

DRIES CARDINAELS

PHD STUDENT

CONTACT

in /in/dries-cardinaels
📧 Dries Cardinaels
📞 0009-0002-1255-0838
✉ dries.cardinaels@uhasselt.be
📍 Wetenschapspark 2, 3590 Diepenbeek

BIOGRAPHY

I am a PhD student at UHasselt, where I research how humans interact with robots from a distance through teleoperation. My work focuses on how communication delay affects operator awareness, control, and decision making, and how interface design can help people remain effective under these conditions. My most recent paper, UNITE: A Modular Testbed for Reproducible Delayed Space Teleoperation, will appear at SpaceCHI 2026. Grounded in a scoping review of 83 studies of delayed teleoperation, we introduce UNITE, an open-source modular testbed that captures the full experimental apparatus as a shareable configuration, so studies of teleoperation under communication delay can be reproduced, compared, and extended without rebuilding the setup. This builds on Every Move You Make: Visualizing Near-Future Motion Under Delay for Telerobotics (CHI 2026), where we introduced and evaluated predictive visualizations that show a robot's near-future motion to help operators anticipate delayed feedback and improve control under communication delay. Beyond research, I enjoy the teaching side of academia, where I guide students and supervise theses. I am part of the Intelligent Interactive Systems group at UHasselt Digital Future Lab.

PUBLICATIONS

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| September 2026
Full Paper | Dries Cardinaels , Thomas Pietrzak, Raf Ramakers, and Kris Luyten. 2026. UNITE: A Modular Testbed for Reproducible Delayed Space Teleoperation. In Proceedings of SpaceCHI 2026: Advancing Human-Computer Interaction for Space Exploration (SpaceCHI '26), September 24–25, 2026, Mountain View, CA, USA. Springer Nature, Cham, Switzerland. In press. |
| April 2026
Full Paper | Dries Cardinaels , Raf Ramakers, Tom Veuskens, Thomas Pietrzak, Gustavo Alberto Rovelo Ruiz, and Kris Luyten. 2026. Every Move You Make: Visualizing Near-Future Motion Under Delay for Telerobotics. In Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI '26), April 13–17, 2026, Barcelona, Spain. Association for Computing Machinery, New York, NY, USA, https://doi.org/10.1145/3772318.3791452 |
| April 2026
Poster | Bram Verstappen, Dries Cardinaels , Danny Leen, Kris Luyten, and Raf Ramakers. 2026. Learning to Delegate and Act with DELEGACT: Multimodal Language Models for Task-Level Human–Cobot Planning in Industrial Assembly. In Extended Abstracts of the 2026 CHI Conference on Human Factors in Computing Systems (CHI EA '26), April 13–17, 2026, Barcelona, Spain. Association for Computing Machinery, New York, NY, USA, https://doi.org/10.1145/3772363.3798803 |
| March 2025
Poster | Dries Cardinaels , Tom Veuskens, Raf Ramakers, and Kris Luyten. 2025. Challenges and Opportunities for Delay-Invariant Telerobotic Interactions. In 30th International Conference on Intelligent User Interfaces Companion (IUI Companion '25), March 24–27, 2025, Cagliari, Italy. ACM, New York, NY, USA 5 Pages. https://doi.org/10.1145/3708557.3716332 |
| October 2024
Poster | Xander Vaes, Dries Cardinaels , Mannu Lambrichts, and Raf Ramakers. 2024. SOLDAR: Supporting Low-Volume PCB Prototyping Using Collaborative Robots and Augmented Reality. In Proceedings of the 30th ACM Symposium on Virtual Reality Software and Technology (VRST '24). Association for Computing Machinery, New York, NY, USA, Article 54, 1–2. https://doi.org/10.1145/3641825.3689496 |
| March 2024
Late-Breaking Report | Dries Cardinaels , Bram Van Deurzen, Raf Ramakers, and Kris Luyten. 2024. Anthand: Interaction Techniques for Precise Telerobotic Control Using Scaled Objects in Virtual Environments. In Companion of the 2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI '24). Association for Computing Machinery, New York, NY, USA, 297–301. https://doi.org/10.1145/3610978.3640569 |

March 2024 Workshop Paper	Bram van Deurzen, Dries Cardinaels , Gustavo Rovelo Ruiz, and Kris Luyten. 2024. A VR Prototype for One-Dimensional Movement Visualizations for Robotic Arms. In 7th International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions (HRI '24). Association for Computing Machinery, New York, NY, USA. https://openreview.net/forum?id=0AjSzOEqpY	
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EDUCATION

9/2021 - 7/2023	Master's Degree in Computer Science (Magna Cum Laude) Thesis: Studying and Analyzing Implementations and Techniques in a Telerobotic Environment Prof. dr. Kris Luyten & Prof. dr. Frank van Reeth	UHasselt
9/2018 - 7/2021	Bachelor's Degree in Computer Science (Cum Laude) Thesis: Serious Game to Educate Heart Patients Prof. dr. Gustavo Rovelo Ruiz	UHasselt

RESEARCH EXPERIENCE

11/2023 - Present	PhD Student @ Digital Future Lab, Diepenbeek, Belgium (Advisor) Prof. dr. Kris Luyten & (Co-Advisor) Prof. dr. Raf Ramakers	UHasselt
9/2023 - 11/2023	Researcher @ Digital Future Lab, Diepenbeek, Belgium	UHasselt

TEACHING EXPERIENCE

9/2024 - Present	Advanced Object Oriented Programming	4985
9/2023 - Present	Computer Architecture	4863
9/2023 - 1/2026	Computational Fabrication	4169/4719
2/2024 - 6/2025	Tools and Technologies for Interactive System Development	2184
2/2024 - 6/2024	Project Software Ontwikkeling en Professionele Vaardigheden	2252
9/2023 - 1/2024	Object Oriented Programming II	4183

THESIS ADVISING

9/2025 - Present	Bachelor Thesis on Mobile Telerobotics Spatial Bitrate Allocation to Handle Uncertainty in Teleoperation of Mobile Robots	Computer Science
9/2025 - 6/2026	Bachelor Thesis on Mobile Telerobotics Probabilistic Envelope for Delayed Teleoperation Under Environmental Uncertainty	Computer Science
9/2025 - 6/2026	Bachelor Thesis on Mobile Telerobotics GHOST: Guided Holographic Overlays for Safe Teleoperation	Computer Science

9/2025 - 6/2026	Master Thesis on Telerobotics Mitigating Jitter Effects in Long-Distance Teleoperation of Robotic Systems	Computer Science
9/2025 - 6/2026	Master Thesis on Mobile Telerobotics Human-in-the-Loop Path Planning for Delayed Mobile Robot Teleoperation	Computer Science
2/2025 - 8/2025	Bachelor Thesis on Interactive Game Development Design and Implementation of a Physical VR Game Using Motion Capture Technology	Computer Science
2/2025 - 6/2025	Bachelor Thesis on Collaborative Robots Feedforward for Human-Robot Interaction	Computer Science
2/2025 - 6/2025	Bachelor Thesis on Collaborative Robots Feedforward for Human-Robot Interaction	Industrial Engineering
9/2024 - 6/2025	Master Thesis on Collaborative Robots Large Language Models as Drivers for Robotic Control	Computer Science
2/2024 - 6/2024	Bachelor Thesis on Collaborative Robots Supporting Low-Volume PCB Prototyping Using Collaborative Robots and Augmented Reality	Computer Science
2/2024 - 6/2024	Bachelor Thesis on Precise Delta Robot Manufacturing Design and Construction of a Linear Delta Robot Using Precision Piezo Actuators	Industrial Engineering

ACADEMIC SERVICE

6/2026 - Present	Web Co-Chair ACM SIGCHI Symposium on Engineering Interactive Computing Systems	EICS'27
5/2021 - Present	GIP Jury Geïntegreerde Proef / Integrated Final Project	TISM Bree

PROJECTS



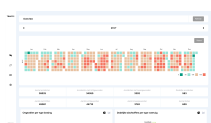
Beyond the Map is an interactive WebGL research prototype for uncertainty-aware lunar rover planning. Inspect where the terrain estimate is weakly supported, request a targeted observation, revise the route around a confirmed hazard, and authorize the newly justified traverse. The demo uses synthetic terrain and support values to illustrate the interaction concept.

Additional project information: driescardinaels.be/demos/beyond-the-map/



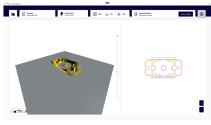
BibTeX Cleaner is a browser tool I built to check a .bib file against a LaTeX / Overleaf project. It flags missing, unused, redundant, and misused references, and lets you download a cleaned .bib with the unused entries removed. Everything runs locally in your browser — nothing is uploaded.

Additional project information: driescardinaels.be/tools/bibtex-cleaner.html



We created a tool to help you easily explore data about traffic accidents and victims in Belgium. The tool lets you filter the data by year, month, day, and even by the hour simply by clicking on the graphs. You can also filter specific days or choose between 'vacation' and 'non-vacation' periods. Additionally, you can compare different years and view a map that shows accidents and victims by region. This project was developed for the Information Visualization course at UHasselt using data from Statbel.

Additional project information: infovis.driescardinaels.be · studiegidswww.uhasselt.be/opleidingsonderdeel.aspx?a=2021&i=2185&n=4&t=04 · statbel.fgov.be/nl/open-data?category=162



As part of the Computational Fabrication course at UHasselt, we developed a custom 3D slicer tool inspired by Cura. We took inspiration from Cura's user interface, focusing on building a streamlined tool with a clean and intuitive design for a better user experience. We enhanced the project with additional features, and the final tool demonstrates improved usability and effective 3D printing capabilities, showcased through printed objects.

Additional project information: studiegidswww.uhasselt.be/opleidingsonderdeel.aspx?n=4&t=04&a=2023&i=4169

PRESENTATIONS

April 2026	Oral Presentation ACM CHI Conference on Human Factors in Computing Systems, Barcelona, Spain	CHI'26
February 2026	Oral Presentation Every Move You Make: Visualizing Near-Future Motion Under Delay for Telerobotics	Digital Future Lab
November 2025	Project Presentation Adaptive Human-Robot Collaboration System with Large Language Models (LLMs)	Flanders Make
March 2025	Poster Presentation ACM SIGCHI Conference on Intelligent User Interfaces, Cagliari (Sardinia), Italy	IUI'25
June 2024	Oral Presentation ACM SIGCHI Symposium on Engineering Interactive Computing Systems, Cagliari (Sardinia), Italy	EICS'24
June 2024	Poster Presentation ACM SIGCHI Symposium on Engineering Interactive Computing Systems, Cagliari (Sardinia), Italy	EICS'24
March 2024	Poster Presentation ACM/IEEE International Conference on Human-Robot Interaction, Boulder (CO), USA	HRI'24

REVIEWING EXPERIENCE

June 2026	Full Paper (1) The 18th ACM SIGCHI Symposium on Engineering Interactive Computing Systems	EICS'26
September 2025	Full Paper (1) The ACM Symposium on User Interface Software and Technology	UIST'25
June 2025	Full Paper (1) The 17th ACM SIGCHI Symposium on Engineering Interactive Computing Systems	EICS'25
March 2025	Full Paper (1) 19th International Conference on Tangible, Embedded, and Embodied Interaction	TEI'25
October 2024	Full Paper (1) 30th ACM Symposium on Virtual Reality Software and Technology	VRST'24
May 2024	Late-Breaking Work (1) Conference on Human Factors in Computing Systems	CHI'24
March 2024	Late Breaking Report (3) ACM/IEEE International Conference on Human-Robot Interaction	HRI'24

CO - A U T H O R S

Kris Luyten UHasselt · Diepenbeek, Belgium	6 Publications
Raf Ramakers UHasselt · Diepenbeek, Belgium	6 Publications
Thomas Pietrzak Inria, Univ. Lille · Lille, France	2 Publications
Tom Veuskens UHasselt · Diepenbeek, Belgium	2 Publications
Bram Van Deurzen UHasselt · Diepenbeek, Belgium	2 Publications
Gustavo Roveló Ruiz UHasselt · Diepenbeek, Belgium	2 Publications
Bram Verstappen UHasselt · Diepenbeek, Belgium	1 Publication
Danny Leen UHasselt · Diepenbeek, Belgium	1 Publication
Mannu Lambrichts UHasselt · Diepenbeek, Belgium	1 Publication
Xander Vaes UHasselt · Diepenbeek, Belgium	1 Publication