Bart A.R. Boom

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CAREER SUMMARY

Started at Applied Sciences for my bachelors Mechanical engineering at Inholland Alkmaar and gained a lot of practical experience in different internships in Offshore, Robotics and Machine building. Continued with a masters Mechanical Engineering at University of Twente. Currently, I am perusing a PhD Aeronautics and Astronautic at the University of Washington.

Research Interests

- Bioinspired design
- Structures
- Robotics

Education

University of Washington — Seattle, WA, USA
PhD Aeronautics & Astronautics Engineering — *sep. 2021 – Present*
- Specialization: Structures.
- Expected completion in July 2025.

University of Twente — Enschede, NL
Master Mechanical Engineering — *feb. 2019 – jul. 2021*
- Profile: Design & Construction.
- Specialization: Mechanics of Solids, Surfaces & Systems.
- Cumulative GPA: 7.60.

University of Twente — Enschede, NL
Pre-Master Mechanical Engineering — *sep. 2018 – feb. 2019*
- Cumulative GPA: 7.97.

University of Applied Science Inholland — Alkmaar, NL
Bachelor Mechanical Engineering — *sep. 2014 – jun. 2018*
- Cumulative GPA: 7.16.

Professional experience

Junior Engineer — jun. 2018 – sep. 2019
Rolan Robotics — *Zwaag, NL*
- Programming welding automation systems.
- Designing automated welding cells.

Intern Mechanical Engineer — jan. 2018 – jun. 2018
Rolan Robotics — *Zwaag, NL*
- Design of an automated welding cell for flow sensors.

Intern Mechanical Engineer — aug. 2017 – jan. 2018
Agrinomix — *Akron, OH, USA*
- Designing horticultural machinery
- https://agrinomix.com/potting-machines/rice-hull-topper/

Production Engineer — jun. 2016 – sep. 2016
Multimetaal — *Den Helder, NL*
- Making production drawings.
- Making welding plans.

Intern Production Engineer nov. 2015 – feb. 2016
Multimetaal *Den Helder, NL*

- Testing hydraulic equipment.
- Making technical drawings.

Research experience

Stability assessment of dynamic walking of a lower limb exoskeleton with the PHZD control scheme.

Dynamics, Optimization, Simulation, Control apr. 2020 – Present

- Graduation Project
- Dynamic modeling of lumped system of exoskeleton and human.
- Trajectory optimization of walking gait.
- Simulating dynamics.

A study into the feasibility of measuring 3D vibrations of rotating structures by using an off centre TCSLDV.

Matlab, Experimentation feb. 2019 – jun. 2019

- Mathematical analyses.
- Experimental validation of analytical theories.

Articulated Dynamic Structures: Exploiting Instabilities in Origami's.

Design, Experimentation sep. 2018 – feb. 2018

- Designing of an experimental setup.
- Design of Miura-ori panels with a predetermined joint stiffness.
- Static, dynamic, and modal testing.

Extra curricula activities

Part-Time Chassis Engineer sep. 2019 – aug. 2021
Electric Superbike Twente *Enschede, NL*

- Responsible for design and manufacturing of carbon fibre sub-frame.
- Heavily involved in developing battery pack.

Tutoring VWO students(highest level of high school) 2015 – 2018

- Tutoring mathematics and physics to high scholars of the highest level in The Netherlands.

Languages

Dutch: Native speaker.
Englisch: Good.
German: Elementary.

Technical Skills

Programming languages: Python, Matlab.
FEM programs: Abacus, Ansys.
Design software: Solidworks, Inventor.
Word editors: LaTex, office suite.