

Charlotte Croucher

(+31) 0615129986

Tilburg, Netherlands

cscroucher@gmail.com

Innovative PhD candidate passionate about open science and collaborative research, specialising in virtual reality and interaction design, I developed the 'LoCoMoTe Framework' to categorise the VR-based Natural Walking literature.

EDUCATION:

Oct. 2016 – Present	PhD in Virtual Reality and Interaction Design Jan. 2020 – Present: Tilburg University 2016 – 2019: University of Portsmouth
Sept. 2015 – Sept. 2016	MSc Computer Games Technology - Distinction University of Portsmouth
Sept. 2012 – July. 2015	BSc Computer Games Technology - First Class Honours University of Portsmouth

AWARDS AND SCHOLARSHIPS:

2023	Best Presentation Award – Tilburg University
2016	PhD Scholarship – University of Portsmouth
2015	Master's Scholarship – University of Portsmouth
2015	The TIGA Prize for Entrepreneurship – TIGA

EXPERIENCE:

November 2023	IEEE VR 2024 Conference Paper Reviewer
Sept. 2020 – Dec. 2021	PhD Meeting Committee Member: Tilburg University
Sept. – Dec. 2020	HCI Teaching Assistant: Tilburg University
2019	Student Member Ethics Committee Member: University of Portsmouth
August 2018	Research Associate: Collaboration with the World Bank
July 2018 – Dec. 2020	Student Member: Erasmus Project: 3DTelC University of Portsmouth

SELECTED PUBLICATIONS:

- **Croucher, C.**, et al.. (Accepted/In press). LoCoMoTe – a framework for classification of natural locomotion in VR by task, technique and modality. *IEEE Transactions on Visualization and Computer Graphics*. [Doi:10.1109/TVCG.2023.3313439](https://doi.org/10.1109/TVCG.2023.3313439)
- **Croucher, C.**, Powell, W., Dicks, M., Stevens, B., & Powell, V. (2021). The Use of Embedded Context-Sensitive Attractors for Clinical Walking Test Guidance in Virtual Reality. *Front. Virtual Real.* *2:621965*. [Doi:10.3389/frvir.2021.621965](https://doi.org/10.3389/frvir.2021.621965)

For more depth, please see the following pages.

EDUCATION:

Oct. 2016 – Present Exp. End – 2023	<p>PhD in Virtual Reality and Interaction Design Tilburg University – Department of Cognitive Science and AI <u>Thesis Title:</u> "Redirected Walking, Exploration and Usability in VR" <u>Current Supervisors:</u> Dr W. Powell, Dr T. J. Wiltshire, and Dr P. Spronck <u>Past Supervisors:</u> Dr B. Stevens and Dr M. Miller-Dicks <u>Synopsis of Research:</u> My PhD research is primarily focused on locomotion in virtual reality. Throughout my research, I have made significant contributions to the field, including developing the 'LoCoMoTe Framework' and the corresponding 'LoCoMoTe Dashboard'. These tools have been designed to aid other locomotion-based VR researchers by saving time and effort associated with finding relevant papers by thematically analysing methodologies in research experiments.</p> <ul style="list-style-type: none"> Developed the LoCoMoTe Framework by thematically analysing virtual reality research experiments from 140 academic papers. Developed the LoCoMoTe Dashboard, an interactive online dashboard to support the LoCoMoTe Framework: https://osf.io/p6xs7/ <p>In addition to these contributions, my PhD research includes:</p> <ul style="list-style-type: none"> Designing and developing two studies that investigate exploration in VR, based on the results obtained from the 'LoCoMoTe Framework'. Utilising a mixed methods approach with a focus on quantitative data. Data includes Euclidean Data, Likert Scales, and Eye-Tracking. Software used: Microsoft Excel, Microsoft Word, and R Studio. Software used for Experiments: Unreal Engine 4, Unity, 3Ds Max, Blender, Substance Painter, Adobe Photoshop, SPSS and R Studio.
Sept. 2016 - March 2017	<p>Graduate Students' Professional Development Programme University of Portsmouth A fundamental teaching certificate from the University of Portsmouth.</p>
Sept. 2015 – Sept. 2016	<p>MSc Computer Games Technology - Distinction University of Portsmouth The project investigated the prediction of navigation behaviour in virtual reality, looking at visual cues, using a mixed methods approach focusing on qualitative research (think-aloud protocol and content analysis).</p>
Sept. 2012 – July. 2015	<p>BSc Computer Games Technology - First Class Honours University of Portsmouth <u>Dissertation:</u> Client-based project using an iterative approach to produce concept art for a AAA game. <u>Units included:</u> Motion Capture, Commercial Assets Production for Real-Time Content, Real-Time Interactive Group Project and Student Enterprise.</p>

RELEVANT EXPERIENCE:

November 2023	IEEE VR Conference Paper Reviewer
Sept. 2020 – Dec. 2021	PhD Meeting Committee Member - Tilburg University <u>My responsibilities:</u> the co-organisation of workshops and social events.
Sept. 2020 – Dec. 2020	Human-Computer Interaction – Teaching Assistant - Tilburg University <u>My responsibilities:</u> Monitoring zoom and canvas regarding questions, admitting students from the waiting room and reporting back to the lecturer for that week.
2019	Demonstrator - University of Portsmouth <u>My responsibilities:</u> Invigilation, second marking 1 st -year coursework and the occasional help on open days and in practical workshops.
2019	Student Ethics Committee Member - University of Portsmouth <u>My responsibilities:</u> reviewing ethics applications and meeting with the rest of the committee.
August 2018	Research Associate Collaboration – University of Portsmouth & The World Bank I worked on a collaboration project with the World Bank to provide them with a virtual reality application for a conference in Tanzania (URTZ August 2018). To promote risk management, a VR prototype needed to be developed to demonstrate to officials in Tanzania the hazards caused by flooding of the Msimbazi river basin in Dar es Salaam. <u>My responsibilities:</u> <ul style="list-style-type: none"> • Communicate through Skype to collaborators in Tanzania regularly. • Communicate written feedback daily, documenting the project's progress and ensuring that the correct level of technical language was used for all collaborators to understand. • Communicate with people from geological, engineering, creative and project management backgrounds. • Understand and interpret Geological data from ArcGIS and videos and images of the flooding and communicate this through the VR prototype made in Unreal Engine 4.
July 2018 – Dec. 2020	Student Member – Erasmus Project: 3DTelC - University of Portsmouth The Erasmus 3DTelC project is about representing geological information within virtual reality. <u>My responsibilities</u> regarded the bridge between the software development team, engineers, computer scientists and geological researchers to validate the software development. To help identify geologists' needs, I attended the Portsmouth Summer School and the Santorini Summer School, actively partaking in geological field trips.
January 2018	IEEE VR Conference Paper Reviewer

OTHER EXPERIENCE:

Oct. 2015 – Sept. 2016	Customer Assistant - Tesco Express My responsibilities included: Admin, Working the tills and Bakery.
Sept. 2014 – April 2015	Co-Lead Character Artist - Hexa Games – Client: Ambient Quest Games Worked on creating a Cat Simulation Game for a Client called "City Block Cats", released on Android, Windows Phone 8 and PC. <u>My responsibilities:</u> <ul style="list-style-type: none"> • Create, rig, texture and animate the character models, suitable for mobile devices. • Communicating with the other artists and programmers.
January 2014	Balance Team Member - Microsoft Rare Ltd Worked within a team to test Rares AAA Title: "Kinect Sports Rivals". Having to deliver feedback daily, both written and verbally, to producers, designers and programmers.

ALL PUBLICATIONS:

- **Croucher, C.**, Powell, W., Stevens, B., Miller-Dicks, M., Powell, V., Wiltshire, T. J., Spronck, P., (Accepted/In Press) "LoCoMoTe – a Framework for Classification of Natural Locomotion in VR by Task, Technique and Modality," in *IEEE Transactions on Visualization and Computer Graphics*, doi: 10.1109/TVCG.2023.3313439.
- **Croucher, C.**, Powell W, Dicks M, Stevens B & Powell V (2021), The Use of Embedded Context-Sensitive Attractors for Clinical Walking Test Guidance in Virtual Reality. *Front. Virtual Real.* 2:621965. Doi:10.3389/frvir.2021.621965
- **Croucher, C. S.**, Powell, V., Powell, W., & Stevens, B. (May 2019). Visual navigational cues used in virtual environments grounded in self-determination theory. In *7th International Self-Determination Theory Conference* May 2019, Egmond aan Zee, Netherlands:
- **Croucher, C. S.**, Velez, S. V., & Krokos, M. (2018, August). Mobile Visualisation of Msimbazi Basin Floods. In *URTZ 2018: Understanding Risk in Tanzania*.
- **Croucher, C.**, Molnar, A., Powell, V., & Powell, W. (2017, June). Prediction of navigation by visual aesthetics when presented with binary choices. In *Virtual Rehabilitation (ICVR), 2017 International Conference on* (pp. 1-2). IEEE.
- **Croucher, C.**, Powell, V., Molnar, A., & Powell, W. (2016, September). Visual elements influence on navigation in virtual environments. In *11th International Conference on Disability, Virtual Reality and Associated Technologies: ICDVRAT 2016*. The University of Reading.

CONFERENCES:

2019	7th International Self-Determination Theory Conference – Egmond aan Zee Abstract and Poster Presentation
2017	ICVR – Montreal, Canada Presented a Short paper and Poster Presentation
2016	ICDVRAT – Los Angeles Presented a Short paper and Poster Presentation
2018	ICDVRAT – Nottingham, UK – Attended
2018	Vertex – London, UK – Attended

2016 & 17 Google Women Techmakers – London, UK – Attended

AWARDS AND SCHOLARSHIPS:

- 2023 **Best Presentation Award** – Tilburg University
- 2018 **Best Use of Theme** – University of Portsmouth Game Jam
- 2016 **PhD Scholarship** – University of Portsmouth
- 2015 **Masters Scholarship** – University of Portsmouth
- 2015 **The TIGA Prize for Entrepreneurship**
Joint award for making and selling "City Block Cats" as part of a final year group project.
- 2014 **Best Use of Theme** – University of Portsmouth Game Jam

COURSES:

- June 2021 **First Step Korean** – Coursera – Yonsei University
- Dec. 2020 **Online Training Research Integrity** – Tilburg University
- July 2020 **Practical Time Series Analysis** – Coursera – The State University of New York
- Oct. 2018 **An introduction to research ethics** – University of Portsmouth
- Oct. 2017 **Introduction to R statistical software** – University of Portsmouth
- April 2017 **Principles of research design** – University of Portsmouth
- April 2017 **Taking your research design forward** – University of Portsmouth
- March 2017 **Introduction to Factor Analysis** – University of Portsmouth
- March 2017 **Principles of Systematic Review** – University of Portsmouth
- March 2017 **Introduction to SPSS** – University of Portsmouth
- Dec. 2016 **Questionnaire and scale design and validation** – University of Portsmouth

OTHER INFORMATION:

- British Citizen – Resident Permit for the Netherlands (Brexit Withdrawal Agreement)
- Dutch Driving Licence – Category B
- Willing to travel

INTERESTS:

- **Painting:** I am passionate about unleashing my creativity through digital and traditional mediums. I find painting to be therapeutic and encourages me to try new things.
- **Music:** I have dedicated myself to playing the violin for several years. Although my natural lack of rhythm makes this challenging, I still have fun (don't ask my neighbours!)
- **Language learning:** I'm committed to learning Dutch (I have an impressive Duolingo streak - don't want to upset the owl, do we!)
- **Games:** I love playing both board games and video games with my friends.

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REFERENCES ON REQUEST: