PERSONAL INFORMATION

Dennis Benders

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Gender Male | Date of birth 01/11/1997 | Nationality(-ies) Dutch

WORK EXPERIENCE

2021 – Present

PhD Cognitive Robotics

Delft University of Technology, Delft
Research topic: Safe Model Predictive Control (MPC) on mobile robots
Ancillary activities:

- Involved in designing and building the mobile robotics lab in the CoR department (motion capture cameras, video cameras, network setup, workplaces, safety measures, etc.): see this and this page
- Responsible for building one of the drone platforms in the research group
- First department PhD representative
- Supervisor of several bachelor groups and master students
- Mentor of master robotics students

Topics of interest: robotics, MPC, software engineering, sustainability

2017 – 2018

Student coordinator Study Choice Check Electrical Engineering

Delft University of Technology, Delft
The Study Choice Check (SCC) is meant to provide high school students more in-depth information about the study. The student coordinator of the SCC has the following tasks: taking care of the communication from university to student for the SCC days of the study Electrical Engineering, guiding the students at the SCC days, and designing the SCC online course.

2016 – 2017

Student mentor

Delft University of Technology, Delft
A student mentor is assigned to a group of students to provide a confidential atmosphere and help them in the early phase of the study: guiding students during their first days at the university, organising weekly meetings to discuss recent topics and students' study progress, and being a continuously approachable person in case students encounter difficulties.

EDUCATION AND TRAINING

2018 – 2020

Master Embedded Systems

Delft University of Technology, Delft

Specialisation: Systems and Control
Graduation project: Drone state estimation using brain-inspired parameter estimation theory

2015 – 2018

Bachelor Electrical Engineering

Delft University of Technology, Delft

Minor: Responsible innovation

2009 – 2015

High School VWO graduate

Krimpenerwaard College, Krimpen aan den IJssel

Profile project: "Solar scooter": adding a solar-powered electrical driveline to a normal scooter

PERSONAL SKILLS

Mother tongue(s): Dutch

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
German	B2	C1	B2	B2	B2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Communication skills

Team work: in teams (technical project teams as well as korfball teams) I have always been the type of person who is really striving for good communication and interaction between everyone who is involved within the team and outside the team.
Mediating skills: as a trust pupil I was trained to lead discussions between people who were having problems with each other and to work towards a solution in a constructive way.

Organisational / managerial skills

When it comes to project work during my study, in most cases I am the one who takes the lead. This includes organising meetings, thinking about the software architecture, creating project plannings and working towards an atmosphere in which every team member is feeling comfortable.

Computer skills

The following skills are rated on a scale from 1 (basic level) to 3 (good level):

- programming languages: C/C++ (3), Python (3), ROS (3), Matlab (2)
- tools: Microsoft Office (3), LaTeX (3), Git (3), GanttProject (1)
- operating systems: Windows (3), Linux (3)

Driving licence

B, AM (2015)

ADDITIONAL INFORMATION

Hobbies

- sports: playing korfball, running and ice skating
- music: drumming and singing

PUBLICATIONS

Pub1 Fred Bas, Ajith Anil Meera, Dennis Benders, and Martijn Wisse. Free energy principle for state and input estimation of a quadcopter flying in wind. In *2022 International Conference on Robotics and Automation (ICRA)*, pages 5389–5395. IEEE, 2022

Pub2 Anastasios Tsolakis, Dennis Benders, Oscar De Groot, Rudy R. Negenborn, Vasso Reppa, and Laura Ferranti. Colregs-aware trajectory optimization for autonomous surface vessels. *IFAC-PapersOnLine*, 55(31):269–274, 2022

Pub3 Dennis Benders, Johannes Köhler, Thijs Niesten, Robert Babuška, Javier Alonso-Mora, and Laura Ferranti. Embedded hierarchical mpc for autonomous navigation. *arXiv preprint arXiv:2406.11506*, 2024