Delft Center for Systems and Control

TU Delft
Delft University of Technology

Postdoc Control Algorithm Engineer - Laser Satellite Communication Optimization

Apply Now

Lead laser satellite communication breakthroughs as a Postdoc Research Fellow. Join us now!

Job description

In the realm of space-based data transmission, laser satellite communication has emerged as a promising technology, surpassing Radio Frequency systems (RF) due to its superior data throughput and enhanced security features. However, a critical hurdle lies in achieving precise pointing accuracy for the optical beam, crucial for maximizing communication efficiency and reliability.

This project focuses on designing control algorithms to optimize data transfer using a pointing acquisition and tracking transmitter. The primary objective is the development of high-speed control algorithms that can be implemented on an FPGA. This research delves into relatively unexplored territory with promising yet nascent technology, aiming to experiment and validate novel functionalities crucial for laser satellite communication.

The ultimate goal is to develop a novel photonic circuit prototype that contributes to the miniaturization and optimization of laser satellite communication systems. This pioneering effort not only reduces size but also enhances cost-effectiveness, potentially giving laser systems a competitive edge over RF systems.

Embark on a stimulating and challenging journey that blends theoretical exploration with hands-on experimentation. This unique opportunity explores the intersection of two cutting-edge disciplines—opto-mechatronics and photonics—within the dynamic landscape of laser satellite communications.

Join us in pushing the boundaries of satellite communication technology and being at the forefront of revolutionizing space-based data transmission.

Requirements

Must-haves:

- MSc in physics, engineering, or equivalent

- Strong analytical skills
- Hands on experience
- Proficiency in English
- Good communication skills
- Ability to work in a multidisciplinary, highly dynamic environment

Nice-to-haves:

- Background in optics, photonic integrated circuits, mechatronics or a related field.

Conditions of employment

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities. The TU Delft offers a customisable compensation package, discounts on health insurance, 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 1 April 2024 via the application button and upload;

- Curriculum Vitae
- Motivation letter
- Letter(s) of recommendation
- Recent publication(s)
- List of courses + grades.

For information about the application procedure, please contact Linda Ruijters, HR advisor, recruitment-ME@tudelft.nl.

Please 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.

Apply Now