge hardware, information processing algorithms, artificial intelligence, optics, mechatronics, and electronics, we're pushing the boundaries of imaging and actuation technologies.

Collaborative Research at Its Finest:

In this fully-funded 4-year project, you'll collaborate closely with esteemed research groups from the University of Utrecht, Princess Máxima Center for Pediatric Oncology, Erasmus Medical Centre, and the TU Delft. Together, we'll form an electrifying

interdisciplinary team, united by a passion for control engineering, curiosity, and the pursuit of scientific excellence.

About the consortium:

This position is one of many PhD and postdoc positions available as part of the gravitational programme IMAGINE! (Innovative Microscopy And Guidance of cells In their Native Environment). IMAGINE! is an interdisciplinary programme combining cell, organoid, and tissue biology, as well as chemical and optical cell manipulation and analysis to study cell behaviour in development and cancer, and targeted drug delivery. Participating institutes are based throughout the Netherlands in Utrecht, Amsterdam, Delft, Rotterdam, Nijmegen, and Eindhoven. For more information on the individual positions, please visit our website imagine-microscopy.nl.

Requirements

We're seeking candidates who possess:

- A master's degree or equivalent in Master of Science in Control Engineering, Electrical Engineering, or a related field.
- Experience in programming and control system design.
- An insatiable intellectual curiosity for optical instrumentation and the life sciences.

Don't Let Qualifications Hold You Back:

Passionate about this role but don't meet all the qualifications? Fear not! We believe in nurturing talent and providing growth opportunities to the right candidate.

Join us at IMAGINE! and be a trailblazer in revolutionizing control engineering in cell biology with groundbreaking control systems. Unleash your potential and make a lasting impact on scientific discovery. Apply now and let's shape the future of control engineering together.

We highly encourage candidates from diverse backgrounds and nationalities to apply. We strive to create an open, diverse, and inclusive work environment for everyone. People of any gender identity, ethnicity or sexual orientation are welcome.

Doing a PhD at TU Delft requires English proficiency at a certain level to ensure that the candidate is able to communicate and interact well, participate in English-taught Doctoral Education courses, and write scientific articles and a final thesis. For more details please check the [Graduate Schools Admission Requirements](#).

Conditions of employment

Doctoral candidates will be offered a 4-year period of employment in principle, but in the form of 2 employment contracts. An initial 1,5 year contract with an official go/no go progress assessment within 15 months. Followed by an additional contract for the remaining 2,5 years assuming everything goes well and performance requirements are met.

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities, increasing from € 2770 per month in the first year to € 3539 in the fourth 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, TU Delft has the [Coming to Delft Service](#). This service provides information for new international employees to help you prepare the relocation and to settle in the Netherlands. The Coming to Delft Service offers a [Dual Career Programme](#) for partners and they organise events to expand your (social) network.

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 as one of our core [values](#) and we actively [engage](#) to be a university where you feel at home and can flourish. We value different perspectives and qualities. We believe this makes our work more innovative, the TU Delft community more vibrant and the world more just. Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale. That is why we invite you to apply. Your application will receive fair consideration.

Challenge. Change. Impact!

Faculty Mechanical, Maritime and Materials Engineering

From chip to ship. From machine to human being. From idea to solution. Driven by a deep-rooted desire to understand our environment and discover its underlying mechanisms, research and education at the 3mE faculty focusses on fundamental understanding, design, production including application and product improvement, materials, processes and (mechanical) systems.

3mE is a dynamic and innovative faculty with high-tech lab facilities and international reach. It's a large faculty but also versatile, so we can often make unique connections by combining different disciplines. This is reflected in 3mE's outstanding, state-of-the-art education, which trains students to become responsible and socially engaged engineers and scientists. We translate our knowledge and insights into solutions to societal issues,

contributing to a sustainable society and to the development of prosperity and well-being. That is what unites us in pioneering research, inspiring education and (inter)national cooperation.

Click [here](#) to go to the website of the Faculty of Mechanical, Maritime and Materials Engineering. Do you want to experience working at our faculty? These [videos](#) will introduce you to some of our researchers and their work.

Additional information

For more information about this vacancy, please contact Dr.ir. Carlas Smith, c.s.smith@tudelft.nl.

Application procedure

Are you interested in this vacancy? Please apply by 31 August 2023 via the application button and upload;

- your letter of motivation
- your curriculum vitae
- reference letters are optional but appreciated.

For information about the application procedure, please contact Ms. Linda Ruijters, HR Advisor, recruitment-3me@tudelft.nl.

Pease note:

- A pre-employment screening can be part of the selection procedure.
- You can apply online. We will not process applications sent by email and/or post.
- Please do not contact us for unsolicited services.

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