

# Dominic Potts, Curriculum Vitae – April 2024

## Postdoctoral Research Associate

University of Bath, Department of Computer Science

European Media and Immersion Lab ([EMIL](#))

Human-Computer Interaction at Bath ([HCI@ABath](#))

Real and Virtual Environments Augmentation Lab ([REVEAL](#))

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## PROFILE

I am a Postdoctoral Research Associate in Human-Computer Interaction (HCI) in the Department of Computer Science at the University of Bath. I am part of the European Media and Immersion Lab (EMIL) and a node mentor Financial Support for Third Parties (FSTP) projects on Mixed Reality. My research interests and activities are around **emotion recognition, physiological and contextual sensing, and VR/AR technology**. I am currently investigating automatic emotion recognition models for adaptive systems in physiologically noisy environments, such as during high-intensity VR exergaming. Prior research explored developing VR/AR interaction techniques, adaptive tangible devices for VR/AR, and collocated collaboration in mixed reality environments. Looking to build a research team and develop my research vision around **emotion recognition technology and** as a lecturer/assistant professor in HCI.

## HIGHLIGHTS

- **6+ years of research experience** in Human Computer Interaction, Virtual/Augmented Reality environments, and sensing technology.
  - **Broad publication record** in top HCI conferences and journals including CHI, TEI, MobileHCI, C&C, and PMC.
  - **Research Interests include** automatic emotion recognition and physiological sensing in the context of Virtual Reality technology with the goal to advance automatic emotion recognition.
  - **5+ years of teaching experience**. Organised, delivered, and helped redesign the 2<sup>nd</sup> year HCI module at Lancaster University while completing the AFHEA.
  - **5+ years of supervision experience** mentoring undergraduate, postgraduate, and summer internship projects and theses, several of which have resulted in publications.
  - **5+ years reviewing** for a variety of HCI conferences including CHI, NordiCHI, Interact, IMWUT, TEI, and ISS.
  - **Program Committee Member** for CHI, TEI, and NordiCHI.
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## PUBLICATIONS

According to [Google Scholar](#) as of March 2024, I have a H-Index of 6, with 115 citations in the last 5 years.

## CONFERENCE PAPERS

1. **Dominic Potts**, Zoe Broad, Tarini Sehgal, Joseph Hartley, Eamonn O'Neill, Crescent Jicol, Christopher Clarke, and Christof Lutteroth. 2024. ***Sweating the Details: Emotion Recognition and the Influence of Physical Exertion in Virtual Reality Exergaming***. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI'24)*. DOI: <https://doi.org/10.1145/3613904.3642611>
2. Thomas Wells, **Dominic Potts**, and Steven Houben. 2022. ***A Study into the Effect of Mobile Device Configurations on Co-Located Collaboration using AR***. *Proceedings of the ACM on Human-Computer Interaction, Volume 6, Issue MHCI (MobileHCI '22)*. DOI: <https://doi.org/10.1145/3546735>
3. **Dominic Potts** and Martynas Dabravalskis, and Steven Houben. 2022. ***TangibleTouch: A Toolkit for Designing Surface-based Gestures for Tangible Interfaces***. In *Sixteenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI'22)*. DOI: <https://doi.org/10.1145/3490149.3502263>

4. Edward Thompson, **Dominic Potts**, John Hardy, Barry Porter, and Steven Houben. 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)*. DOI: <https://doi.org/10.1145/3520495.3520504>
5. 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>
6. Kim Sauv , **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'20)*. DOI: <https://doi.org/10.1145/3313831.3376312>

## JOURNAL PAPERS

7. Claudia Daud n 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)
8. 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>

## WORK-IN-PROGRESS, DEMOS, AND WORKSHOP PAPERS

9. **Dominic Potts**, Crescent Jicol, Christof Lutteroth. 2024. ***EmoSense: An SDK and Dataset for Physiological Emotion Recognition in Virtual Reality***. In *CEUR Workshop Proceedings of PhysioCHI: Towards Best Practices for Integrating Physiological Signals in HCI (PhysioCHI'24)*. (Accepted, in press).
10. **Dominic Potts**, Crescent Jicol, Christopher Clarke, Eamonn O'Neill, Isabel Fitton, Elizabeth Dark, Manoela Milena, Oliveira da Silva, Zoe Broad, Tarini Sehgal, Joseph Hartley, Jeremy Dalton, Michael J. Proulx, and Christof Lutteroth. 2024. ***REVEAL: REal and Virtual Environments Augmentation Lab @ Bath***. In *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA '24)*. DOI: <https://doi.org/10.1145/3613905.3648658>
11. Daniel Harris, **Dominic Potts**, and Steven Houben. 2022. ***User-Elicited Surface and Motion Gestures for Object Manipulation in Mobile Augmented Reality***. In *Adjunct Publication of the 24<sup>th</sup> International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI '22)*. DOI: <https://doi.org/10.1145/3528575.3551443>
12. **Dominic Potts**, Kate Loveys, Hyun Young Ha, Shaoyan Huang, Mark Billingham, 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>

## THESES

13. **Dominic Potts**, Steven Houben, and Hans Gellersen. 2023. ***Exploring the Making, Modifying, and Use of Physical Tools in Augmented Reality***. PhD thesis, Lancaster University. (Exam Committee: Prof. Marianne Graves Petersen, Dr Miriam Sturdee) <https://eprints.lancs.ac.uk/id/eprint/195961/>
  14. **Dominic Potts** and Hans Gellersen. 2018. ***Investigating the relationship between eye movement and subjective interest for application in Pervasive Displays***. Bachelor thesis, Lancaster University.
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## RESEARCH EXPERIENCE

### 2023-Present University of Bath, Department of Computer Science – Postdoctoral Research Associate

Supervisor: Dr **Christof Lutteroth**

My postdoc research investigates automatic emotion recognition in VR exergames as part of the European Media and Immersion Lab (EMIL). As part of the lighthouse project, I explore adaptive exergames based on user's emotional state for competitive cycling as well as adaptive VR rehabilitation applications for stroke.

### 2018 - 2023 Lancaster University, School of Computing & Communication – PhD Candidate

Supervisor: Dr **Steven Houben** and Professor **Hans Gellersen**

My PhD thesis was '**Exploring the Making, Modifying, and Use of Physical Tools in Augmented Reality**'. My PhD research explored how shape-changing tangible form factors could be leveraged for interaction in AR. Also engaged in peripheral research including Virtual and Augmented Reality interaction design, Affective Technology and Brain-Computer Interfaces, and Peripheral and Pervasive Interfaces.

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

Supervisor: Professor **Corina Sas**.

Previously worked as a research assistant exploring forms of neurofeedback to aid mindfulness meditation. The project was funded as part of the international AffecTech project 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.

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

Supervisors: Dr **Mario Di Francesco** and Professor **Antti Oulisvarta**.

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 user studies and empirical evaluation of developed systems.

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## EDUCATION

### 2018 - 2023 Lancaster University, UK – PhD in Computer Science, Human-Computer Interaction

**PhD Thesis:** *Exploring the Making, Modifying, and Use of Physical Tools in Augmented Reality* –

Supervised by Dr Steven Houben and Prof. Hans Gellersen

### 2015 - 2018 Lancaster University, UK - BSc (Hons) Computer Science - First Class (76%)

**Bachelor Thesis:** *Investigating the relationship between eye movement and subjective interest for application in Pervasive Displays* - Supervised by Prof. Hans Gellersen

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## TEACHING ACTIVITY

### SUPERVISION

2024

**University of Bath**

Girish Souhan – *Natural locomotion techniques in VR* – MSc Thesis

Sujeet Gowdham – *Natural locomotion techniques in VR* – MSc Thesis

Gregor Macmillan – *Adaptive affective VR cycling exergame* – BSc Thesis

Alister Guenther – *Collision detection and avoidance in collocated VR* – BSc Thesis

Dylan Holland – *Cognitive VR Exergames* – BSc Thesis

Ryan Sutton – *VR stroke rehabilitation for upper limb movements* – BSc Thesis

Genieve Pate – *Gamer types and experienced emotion in VR games* – BSc Thesis

Kylan Tobin – *Personality types and experienced emotion in VR games* – BSc Thesis

2023

**University of Bath**

Mark Weston-Arnold – *Retrospective Affect Measurement Tool - MSc Thesis*  
Jimmy Leong – *Locomotion Techniques in Longitudinal VR - MSc Thesis*  
Luke Richards – *Toolbox for Visual Attention in VR - BSc Thesis*  
Jakob Aylott – *Comparing ESM and Retrospective Measures of Affect for VR - BSc Thesis*  
Laurence Buist – *Running in place detection for Locomotion in VR - BSc Thesis*  
Sam Davidson – *Toolkit for Physiological Measures in VR Exergaming - BSc Thesis*  
Tarini Sehgal – *Affect Recognition in VR Exergaming - Summer Internship*

2019-2022

**Lancaster University**

Daniel Harris – *Bi-directional Hand Gestures in Mobile AR – BSc Thesis*  
Martylnas Dabravalskis – *Toolkit for Designing Surface-based Gestures for TUI – BSc Thesis*  
Matthew Templeton – *Collaborative AR Session Browsing – EPSRC Internship*  
Matthew Templeton – *Exploring Cube Affordance for Tangible AR – Summer Internship*  
Amure Adebola – *Hand Gestures in AR – BSc Thesis*

**CURRICULUM & MODULE TEACHING**

**University of Bath – Lecturing**

2023-2024 REVEAL Bootcamp – *Extra curriculum HCI research methods for final year students.*

**Lancaster University – Senior Teaching Assistant / Module Management**

2018-2019 SCC110: Software Development

2018-2023 SCC202: Human-Computer Interaction (2023 module evaluation: 4.2/5, n=76)

*Responsible for workshop curriculum and material design, supervision of sessions, marking coursework, and running the module student helpdesk.*

**DEVELOPMENT**

**Lancaster University**

2023 Associate Fellowship of the Higher Education Academy (**AFHEA**)

2018 Introduction to Teaching at Lancaster University (**ITL**)

**EXAM AND EVALUATION COMMITTEE**

**Bauhaus University, Weimar**

2023 Master's Thesis, External Examiner: Mira Thieme (Supervised by Eva Hornecker)

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**PROFESSIONAL ACTIVITY**

**PROGRAM COMMITTEE MEMBER**

2024 Associate Chair – **NordiCHI'24** Full Paper Track

2024 Associate Chair - **CHI'24** Late-Breaking Work Track

2023 Associate Chair - **TEI'24** WIP Track

**RESEARCH PEER-REVIEWING**

2019 - Present

ACM SIGCHI Conference on Human Factors in Computing Systems (**CHI**)

PACM Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**)

ACM SIGCHI Conference on Tangible and Embedded Interaction (**TEI**)

Springer Journal Multimedia Tools and Applications (**MTAPP**)

Other ACM conferences: **Interact**, **ISS**, **NordiCHI**, and **C&C**

## TALKS AND PRESENTATIONS

May'24: **Upcoming paper presenter at CHI'24 conference:** *Sweating the Details: Emotion recognition and the influence of physical exertion*. Virtual paper talk can be found here: <https://www.youtube.com/watch?v=m1PBuU-z6Hw>

May'24: **Upcoming demonstrator at CHI'24 conference Interactivity:** *REVEAL: the REal and Virtual Environments Augmentation Lab @ Bath* – <https://doi.org/10.1145/3613905.3648658>

April'24: **Upcoming Southwest PreCHI'24 presenter and demonstrator:** presented the paper *Sweating the Details: Emotion recognition and the influence of physical exertion* and demonstrated three of REVEAL's VR research projects. <https://sites.google.com/view/southwestprechi/pre-chi-information>

Jan'24: **GEMINI project meetup:** invited research presentation on “*Emotion Recognition in Virtual Reality Exergames*” for staff and students from Lancaster University and Aarhus University as part of the GEMINI ERC project meetup. <https://gemini-erc.eu/news-events/gemini-team-meetup-jan-2024>

Oct'23: **European Media and Immersion Lab international meetup – Barcelona (October'23):** Presented our work on lighthouse projects and current grant deliverables on Emotion Recognition in Virtual Reality Exergaming. <https://emil-xr.eu/emil-xr-demo-day-event-in-barcelona/>

May'23: **Demonstrator at CHI'23 interactivities presenting:** *REVEAL: the REal and Virtual Environments Augmentation Lab @ Bath* - <https://dl.acm.org/doi/abs/10.1145/3544549.3583934>

Oct'22: **Poster presenter at MobileHCI'22 virtual conference presenting our work on:** *User-Elicited Surface & Motion Gestures for Object Manipulation in Mobile Augmented Reality*. Video figure can be found here: <https://youtu.be/S9XLfUeQ27Q>

Feb'22: **Paper presenter at TEI'22 virtual conference presenting our work on:** *TangibleTouch: A Toolkit for Designing Surface-based Gestures for Tangible Interfaces*. Virtual paper talk can be found here: <https://youtu.be/GatPDseyNg8>

Dec'21: **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.

## PROFESSIONAL MEMBERSHIP

**ACM:** Association for Computing Machinery (member)

**SIGCHI:** Special Interest Group on Computer–Human Interaction (member)

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## OUTREACH

### 2024 **BCSS Conference - University of Bath**

Ambassador and demonstrator for the HCI@Bath research group during the Bath Computer Science Society Conference. Undergraduates were introduced to the groups research and potential projects for their final year.

### 2023 **Pathway to Bath - University of Bath**

Ambassador for the HCI research group and demonstrated ongoing research to young students looking to develop skills for university.

### **Discover Bath - University of Bath**

Ambassador for the HCI@Bath research group and demonstrated ongoing research to year 12 students from widening participation backgrounds.

### **University Open Day - University of Bath**

Ambassador for the HCI research group, demonstrated ongoing research, and conducted lab tours for prospective students and university visitors.

### 2019-2022 **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.

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## 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

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## REFERENCES

### **Dr Steven Houben**

Associate Professor in Human-Data Interaction Design

Eindhoven University of Technology (TU/e)

Department of Industrial Design

[s.houben@tue.nl](mailto:s.houben@tue.nl)

[www.stevenhouben.be](http://www.stevenhouben.be)

### **Prof. Hans Gellersen**

Professor of Interactive Systems

Lancaster University

School of Computing and Communications

[h.gellersen@lancaster.ac.uk](mailto:h.gellersen@lancaster.ac.uk)

<https://www.lancaster.ac.uk/scc/about-us/people/hans-gellersen>

**Dr Christof Lutteroth**

Reader in Human-Computer Interaction, Director of REVEAL

University of Bath

Department of Computer Science

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<https://researchportal.bath.ac.uk/en/persons/christof-lutteroth>

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