

## Distinguished Visiting Fellow - Report

### Dr. Jason Alexander

Proposers should write a short (approx. 300 word) report on the visit. This should entail the activities undertaken, the links/collaborations that have been created and/or enhanced and, importantly, activities or actions which are planned as a result. Payment may not be made until this has been received.

Submit it by email to [admin@sicsa.ac.uk](mailto:admin@sicsa.ac.uk).

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| <b>Host and proposer:</b>                                  | Professor Lynne Baillie                                    |
| <b>Email address:</b>                                      | <a href="mailto:l.baillie@hw.ac.uk">l.baillie@hw.ac.uk</a> |
| <b>Institution:</b>  | Heriot-Watt University                                     |
| <b>Additional proposer(s) (Name and Institution only):</b> | Dr Uta Hinrichs, St Andrews University                     |

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| <b>Academic Visitor:</b>                                    | Dr Jason Alexander                               |
| <b>Home Institution:</b>                                    | School of Computer Science, Lancaster University |
| <b>Visit dates:</b>   | <b>4/11/2018-06/12/2018</b>                      |
| <b>SICSA research theme(s) this visit is applicable to:</b> | Human-Computer Interaction                       |

#### Short biography of the visitor:

Jason Alexander is a Senior Lecturer in Human-Computer Interaction at Lancaster University, UK. He has a PhD and BSc (Hons), both in Computer Science, from the University of Canterbury, New Zealand. He was a post-doctoral researcher at the University of Bristol, before taking up a lectureship at Lancaster.

Dr. Alexander's primary research is in Human-Computer Interaction, with a particular interest in developing novel interactive systems to bridge the physical-digital divide. His recent work focuses on the development of shape-changing interfaces—surfaces that can dynamically change their geometry based on digital content or user input. He applies these devices to research into Data Physicalization (the physical analogy to Data Visualisation). His other work has investigated design tools for 3D printing and developed novel interaction techniques using eye-gaze, haptic feedback, and gestural interaction. Further information is on his website: [www.jasonalexander.kiwi](http://www.jasonalexander.kiwi)

Jason's research output includes over 60 peer-reviewed articles and he regularly publishes in the most prestigious venues for HCI dissemination (ACM CHI, ACM UIST, ACM Computing Surveys, IEEE TVCG). Dr Alexander has contributed to winning over £5.7million in external research funding. He is an active member of the HCI community, having organised eight workshops in the last five years (include two at Dagstuhl) on shape-changing interfaces and data physicalization. He is currently an Associate Editor for Behaviour & Information Technology.

**Activities undertaken during the visit including details such as topic; date; venue; type of activity:**

*Presentations (including Q&As):*

- User Interfaces that Bridge the Physical-Digital Divide, Heriot-Watt University (14/11/18)
- Shape-changing Displays: how can robotics radically change a touchscreen?, Workshop on Cyber-Physical Systems, Edinburgh Centre for Robotics (16/11/18)
- Dynamic Data Physicalization, Edinburgh Data Visualization Meetup 1 [Short talk] (26/11/18)
- What would you do if you could touch your data?, University of St Andrews (27/11/18)

*Events Attended:*

- SICSA Demofest (06/11/18)
- SICSA Workshop on Cyber-Physical Systems (16/11/18)
- Edinburgh Data Visualization Meetup 1 (26/11/18)
- SICSA Pre-CHI PC Meeting Dinner (05/12/18)
- SICSA HCI All-Hands + CHI PC Pre-Event (06/12/18)

**Links/collaborations that have been created and/or enhanced and activities or actions which are planned as a result:**

*New Grant Proposals (under development):*

- Social Robots for Intensive Care Rehabilitation: a collaborative EPSRC proposal with Lynne Baillie, Katrin Lohan, and Theodoros Georgiou (all HWU).
- Physicalizing Collections: a collaborative SFI-EPSRC proposal with Uta Hinrichs (St Andrews) and Trevor Hogan (Cork Institute of Technology)

*New Collaborations (under development):*

- Benjamin Bach, University of Edinburgh: combining Augmented Reality and Data Physicalization, potential PhD studentship.
- Miguel Nacenta, St Andrews: widgets for facilitating user attention during reading.

**How did the visit benefit researchers at the two host institutions?**

Dr Alexander's expertise lies at the boundary of physical and digital computing, which is of particular interest to those in the Edinburgh Centre for Robotics (which is a joint venture between Heriot-Watt and Edinburgh Universities) as they investigate the boundaries and possibilities around the physical and digital interactions between people and robots.

During his time at HWU, Alexander interacted with academics and researchers working in all areas of Human-Robot Interaction and sat in the Interactive and Trustworthy Technologies research lab. He had 1-1 meetings with many academics, understanding their research areas and potential avenues for collaboration. He provided input and feedback on the research of PhD and post-doctoral students, including during the events he attended (listed above). His talks in Edinburgh were well attended by a range of academics and research students and led to stimulating discussion on the potential of shape-changing interfaces from a robotics viewpoint.

During his time at St Andrews, Alexander sat in the SACHI lab with the PhD and post-doctoral researchers in the group. He was provided demos of all student work and spent time giving feedback on their research. He interacted with all academics in the SACHI group, kick-starting new

collaborations with Uta Hinrichs and Miguel Nacenta. His open talk on Data Physicalization attracted a large audience, including Masters students, and was followed by insightful questions and discussion.

**How did the visitor interact with SICSA researchers outside of the two host institutions?**

- (1) Alexander's talk at Heriot-Watt was advertised to all SICSA member institutions.
- (2) Alexander's talk at the Cyber-Physical Systems Workshop was advertised to all SICSA member institutions.
- (3) Alexander attended several Scotland-wide SICSA events (listed above).
- (4) Alexander had individual meetings with relevant students and staff at Edinburgh-Napier and Edinburgh Universities.

**What other research groups in Scotland benefited from the visit?**

Alexander's attendance at several SICSA events meant academics and students from a variety of Scottish universities interacted with him during his visit. In particular, he met with members of the Glasgow Interactive Systems (GIST)/Multimodal Interactions Group (MIG), University of Glasgow; Data Analytics, Software Systems, and Interaction Research Group, University of Strathclyde; Center for Design Informatics, University of Edinburgh; and Centre for Interaction Design, Edinburgh-Napier University.