

## **PhD position on "Precision motion control for hightech mechatronics applications" at Delft University of Technology, The Netherlands**

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This is a four year PhD position. You will develop and conduct research on precision motion control for hightech mechatronics applications. The next big step in the industrial revolution, of which control is a vital part, requires higher speed and increased precision. Classical control is not capable of achieving the increasing demands on performance, robustness and efficiency. Existing advanced controllers are complicated and heavily incompatible with industry standards in terms of design and implementation. This project aims to introduce a new control paradigm that overcomes these challenges.

You will be engaged in the development of novel complex order controllers using nonlinear approaches.

The tasks to be performed include:

- Develop complex order nonlinear reset controllers
- Develop frequency domain analysis for nonlinear controllers with reset
- Develop stability theories for complex order controllers in frequency domain
- Loop-shaping guidelines for designed controllers
- The supervision of MSc student projects related to your own,
- Being an inspiring member for the PME department by proactive participation,
- Engaging in the writing of scientific articles and proposals to secure funding for further work on the topic.

Applicants should have the following qualifications:

- Masters and background within the fields of (but not restricted to) Mechanical Engineering, Mechatronics, Electrical Engineering and Control Engineering
- Experience with:
  - Nonlinear Control theories
  - Robust Control theory
  - Loopshaping methods
  - Frequency domain control design
- Experience or high interest (not mandatory but preferred) with
  - Hands on experimental work (control implementation and prototypings)
  - Fractional order control
  - Reset Control
- A good publication record.
- Good skill in writing scientific articles
- High motivation for teamwork and good communication skills.

For more information please contact Dr. Hassan HosseinNia, email:  
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To apply, please send an detailed cv, a list of publications and your letter of motivation by July 31, 2018 to [s.h.hosseinniakani@tudelft.nl](mailto:s.h.hosseinniakani@tudelft.nl).