SARA HEITLINGER, PhD

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Postdoctoral Research Associate in Participatory Design • Open Lab • Global Urban Research Unit • Newcastle University • Newcastle upon Tyne

RESEARCH INTERESTS

Human Computer Interaction, Human-Centred Computing, Participatory Design, Sustainability, Food, Community Wellbeing, Smart Cities, IoT, Blockchain

EDUCATION

Ph.D. in Media and Arts Technology   2009 - 2016

Queen Mary University of London, School of Electronic Engineering and Computer Science, London, UK

Advised by Dr. Nick Bryan-Kinns & Prof. Janis Jefferies

Examined by Prof. Pete Wright & Prof. William Gaver

Thesis Title: *Talking Plants and a Bug Hotel: Participatory Design of Ludic Encounters with an Urban Farming Community*

Due to environmental concerns, sustainability is a growing field of research in HCI. But utilitarian approaches for individual behaviour change that are typical within HCI have been criticised as being too simplistic and failing to take into account the complexity of people's lives.
The thesis contributed a design approach grounded in community-based Participatory Design, and drawing on ludic design, to expand the design space of sustainable HCI beyond individual behaviour change. The thesis demonstrated how the commitments, practices and values of community-based Participatory Design and ludic design can be used effectively with a diverse and non-settled urban agricultural community to support the values, needs and practices of the community, and allow for holistic understandings of sustainability to emerge. After describing 2 case studies in rich detail I compared their respective processes and the interactive artefacts that each produced. The reflections formed a basis for a manifesto for community-based sustainable HCI, through a Ludic Participatory Design methodology, as well as strategies and challenges to serve as guidance and inspiration for other researchers wishing to do similar kinds of work with similar kinds of communities.

M.A. in Creative Writing   2001 - 2002

University of East Anglia, School of Literature, Drama and Creative Writing, Norwich, UK

B.Sc. In Computer Science   1995 - 1999

Hebrew University of Jerusalem, School of Computer Science and Engineering, Jerusalem, Israel

Minors in Cognitive Science & Mathematics

EMPLOYMENT

Postdoctoral Research Associate

Newcastle University, Newcastle, UK
Interdisciplinary and Participatory Design research in Digital Civics. EPSRC-funded joint appointment in Open Lab, School of Computer Science, and Global Urban Research Unit, School of Architecture, Planning and Landscape.

- Developing new methods such as Speculative Participatory Design for increasing citizen participation in sustainable smart cities and IoTs
- Co-authoring funding proposals and publications
- Co-organising international workshop and exhibition

Sessional Instructor

November-December 2017

Ravensbourne University, London, UK
Provided Lectures and Tutorials to first year undergraduate students on the BA in Design & Coding. Taught theoretical and practical materials including Introduction to Programming with Arduino, electronics and interaction design

Researcher Co-Investigator

2015-2017

Queen Mary University of London, London, UK
EPSRC-funded lead researcher focusing on Internet of Things for sustainable urban food systems

- I brought together the research team, project partners, participants, steering committee and academic advisors
- Initiated and led funding proposal
- Delivered workshops and engagement events with diverse participants
- Produced interactive artefact, exhibited in the public domain
- Edited project book
- Won a Community Collaboration Award for Research, for public engagement, from QMUL
- Co-organised academic workshop on community-based sustainable smart cities and IoT

Graduate Researcher

2009-2016

Queen Mary University of London, London, UK
EPSRC-funded PhD research in which I developed a research vision for **Community-Based Sustainable HCI** through a novel **Ludic Participatory Design** methodology

- Authored 1 journal paper, 1 conference paper
- Initiated and co-authored a successful follow-on grant proposal (£320,454)
- Exhibited research artefacts in public museums and cultural venues (e.g. V&A, Somerset House)

Visiting Researcher

2014

Georgia Tech, Atlanta, USA
Researcher in the Public Design Group, Digital Media. Participatory design research into food security, HCI and underprivileged urban communities

- Lead TA on Service Design MFA course

- Developed international networks including members for steering committee for successful EPSRC grant

Artist and Designer   2005-2015

Self-employed, London, UK

Over ten years' professional experience as an award-winning creative technology designer working on social and digital innovation, often with diverse stakeholders who are marginalised from technology design.

- Successfully secured funding Heritage Lottery Fund, Arts Council England
- Project manager and coordinated with community, organisational and industrial stakeholders
- Won a UNESCO Digital Art Award
- Participated in international solo and group exhibitions

FUNDING AND COMMISSIONS

Connected Seeds and Sensors - EPSRC (£320,454)   2015
Lead author of the funding proposal (*Internet of Things – Research in the Wild*)

With Nick Bryan-Kinns (PI), Hamed Haddadi (Co-I) and myself (Researcher Co-I)

Patrin - Heritage Lottery Fund (£65,000)   2010
Co-authored proposal for digital media and participatory heritage project

With the Monitoring Group, New Art Exchange, and Cecilia Jardemar

PhD in Media and Arts Technology – EPSRC (fees waived+£60,000)   2009
Queen Mary University Doctoral Training Centre

Utopian Vision – Arts Council England (£4,700)   2007
Sole author of proposal for participatory digital arts project

Commissioned by Inter-Action Milton Keynes

Travelling Lives – Arts Council England (£5,000)   2007
Co-authored proposal for participatory digital arts project

Commissioned by the Monitoring Group and New Art Exchange

Tallis Soundscapes – Arts Council England (£5,000)   2006
Co-authored proposal for participatory digital arts project

Commissioned by Independent Photography

AWARDS

Community Collaboration Award for Research, Queen Mary University   2017
of London
For Connected Seeds and Sensors

UNESCO Digital Art Award   2007

For Privileged Tactics II, on sustainable cities and IoT

PUBLICATIONS

PEER REVIEWED JOURNAL PAPERS

Heitlinger, S. & Bryan-Kinns, N. Understanding Performative Behavior within Content-Rich Digital Live Art. *Digital Creativity*. Taylor and Francis, 24(2), 111-118. 2013.

PEER REVIEWED CONFERENCE PAPERS

Heitlinger, S., Bryan-Kinns, N., & Comber, R. Connected Seeds and Sensors: Co-designing Internet of Things for Sustainable Smart Cities with Urban Food-Growing Communities. In *Proceedings of the 15th Participatory Design Conference*: Short Papers, Situated Actions, Workshops and Tutorial – Volume 2 Article No. 18. ACM, 2018. (Acceptance rate 21.7%)

Heitlinger, S., Bryan-Kinns, N., & Jefferies, J. Sustainable HCI for Grassroots Urban Food-Growing Communities. In *Proceedings of the 25th Australian Computer-Human Interaction Conference*, 255–264. ACM, 2013. (Acceptance rate 49%)

BOOKS EDITED

Heitlinger, S. Connected Seeds. Queen Mary University of London. 2017.

PEER REVIEWED WORKSHOPS

Heitlinger, S., Foth, M., Clarke, R., DiSalvo, C., Light, A., & Forlano, L. Avoiding Ecocidal Smart Cities: Participatory Design for More-than-Human Futures. *Proceedings of the 15th Participatory Design Conference*: Short Papers, Situated Actions, Workshops and Tutorial – Volume 2 Article No. 51. ACM, 2018.

Clarke, R., Heitlinger, S., Foth, M., DiSalvo, C., Light, A., & Forlano, L. More-than-Human Urban Futures: Speculative Participatory Design to Avoid Ecocidal Smart Cities. A Situated Action. *Proceedings of the 15th Participatory Design Conference*: Short Papers, Situated Actions, Workshops and Tutorial – Volume 2 Article No. 34. ACM, 2018.

Clarke, R., Briggs, J., Light, A., Heitlinger, S., & Crivellaro, C. Socially-Engaged Arts Practice in HCI. In *CHI'14 Extended Abstracts on Human Factors in Computing Systems*, 69–74. 2014. ACM, 2014

CONFERENCE DEMOS

Heitlinger, S., Bryan-Kinns, N., & Jefferies, J. The Talking Plants: An Interactive System for Grassroots Urban Food-Growing Communities. In In *CHI'14 Extended Abstracts on Human Factors in Computing Systems*, 459-462. ACM, 2014.

Heitlinger, S., Bryan-Kinns, N., Stockman, T., O'Flanagan, O., & Couzyn, T. The Talking Quilt: Augmenting Domestic Objects for Communal Meaning-Making. In *Designing Interactive Systems*. 2012.

Heitlinger, S., Bryan-Kinns, N., Stockman, T., O'Flanagan, O., & Couzyn, T. The Talking Quilt: Augmenting Domestic Objects for Communal Meaning-Making. In Proceedings of *Electronic Visualisation and the Arts*. BCS, 2012.

Heitlinger, S. Nothing to Worry About. In *Digital Resources in the Humanities and Arts*. 2010.

REVIEWED CONFERENCE WORKSHOP PAPERS

Heitlinger, S. Sharing and Caring within Community-based Sustainable Design. In workshop of Collaborative Economies: from Sharing to Caring. In *Communities & Technology* conference, 2017.

Heitlinger, S., Bryan-Kinns, N., & Jefferies, J. UbiComp for Grassroots Urban Food-Growing Communities. In *Proceedings of the 2013 ACM conference on Pervasive and ubiquitous computing adjunct publication*, 589–594. ACM, 2013.

Heitlinger, S., Bryan-Kinns, N., & Jefferies, J. Moving Beyond the Individual Consumer in Sustainable HCI. In workshop proceedings of *Post-Sustainability. SIGCHI Conference on Human Factors in Computing Systems*, 2013.

Heitlinger, S. Stories of Repair. In workshop proceedings of Reclaiming Repair. *SIGCHI Conference on Human Factors in Computing Systems,* 2013.

Heitlinger, S. Slow Technology to Re-Appropriate Our Lives. In workshop proceedings of Slow Technology. In *Designing Interactive Systems,* 2012.

Heitlinger, S. In workshop proceedings of Perspectives on Participation. In *Designing Interactive Systems,* 2012.

OTHER PRESENTATIONS

Foth, M., Light, A., & **Heitlinger, S.** & Rodriguez, A. Methods to Study Gaps: The Ethics of the Invisible. In *Annual Meeting of the Society for Social Studies of Science (4S).* 2018

Clear, A., **Heitlinger, S.**, Clarke, R., Innocenti, P., & Chopra, S. Citizen-Led Visions of the Future Smart City from Grassroots Urban Agriculture. *European Association for the Study of Science and Technology* conference, 2018

Heitlinger, S., & Weir, M. Connected Seeds: Co-Design of Internet of Things for Sustainable Urban Agriculture *Co-Creating Cities and Communities Summer Forum*, Bristol, UK, 2017.

Heitlinger, S. Sustainable HCI for Grassroots Urban Food-Growing Communities. Doctoral Consortium. In *25th Australian Computer-Human Interaction Conference*, 2013.

MANUSCRIPTS IN PREPARATION

Heitlinger, S., Bryan-Kinns, N., & Comber, R. The Right to the Sustainable Smart City. For CHI'19. In preparation.

Heitlinger, S., & Clear, A., Clarke, R., Chopra, S., & Dilaver, O. Speculative Participatory Design for Sustainable Food Futures. *TOCHI*. In preparation.

Heitlinger, S., & Foth, M., (Editors). *The Postanthropocentric Smart City* (for MIT Press). Proposal under development, with initial interest from MIT press.

INVITED TALKS

KTH Royal Institute of Technology, Stockholm, Sweden   2018
Design for the Right to the Sustainable Smart City in More-than-Human Worlds

Open University, Milton Keynes, UK   2017
Connected Seeds and Sensors: Sustainable Smart Cities and IoT through a More-Than-Human Lens

Whose Right to the Smart City Conference, Plymouth University,   2017
Plymouth, UK
Connected Seeds and Sensors: Co-Designing Digital and Networked Technologies with
Urban Agricultural Communities

Queensland University of Technology, Brisbane, Australia   2017
Connected Seeds and Sensors: Co-Designing Digital and Networked Technologies with
Urban Agricultural Communities

Melbourne University, Melbourne, Australia   2017
Connected Seeds: Co-Design of Internet of Things for Sustainable Urban Agriculture

Royal College of Art, London, UK   2017
Connected Seeds: Co-Design of Internet of Things for Sustainable Urban Agriculture

Intersections Symposium, Mile End Art Pavilion, London, UK   2016
Technology and Empowerment

Centre for Intelligent Sensing, London, UK   2016
Connected Seeds and Sensors

International Women's Day, Spitalfields City Farm, London, UK   2016
Inclusive Technology Design for Sustainability

Georgia Tech, Atlanta, USA   2014
Ludic Encounters through Community-Based PD for Sustainable HCI

Melbourne University, Melbourne, Australia   2013
Interactive Technology, Connected Communities and Environmental Sustainability

Centre for Creative Collaboration, London, UK   2012
Designing for Slow Technology to Support the Values of Grassroots Communities

Centre for Creative Collaboration, London, UK   2012
Panel Convenor | Geographies of Craft, Spaces of Creativity and Connected Communities

Newcastle University, Newcastle, UK   2012
Art, Technology and Community

TEACHING EXPERIENCE

Assessor, Newcastle University, UK   2018
BA in Urban Planning and Architecture
Assessed final year undergraduate dissertations (80,000 words) for four students on the BA
in Urban Planning and BA in Architecture

Guest Lecturer, Loughborough University, London, UK   2018
Reflection in Design

Devised and delivered one 60-minute lecture on Ludic Participatory Design Methods for Sustainable Cities, and two x two-hour workshops on the same theme to 80 students on the MA Design Innovation and MA Design Innovation Management

Sessional Instructor, Ravensbourne University, London, UK   2017
Coding, Maths & Circuits
Independently developed and delivered four 2.5-hour sessions including 1.5 hours of lectures and 1 hour of practical work including: Arduino, electronics, physical computing and interaction design to seven undergraduates on BA in Design & Coding

Guest Tutor, Royal College of Art, London, UK   2017
Developed and delivered one 60-minute lecture on participatory design to 40 students on the MA Product Design and Service Design, and gave group tutorials to eight of the students, on user engagement in the design process

Teaching Assistant and Module Assessor, Queen Mary University of London, London, UK   2017
Group Project
I contributed to teaching and course development for 8 postgraduate students on the MA in Media and Arts Technology, and MA in Product Design (6 x 2 hours). Teaching included theoretical and practical elements (designing, prototyping and evaluating group designs as well as a video production). I assessed students' final report, which was 100% of the course assessment.

Teaching Assistant, Georgia Tech, Atlanta, USA   2014
Service Design
Lead Teaching Assistant in Service Design project studio for MA and PhD Digital Media students. Assisted 10 students in designing materials for participatory design workshops, led small-group discussions.

Teaching Assistant, Queen Mary University of London, London, UK   2012
Professional and Research Themes
Assisted a group of ten first year undergraduate students in Computer Science and Electronic Engineering, in mandatory module. Helped them produce communication materials to academic and lay audiences through video and written materials. Used online teaching and assessment tools.

Workshop Instructor, various, UK   2006-2013
Creative Technology
Designed and delivered workshops including lecture materials and hands-on tutorials in various venues to diverse students. Ranging from 2-hour workshops to a series of once-a-week over three months. Class numbers ranged from 10-30 students. Age range: teenagers to the elderly. Subjects include: Arduino, Processing, programming, physical computing, soft circuit design, RFID, electronics, digital sound design and editing. Venues and organisations: MzTEK, Victoria and Albert Museum, [SPACE] Media Arts, Hackney Community College, Inter-Action MK, Thomas Tallis School

ADVISING AND MENTORING EXPERIENCE

Sebastian Prost (PhD Student)   2017

I am helping to supervise student's PhD work into food democracy and digital civics, during regular meetings.

Nanda Khaorapapong (Postdoctoral Researcher)   2016
I closely oversaw the RA's development of networked environmental sensors for community-based urban agriculture, steering the direction of the design, development and deployment of devices

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ACADEMIC SERVICE

GRANT REVIEWER

ESRC – Commissioning panel for ESRC CONACYT Newton call for collaborative research: Smart Cities in Mexico (invited panellist)   2018

EPSRC – Assessment panel for Communities and Culture Network+ (invited panellist)   2012

WORKSHOPS ORGANISED

Community-based Sustainable Smart Cities and IoT   2017
EPSRC-funded workshop, Rich Mix Cultural Foundation

PEER REVIEWER

ACM Computer Supported Cooperative Work (CSCW)   2018

ACM Designing Interactive Systems (DIS)   2018

ACM Conference on Human Factors in Computing Systems (CHI)   2016, 2017

ACM Participatory Design Conference (PDC)   2014

MEMBERSHIP

Association for Computing Machinery (ACM)   2012 - 2018

HCI and Sustainability Community (SIGCHI)   2013 - 2018

Spitalfields City Farm   2017- present
Board member of urban agricultural and educational charity

EPSRC Communities and Culture Network+   2012-2015
Core member

MZTEK   2010-2013
Board member of non-profit to address the imbalance of women artists working with new media and technology

OTHER ACTIVITES

Writing retreats   2013-2016
Initiated, facilitated and organised monthly writing retreats for PhD students, Queen Mary University of London

Pastoral care   2012-2016
Mentoring and pastoral care of new PhD students including: students from abroad, new parent-students, as well as writing and editorial support, Queen Mary University of London

Reading Group   2014
Facilitated and helped organise faculty and student reading group in Design and Civics, Georgia Tech, USA

Reading Group   2011-2012
Initiated, facilitated and organised PhD reading group in Research Methods, Queen Mary University of London

G.Hack   2012
Founding member of G.Hack: a collective of female researchers focusing on skill-sharing and developing interactive media projects, Queen Mary University of London

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SELECTED EXHIBITIONS
     * Indicates research outputs

* More than Human Urban Futures, The Politics of Design Act 1, Z33 House for   2018
Contemporary Art, Hasselt, Belgium

* Connected Seeds, *Easter Family Day*, Rich Mix Cultural Centre, London, UK   2018

* Connected Seeds, *Women's Environmental Network Autumn Gathering*, Bow   2017
Community Centre, London, UK

* Connected Seeds, *City Harvest Festival*, Capel Manor, London, UK   2017

* Connected Seeds, Rich Mix Cultural Foundation, London, UK   2017

* Bug Hotel, permanent installation, Spitalfields City Farm, London, UK   2015

Privileged Tactics I, *Crises and New Beginnings*, Museum of Contemporary Art,   2015
MSUM, Ljubljana, Slovenia

Privileged Tactics I, *Grammar of Freedom/5 Lessons, Works from the ArtEast*   2015
2000+ Collection, Garage Museum of Contemporary Art, Moscow, Russia

* The Talking Quilt, *Digital Futures*, Victoria and Albert Museum, London, UK   2013

* The Talking Quilt, *AHRC Connected Communities Showcase*, Congress House,   2013
London, UK

* The Talking Quilt, *Inside Out Festival*, Somerset House, London, UK   2012

Privileged Tactics I, *The 29th Biennial of Graphic Arts*, International Centre of   2011
Graphic Arts, Ljubljana, Slovenia

Patrin, *Patrin*, New Arts Exchange, Nottingham, UK   2011

Nothing to Worry About, *NetAudio London*, The Roundhouse, London, UK   2011

Nothing to Worry About, *Fresh Air*, Queen Mary University of London, London,   2011
UK

Nothing to Worry About, *Digital Resources in the Humanities and Arts 2010*, Brunel University, London, UK	2011
Privileged Tactics II, *Consume*, Exit Art, New York, UK	2011
Nothing to Worry About, *Bodies of Sound*, Binaural Sound Art Concert, University of Central Lancashire, Preston, UK	2009
Privileged Tactics II, *Researchers/Forscher*, Schute [Maknete], Hamburg, Germany	2008
What is it that Moves Us?, *Sound Proof*, E:vent Gallery, London, UK	2008
Privileged Tactics I, *Young Identities – Global Youth*, European Media Arts Festival, Kunsthalle Dominikanerkirche, Osnabrueck, Germany	2008
Travelling Lives, *Pastures New*, Galleries of Justice, Nottingham, UK	2007
Utopian Vision, *Ways of Seeing*, Midsummer Place, Milton Keynes, UK	2007
Privileged Tactics I, *U3*, 5th Triennial of Contemporary Slovenian Art, Museum of Modern Art, Ljubljana, Slovenia	2007
Market Story, *Dislocate*, Koiwa Project Space, Tokyo, Japan	2006
The Private Collection, *NODE.London*, London, UK	2006

SKILLS

Computing - C++, Arduino, Processing, Electronics, Adobe Suite, RFID, e-textiles
Research Methods - Experiment design, Ethnographic study, Interview, Surveys, Focus group, Diary study, Persona, Prototyping, Thematic Analysis, Workshops, Cultural Probes, Questionnaires