

Dominic Potts

Curriculum Vitae January 2022

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Profile

PhD student in Human Computer Interaction and interactive systems researcher at Lancaster University. Research interests are around interaction techniques in mixed reality and tangible augmented reality for both HMD and mobile devices. Currently investigating how to leverage the affordances of physical objects for interaction in AR, with a goal to develop digitally augmented artefacts. Other research interests are virtual reality interaction, affective technology, neuro-feedback interfaces, peripheral and pervasive displays, and data physicalization.

Highlights

- **4+ years of research experience** in Human Computer Interaction and Augmented Reality technologies.
- **4+ years of teaching experience** in organising and delivering the 2nd year HCI module at Lancaster University.
- **Publication record** in premiere HCI conferences and journals including: CHI, C&C, and PMC.
- **Reviewing experience** in a variety of HCI conferences including: CHI, Interact, IMWUT, TEI, and ISS.
- **Research Interests include** Virtual and Augmented Reality Interaction Design, Tangible User Interfaces in Mixed Reality, and Bio/Neuro-feedback affective technology.
- **Broad international experience** in both academia and industry in a number of different countries including: UK, USA, New Zealand, and Finland.

Publications

Dominic Potts and Martynas Dabravalskis, and Steven Houben. 2021. *TangibleTouch:A Toolkit for Designing Surface-based Gestures for Tangible Interfaces*. *Proceedings of the 2022 Conference on Tangible Embedded and Embodied Interaction*. (TEI'22). [Accepted/In press]

Edward Thompson, Dominic Potts, John Hardy, Barry Porter, and Steven Houven. 2021. *AmbiDots: An Ambient Interface to Mediate Casual Social Settings through Peripheral Interaction*. *Proceedings of the 2021 Australian Conference on Human-Computer Interaction* (OzCHI'21). [Accepted/In press]

Claudia Daudén Roquet, Corina Sas, and Dominic Potts. 2021. *Exploring Anima: a brain-computer interface for peripheral materialization of mindfulness states during mandala coloring*. *Human-Computer Interaction (HCI Journal T&F)*, DOI: [10.1080/07370024.2021.1968864](https://doi.org/10.1080/07370024.2021.1968864)

Ludwig Sidenmark, Dominic Potts, Bill Bapisch, and Hans Gellersen. 2021. *Radi-Eye: Hands-Free Radial Interfaces for 3D Interaction using Gaze-Activated Head-Crossing*. *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (CHI'21). DOI: <https://doi.org/10.1145/3411764.3445697>

Kim Sauvé, Dominic Potts, Jason Alexander, and Steven Houben. 2020, April. *A Change of Perspective: How User Orientation Influences the Perception of Physicalizations*. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (CHI'19). DOI: <https://doi.org/10.1145/3313831.3376312>

Dominic Potts, Kate Loveys, Hyun Young Ha, Shaoyan Huang, Mark Billinghurst, and Elizabeth Broadbent. 2019. *Zeng: AR neurofeedback for meditative Mixed Reality*. In *Proceedings of the 2019 on Creativity and Cognition* (C&C'19). DOI: <https://doi.org/10.1145/3325480.3326584>

Maria L Montoya Freire, Dominic Potts, Niraj Ramesh Dayama, Antti Oulasvirta, and Mario Di Francesco. 2019. *Foraging-based optimization of pervasive displays*. *Pervasive and Mobile Computing* (PMC'19). DOI: <https://doi.org/10.1016/j.pmcj.2019.02.008>

Research Experience

2018 - Present Lancaster University School of Computing & Communication – PhD Candidate

Supervisor: Dr Steven Houben and Professor Hans Gellersen

- My main research topic of interest and the focus of my PhD is **Tangible Augmented Reality**. Currently exploring how static and active/shape-changing tangible form factors can be leveraged for interaction in AR.
- Also have peripheral research topics of interest including: Virtual and Augmented Reality interaction design, Affective Technology and Brain-Computer Interfaces, and Peripheral and Pervasive Interfaces.

Summer 2018 Lancaster University School of Computing & Communication – Undergraduate Research Associate

Supervisor: Professor Corina Sas.

- Previously worked as a research associate exploring forms of neurofeedback to aid mindfulness meditation. The project was funded by AffectTech (www.affecttech.org) and involved the development of a Neurofeedback application that uses the Muse EEG Headband to generate dynamic colour palettes based on EEG data for use in the meditative practice of mandala colouring.

Summer 2017 Aalto University Department of Computer Science, Helsinki, Finland - Research Intern

Supervisors: Dr Mario Di Francesco and Professor Antti Oulivirta.

- Contributed to the development and evaluation of a pervasive display foraging model, based on information foraging theory, used for optimising pervasive display's layout and content. A proof of concept system was evaluated through user study using an eye-tracking system.
- Developed key skills in academic paper writing, conducting scientific studies and empirical evaluation of developed systems. Expanded on my communication skills, producing publishable work in a small timeframe.

Teaching and Professional Activity

Supervision

Lancaster University

2021/22	Dan Harris – <i>Bi-directional Hand Gestures in Mobile AR – BSc Thesis</i>
2021/22	Martynas Dabravalskis – <i>Toolkit for Designing Surface-based Gestures for TUI – BSc Thesis</i>
2020/21	Matthew Templeton – <i>Collaborative AR session Browsing – EPSRC Internship</i>
2019/20	Amure Adebola – <i>Hand Gestures in AR – BSc Thesis</i>
2019	Matthew Templeton – <i>Exploring Cube Affordance for Tangible AR – Summer Internship</i>

Teaching Assistant

Lancaster University

2018-Present	SCC110: Software Development (18/19) SCC202: Human-Computer Interaction (18/19, 19/20, 20/21, 21/22)
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Teaching Development

Lancaster University

Present	Associate Teaching Programme (ATP)
2018	Introduction to teaching at Lancaster University (ITL)

Reviewing

2019 - Present	CHI, TEI, IMWUT, Interact, ISS, NordiCHI, and MTAPP.
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Outreach

2018-Present	Interactive System Lab Tours	Lancaster University
	Conducted lab tours for prospective students and university visitors.	
2019	STEM Taster Day	Lancaster University
	Helped coordinate a taster event in HCI for High school students from disadvantaged areas of the UK. Conducted a workshop on digital fabrication of affective displays.	

Presentations

- **Paper presenter at OzCHI'21 virtual conference presenting our work on:**
AmbiDots: An Ambient Interface to Mediate Casual Social Settings through Peripheral Interaction.
Virtual paper talk can be found here: <https://youtu.be/vtJNW5oo65U>
- **Presenter and Demonstrator at Augmented Reality Summer School, Auckland Bioengineering Institute:**
Developed, presented, demonstrated, and evaluated a mixed reality neurofeedback system based on 'Zen gardens' as an explorative prototype for mixed reality meditative practices. The demonstration day was open to the public with over 200 visitors trying our developed application. Our team was awarded for one of the best projects and demonstrations, which was subsequently published in C&C'19.
- **Presenter at 2-day poster exhibition, KAIST HCI group visit to Aalto:**
Helped present and organise a 2-day poster exhibition at Aalto University in collaboration with KAIST. I worked with the research team and my supervisor to produce a poster for the exhibition of the current research, networked with academics from Aalto and KAIST and attended their exhibition lectures.
- **Presented work conducted during the Global Exploration scheme at Lancaster's Innovation Hub:**
Following the Global Exploration scheme in Boston and New York, I lead a presentation along with my team showcasing our findings and new concepts for Smart City design. Other Global Exploration students, members from Lancaster's Management School and Faculty of Science and Technology and leaders of the Innovation Hub, attended the presentation.

Education

- 2018 - Present **Lancaster University, UK** – PhD Candidate, Human Computer Interaction, 3rd year
Mixed Reality & Tangible Interaction. Interactive Systems Group – Dr Steven Houben
Fully funded award – School of Computing and Communication
- 2015 - 2018 **Lancaster University, UK** - BSc (Hons) Computer Science
First Class (75.5%)
Bachelor Thesis: *Investigating the relationship between eye movement and subjective interest for application in Pervasive Displays* - Supervised by Prof. Hans Gellersen
- 2013 - 2015 **Aquinas College, UK**
A-levels: AAC (English, History, Computing)

International Experience

- **AR Summer School attendee, Auckland, New Zealand:**
14 day summer school hosted by Auckland University's Bioengineering Institute and Empathic Computing Lab and sponsored by Augmented Reality tech company MagicLeap. Rapid prototyping and development of AR applications and technologies.
- **Research Intern, Espoo, Finland:**
3-month Research Internship at Aalto University's Computer Science department through the International Students programme with the Aalto Science Institute.
- **Global Exploration scheme run by Lancaster's Innovation Hub, New York & Boston, USA:**
Part of a group of students to travel to Boston and New York representing Lancaster University to take part in an Innovation Challenge run by the Lancaster Innovation Hub which involved ideating and prototyping a unique product, service or concept. Researching current innovation in institutes such as MIT, WPI and a variety of successful start-ups on a wide range of topics from robotics to cloud computing.

Scholarships & Grants

Awarded February 2019	Auckland Bioengineering Institute Travel Grant, Auckland University, NZ \$500 – 2 weeks
Awarded September 2018	Faculty of Science and Technology Internship Grant, Lancaster University, UK £2500 – 10 weeks
Awarded September 2017	Erasmus + Aalto Science Institute Internship Grant, Aalto University, Finland €6300 – 3 months