

*New Disciplines
of Making –
Shared Knowledge in Doing*

Research Through Design
3rd Biennial Conference
Edinburgh | UK

RTD2017



Welcome to Research Through Design 2017

It is a great pleasure to welcome you to the third biennial Research Through Design conference, RTD 2017. This year we are very excited to be holding the conference at the National Museum of Scotland in Edinburgh.

Central to the RTD conference series is the focus on the actual artefacts (or processes), forming the conference exhibition. Artefacts (or projects) are brought from the exhibition and presented to participating delegates, assembled around tables in 'rooms of interest'. The tactility and tangibility of the artefact and/or narrative gives rise to a different type of debate around the knowledge in doing. The exhibition and round-table formats are intended to bring into view ideas and lines of enquiry embodied in creative output and enquiry. RTD was among the first conferences to depart from the traditional conference format of paper presentations delivered to audiences in darkened teaching rooms. RTD 2017 continues to build on the success of the previous conferences held at the BALTIC Centre for Contemporary Art in 2013, and the European Lab of Microsoft Research in Cambridge in 2015.

The conference theme this year is **New Disciplines of Making – Shared Knowledge in Doing**, through which we hope to continue the discussion and debate that untangles the artefacts and processes as tangible research outcomes. Ideas continue to circulate about the nature of knowledge in doing, and how we unpick tacit forms of knowledge arising from processes that are often intuitive and impulsive, and sometimes recognised only on reflection when the process has ended. We also recognise that the notion of making goes beyond fashioning objects with hand tools or machine: we make films, interventions, and social connections, even writing code is a form of making. As always, the conference offers an eclectic programme of peer-reviewed work accepted into both the exhibition and the archived proceedings.

The submissions are formed of a mixture of bold, experimental, and often provocative pieces. As always, we have been greatly inspired by the quality of submissions. There were 233 at the first stage, all reviewed through blind peer review and we had a very difficult task in choosing 88 for



We are wholly indebted to Jane Macdonald, the communications chair who has worked tirelessly behind the scenes to keep things on track. We would also like to thank again John Vines and Abigail Durrant who as the general chairs for 2015 have provided invaluable guidance. In addition a very special thanks to Alison Taubman of NMS for her input and guidance around the conference themes in relation to the museum collection, and practical support from her and the wider NMS team. Also, we sincerely thank our reviewers, who have committed considerable time and effort to provide helpful and timely feedback to our authors, and the designers who have supported us with communications.

Finally, we must thank those organisations that, as our key sponsors, have been instrumental to making the conference happen: The National Museum of Scotland, Edinburgh University, Newcastle University, Northumbria University, and Edinburgh Napier University.

RTD 2017 General Chairs:
Chris Speed and Ian Lambert

the second round, and harder still to bring this down to only 35 at the final submission round.

The 2017 programme brings work that is at the forefront of design-led research, with real diversity across disciplines including fashion, graphics, product design, craft, architecture, interaction design and informatics, and speculative design practice.

RTD 2017 also continues with an exciting programme of invited 'Provocations' – plenary talks to inspire and provoke further discussion and debate on the conference themes. In keeping with this year's focus on **New Disciplines of Making – Shared Knowledge in Doing**, we have invited provocateurs for whom the narrative of process is as or more important than the resulting artefact. The opening provocation will be from **Prof. Elisa Giaccardi** of TU Delft, who designs across the role of objects as social artefacts and co-participants, while the closing provocation comes from **Azusa Murakami and Alexander Groves of Studio Swine** who plan each of their projects around the production of a film. Hosted by NMS, the 2017 conference has the opportunity to juxtapose design practitioners and their research in the 21st Century alongside the corresponding historical archetypes held in the museum collection. With this in mind, we have organised two panel discussions, one on

'the museum and the artefact', the other a design panel made up of emerging and established design researchers invited from our delegates.

As with all conferences, the creation of the RTD 2017 programme has been a collaborative endeavour, and the conference would not be happening without the considerable time, energy and passion invested by a large team of people. First and foremost, we would like to thank all of the authors whose wonderful work makes RTD what it is. We are hugely grateful to the Programme Committee members who have thoughtfully handled submissions, contributing specialist expertise in a wide range of fields. We are particularly grateful to our submissions chairs Sam Vettese; Debbie Maxwell and John Vines, who have worked closely with us; to Mark Kobine, Paul Kerlaff and Joyce Yee who, have put together the exhibition based on work that was accepted; to Harvey Dingwall and Jayne Wallace for all their input to the event documentation; to Abigail Durrant, Larissa Pschetz, David Green, and Sigrid Schmeisser for designing and producing the proceedings; to Dave Murray-Rust for his support with the pre-conference workshops and to Bettina Nissen and Becca Taylor and all the wonderful student volunteers for their support to event organisation.

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Material

MgO (Magnesium Oxide) ceramic crucible, made using slip casting, extrusion and dry pressing methods, in original box, used at Dounreay Nuclear Power Plant, Caithness, Scotland, by Ozark Technical Ceramics Inc., **late 20th century**
© National Museums Scotland



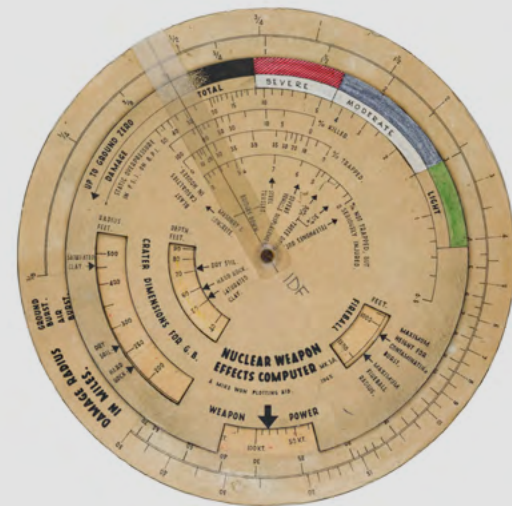
Process

Textile sample of dyed and cylinder printed cotton depicting a samurai on horseback and a geometric border with star motifs. From the pattern book known as 'Mr Christie's Book'. Part of the Turkey Red Collection totalling c. 40,000 items: Scottish, Dunbartonshire, by John Orr Ewing and Co., **c. 1886**
© National Museums Scotland



Finishing

Gravity die casting for an aluminium saucepan, as cast with runner and risers left on, one of a group of specimens illustrating the manufacture of aluminium
© National Museums Scotland



Meaning

Nuclear weapon effects computer probably made in UK, 1960s
© National Museums Scotland

Material: Fluidity of Knowledge

What are the new disciplines in making? Ceramics, glass, metalwork, woodwork, textiles, are all long established materials based disciplines in making. New roles for objects and materials, including digital craft and data, are emerging, questioning where knowledge lies in and across the creation process and created outputs. What does this mean for the 'thingness' of creations? What does this mean for ownership? What does this mean for citations and referencing of design? How might this new fluidity challenge the ways we work and make? How can we design from, with, and by digital data?

Process: Outcomes of the Unintended

Success and failure are not often assigned equal importance, particularly in risk adverse contexts. However the role of serendipity and the 'happy accident' abound in both scientific discovery and creative practices. What is the value of failure? How does this translate into tactics of making? How can we celebrate the beauty of flaws and failure and what do we lose by not failing? What part has risk played in the creative outcome? Does practice make 'perfect'?

Finishing: States of Completion

New forms of making challenge the concept of 'uniqueness' – what makes the 'perfect' and where does variation now lie? How are bespoke artefacts situated in our digital, on-demand, open-access world? When and where does the making process finish? How does this sit with the drive towards sustainable design and the circular economy? For this strand we also encourage design outcomes that are incomplete, or where the process has been re-wound.

Meaning: Belonging and Attachment

Nothing is designed in isolation. External factors infiltrate all of our creative processes and responses to situational contexts, consciously or otherwise. Geographical place, history or community all define a locus that influences practice. What are the roles and examples of histories of new making and artefacts? How can histories, presents, and futures be attached to designed items? What does it mean to belong, and how can site specific making afford a sense of attachment to place?

24th Friday

09:00

Town Hall Meeting

09:00

RTD for REF

10:00–11:15

Conference
Documentation

10:45

Coffee Available

11:15

Rooms of Interest
**Meaning:
Belonging and
Attachment**
3 parallel sessions
(3 speakers each)

13.00

Lunch

14:00

Closing Plenary
Studio SWINE
(Super Wide
Interdisciplinary
New Explorers)
Azusa Murakami &
Alexander Groves

15:00

Conference
Close

15:30

Carriages
and Exhibition
Take Down23rd Thursday

08:45

Optional Tours
Tour of NMS
Collections
Centre in GrantonEdinburgh
Walking Tour
Rachel SimmondsCurator Tour
of new NMS Art,
Design & Fashion
and Science
& Technology
galleries

11:15

Making Spaces
Reflection on the
exhibition and
presentation of the
workshop outcomes

13.00

Lunch

14:00

Rooms of Interest
**Process:
Outcomes of the
Unintended**
3 parallel sessions
(3 speakers each)

15:45

Break

16:15

Museum and the
Artefact Panel
Chaired by
Chris Breward
with Sam Alberti,
Xavier Dectot,
Jayne Wallace
and JP Singh

19:00–22:30

Conference
Dinner
Dovecot Studios22nd Wednesday

08:45

Registration

09:30

Welcome
Dr Xerxes Mazda
(Director of
Collections NMS)
Prof Chris Breward
(Professor of
Cultural History,
Principal of ECA)

09:45

Opening
Provocation
Prof. Elisa Giaccardi

10:30

Break

11:15

Rooms of Interest
**Material: Fluidity
of Knowledge**
3 parallel sessions
(3 speakers each)

13.00

Lunch

14:00

Rooms of Interest
**Finishing: States
of Completion**
3 parallel sessions
(3 speakers each)

15:45

Break

16:15

Design Panel
Chaired by
Craig Martin with
Kristina Andersen,
Tobie Kerridge,
James Auger and
Sarah Kettley

18:00–20:00

Exhibition
Opening21st Tuesday

09:00 – 17:00

Workshops
Post-digital
Making in the
Print WorkshopAluminium
Sandcasting:
Waste Moulds
from WasteFlowing with
the CityInterrogating
the Unspoken

15:00–16:50

Conference
Registration
at Venue

18:00

Local Pubs



National Museum of Scotland

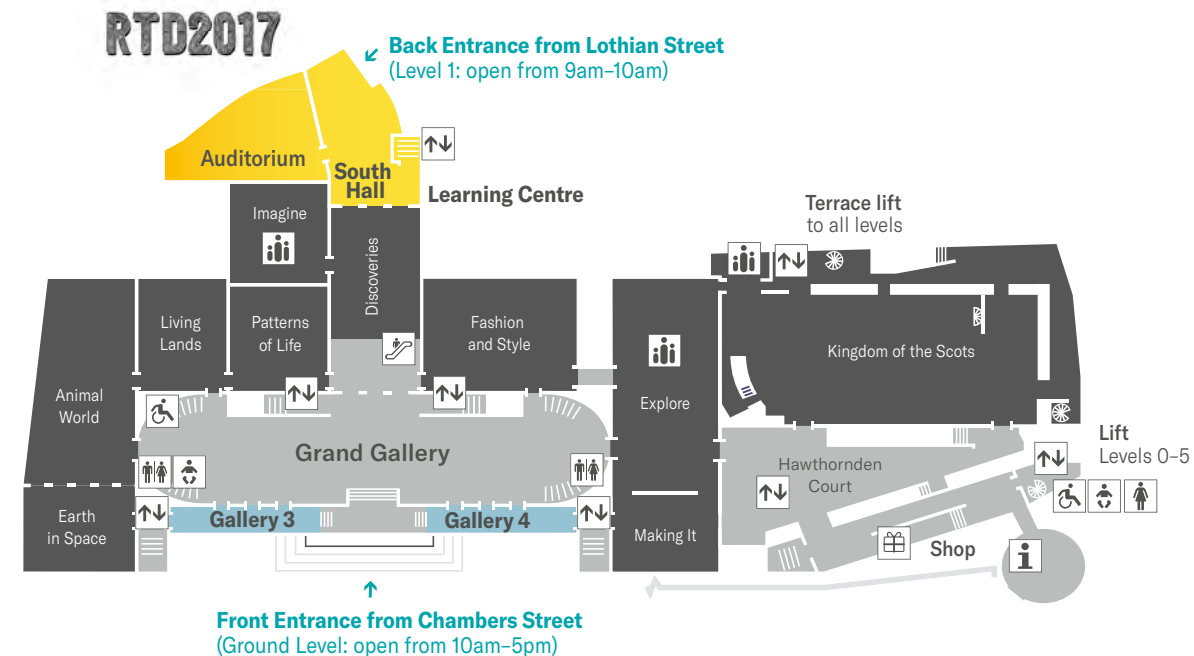
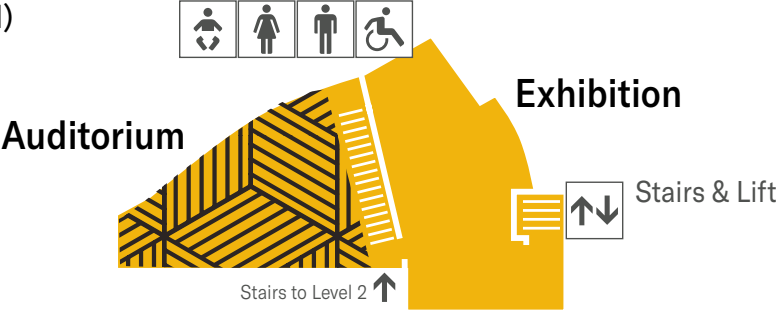


Photo and map: © National Museums Scotland

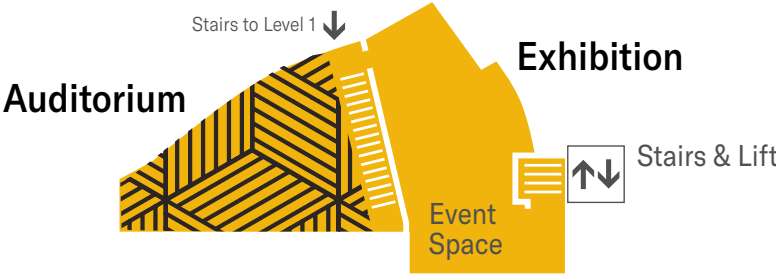
NMS South Hall (*Learning Centre*)

Conference & Exhibition

Level 1
(Entry Level)

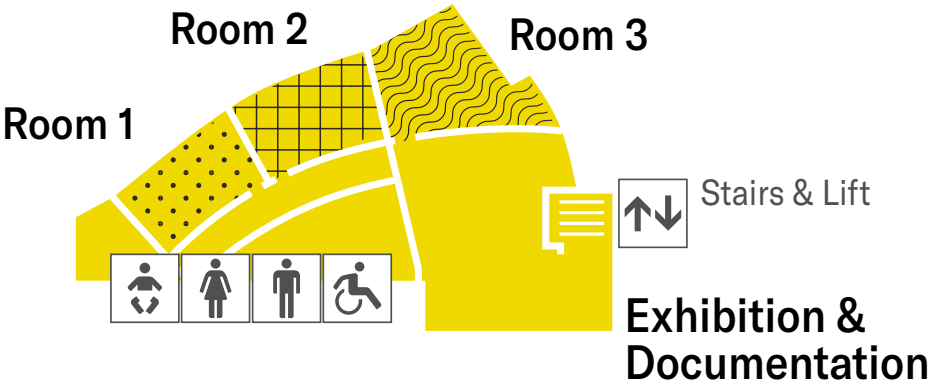


Level 2



Rooms of Interest Sessions

Level 4
(Seminar Rooms)





Conference Coffee RTD KASH Cup

You will have noticed a unique ceramic mug in your delegate bag; the RTD KASH Cup. KASH cup is a limited edition of 140 coffee cups that operate as a pop-up digital currency. Look out for charging stations in the conference and follow instructions on how to 'add value' to your NFC cup for a conference coffee. The cups and their programmable functionality change the roles of people in value transactions, in such a way that social interactions became currency. In doing so the cup challenges existing notions of value and how interaction designers can rethink the relationships between people, money and things.

KASH cups were made and designed in collaboration with Glasgow based ceramicist **Katy West** and **Design Informatics**. Tech by **Ferdinand Ginting Munthe**.

Funded as part of the ESRC Research Project: **After Money**, based at Design Informatics, Edinburgh College of Art, University of Edinburgh.



Conference Dinner Dovecot Studios

This year our conference dinner will take place in the Dovecot Studios. Dovecot's unique venue offers more than just a space; it is an environment with a creative backdrop and intriguing history, which provokes thought and inspires visitors. A rich array of tapestry projects, collaborations and partnerships have come to fruition in this beautifully restored Victorian baths building since Dovecot Tapestry Studio was rehoused here in 2008. The Dovecot Foundation's mission is to ensure the long-term future of tapestry weaving in Scotland and all hire fees contribute toward the charitable mission.

If you are staying for the weekend after the conference The Dovecot Gallery features an ever changing programme of exhibitions from both local and international artists.
dovecotstudios.com

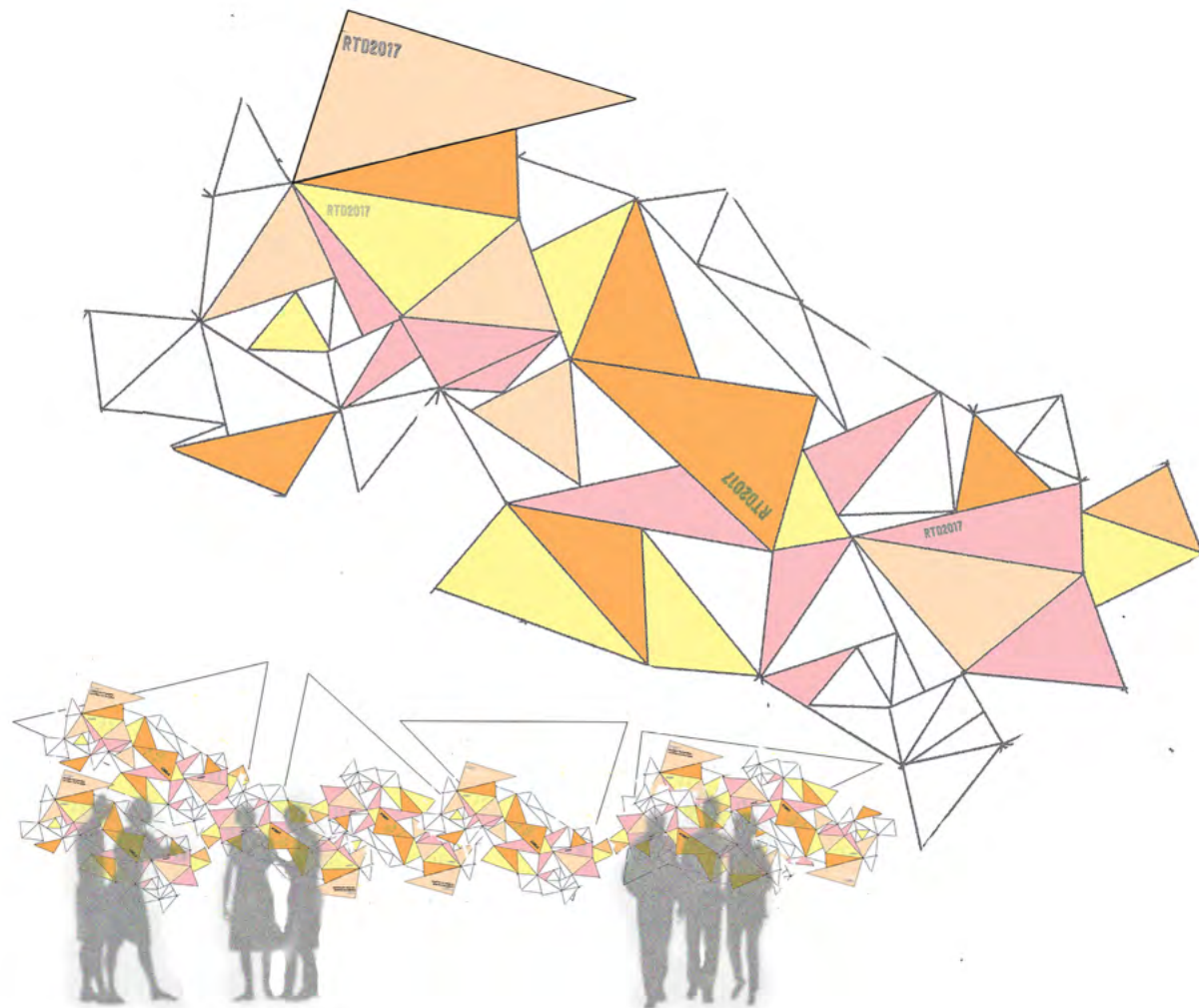
Documenting the Conference

RTD 2017 will continue to explore the form and values of documentation of the conference. Through the documentation, we aim to reflect the experimental format of the conference and its rich dissemination of practice-based research. The artefacts are exhibited and photographed, the papers are published but the challenge is to reflect and engage with the discussions and networking of the conference to see how ideas travel through the different workshops and how individual experiences tie into a larger narrative. This is not as straightforward as recording audio and video as this produces vast amounts of footage to edit and a linear structure that doesn't reflect the flow of conversation and ideas.

We look to the scribe again as we did in 2015 to reflect on and document the dialogues and the happenings of the workshops and more generally the conference.

The scribe listens and watches, carefully processing the information and capturing it in a combination of words and image. In addition, we will explore how physical objects can contribute to the dissemination of practice-based research not only as artefacts of research but as reflective, haptic makings forming part of the documentation.

All contributions will be added to a large tessellated collage, a semi-composed kind of Post-it wall that will grow over the conference event. It will give all attendees the opportunity to contribute and add to the visual and tangible expression and documentation of the conference. The collage will enable people to visually explore the interpretations and relationships of the responses to the workshops. We hope that this continuously transforming visualisation will serve as an enriching and innovative addition to the conference discussions.



Practice-led Research Workshops

With the narrative of process increasingly gaining recognition as a kind of research artefact in its own right, we want to put into play the opportunity for delegates to come together as co-researchers in mini projects and confer on the shared action of creative research methodologies. Participants will have the opportunity to reflect on design research as it happens and end the workshops with a research output of some kind or another. This may give rise to some form of new knowledge or insight that can be disseminated at the conference. Who knows, they may even be the start of new collaborations on bigger projects.

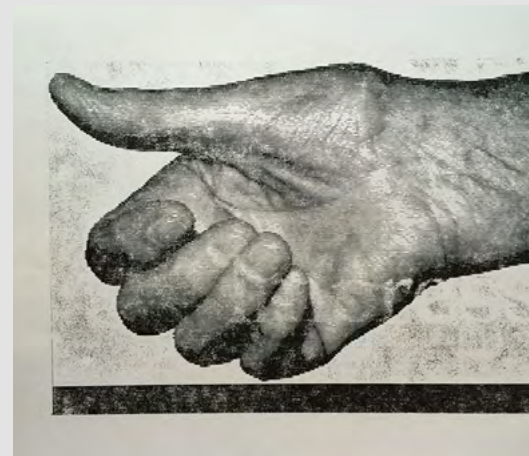
We have chosen four workshops that explore various elements of research through design, including hybrid technologies, tacit knowledge, and site specific making.

Edinburgh College of Art | Main Building (Print Studio) | 09.00–17.00

Post-digital Making in the Print Workshop

Chris Wilson | Northumbria University
| christopher.wilson@northumbria.ac.uk

This workshop offers an opportunity to discuss participant's interests in post-digital making and explore experimental methods of printmaking through the creation of a hand printed eight page limited edition book. Over a day the group will use traditional printmaking techniques and contemporary rapid manufacturing technologies to compose and print page layouts using typographic and illustrative elements. The book's content will be generated by participants, who are asked to consider post-digital making methods, motivations, processes or implications and produce up to 300 words critiquing the subject prior to the workshop. To accompany the text submission a simple illustration or photograph will also be submitted in advance. Each participant will compose their own page layout using their submitted content, which will be converted into print blocks.



Starting at Edinburgh College of Art | 09.00–17.00



Aluminium Sandcasting: Waste Moulds from Waste

Ian Lambert | Edinburgh Napier University,
| i.lambert@napier.ac.uk

This workshop invites participants to make sense of the factors arising from their immediate location that will give rise to a small creative act using hybrid pre-industrial and industrial processes, i.e. sandcasting, using a portable foundry for smelting scrap aluminium.

We will spend a morning at the seaside near Edinburgh (specific location and time dependent on tide times) using the sand on the beach to cast forms inspired by the resources to hand in that location. Reflecting on these as a mini-practice-led research project we will attempt to reveal the new insights, however minor the impact, and create a research narrative. It is in some ways a design researcher's survival exercise – instead of food to sustain us we gather new knowledge.

University of Edinburgh | 09.00–17.00



Flowing with the City

Vincent Van Uffelen | London based artist
| **David Strang** | University of Plymouth, UK
| **Rocio von Jungfeld** | University of Kent,
UK | ro@rociójungfeld.eu

Our research workshop will explore how low-tech mapping techniques can reveal the complexity of flows that constitute the city and make these flows accessible to citizens. In this context, we do not aim to focus on the (visual) representation of quantifiable data (e.g. traffic, rain, geo-location) but on the often invisible and highly subjective representation of existing flows in the city. Based on one exemplary technique, we will discuss and test how simple technologies can be used in the pre-design phase to gain tacit knowledge of the flows of a city. It is our assumption that once brought to the surface, by means of our workshop methodology, the knowledge about the flows of humans, objects/matter, energy, or information will enable participants to make informed decisions about how these flows are used and how they can be rechannelled, altered or reinforced to design a city that flows in a way in which they, the citizens, want it to flow.

Interrogating the Unspoken

Dawn Mason | UWE

| Dawn.Mason@uwe.ac.uk

Matthew Partington | UWE

| Matthew.Partington@uwe.ac.uk

Tom Sowden | Bath Spa

| t.sowden@bathspa.ac.uk

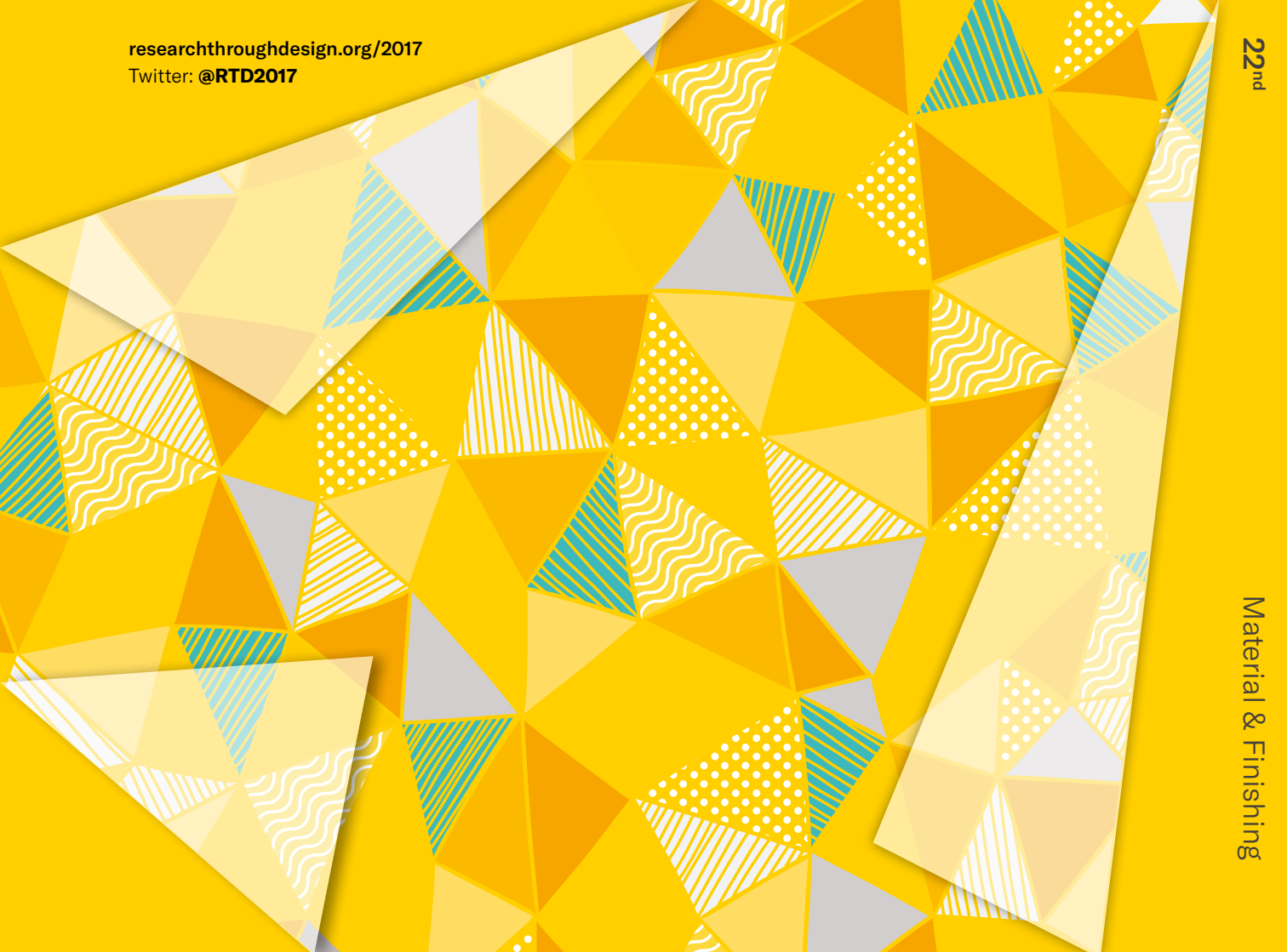
Interrogating the Unspoken is a one-day provocation workshop, the aim of which is to identify the unspoken and intuited tacit knowledge of designers and makers. Collaboration with both people and materials is at the heart of the approach, as well as interrogating communication, assumptions and risk that are part of a making practice.

The objects that are made as part of this workshop will provide visual evidence of tacit knowledge, the breadth of approaches to design practice and critical enquiry through making. The body of work produced will add to the debates around materiality, collaboration and practice as research. It will also provide further opportunities for the interrogation and development of this form of research.



researchthroughdesign.org/2017

Twitter: @RTD2017



08:45

Registration

09:30

Auditorium

Welcome

Dr Xerxes Mazda

Prof Chris Breward

09:45

Auditorium

Opening Provocation

Prof. Elisa Giaccardi

10:30

Break

11:15

Level 4

Rooms of Interest

3 parallel sessions

See schedule right

13.00

Lunch

Material: Fluidity of Knowledge | 11:15–13:00

<div>Room 1</div> <div>Crafting Design</div> <div>Chaired by Paul Kerlaff</div>	<div>Room 2</div> <div>Traces of Craft</div> <div>Chaired by Jayne Wallace</div>	<div>Room 3</div> <div>Critical Interventions</div> <div>Chaired by Arno Verhoeven</div>
<div>Philip Luscombe</div> <div>What's a Mallet For: A Woodworker's Critique of the Workmanship of Risk</div>	<div>Jane Norris</div> <div>Polychronic Spoon Stories: Material Narrative in Multi-temporal Designing</div>	<div>Guy Schofield et al.</div> <div>Exploring Space with FieldVenturer</div>
<div>Katharina Vones</div> <div>Crafted Evolution – The Creation of the HyperHive Series</div>	<div>Lisa Nass</div> <div>Makers Marks: Glass in Translation</div>	<div>Paul Chamberlain et al.</div> <div>HOSPITAbLe</div>
<div>Emeline Eudes et al.</div> <div>Social Adventure Through Design & Making: Experiences of the Research Chair Industry, Design & Social Innovation</div>	<div>Hyosun Kwon et al.</div> <div>Delicate Hybrid Gift</div>	<div>David Chatting et al.</div> <div>Ritual Machine V: Where are You?</div>

Finishing: States of Completion | 14:00–15:45

<div>Room 1</div> <div>Fictions / Futures</div> <div>Chaired by John Vines</div>	<div>Room 2</div> <div>Robots, Machines and Design</div> <div>Chaired by Debbie Maxwell</div>	<div>Room 3</div> <div>Sensing Consumption</div> <div>Chaired by Abi Durrant</div>
<div>Chris Elsdén et al.</div> <div>Abacus Datagraphy: A Speculative Enactment</div>	<div>Theo Humphries et al.</div> <div>Malentanglement: Function Redacting Tape</div>	<div>Doenja Oogjes et al.</div> <div>Listening to the Food: A Design Approach to Food Waste</div>
<div>Paul Coulton et al.</div> <div>Design Fiction as World Building</div>	<div>Dave Murray-Rust et al.</div> <div>Thinking Through Robotic Imaginaries</div>	<div>Markéta Dolejšová et al.</div> <div>HotKarot & OpenSauce: Edible Storytelling & Design Speculations</div>
<div>Enrique Encinas et al.</div> <div>What's the Matter with[in] Design Fiction?</div>	<div>Kevin Lefeuivre et al.</div> <div>Loaded Dice: How to Cheat Your Way to Creativity</div>	<div>James Pierce et al.</div> <div>Network Anxieties Design Packets</div>

14:00

Level 4

Rooms of Interest

3 parallel sessions

See schedule left

15:45

Break

16:15

Auditorium

Design Panel

Chaired by Craig Martin with Kristina Andersen, Tobie Kerridge, James Auger and Sarah Kettley

18:00–20:00

Event Space

Exhibition Opening

Opening Provocation

Elisa Giaccardi

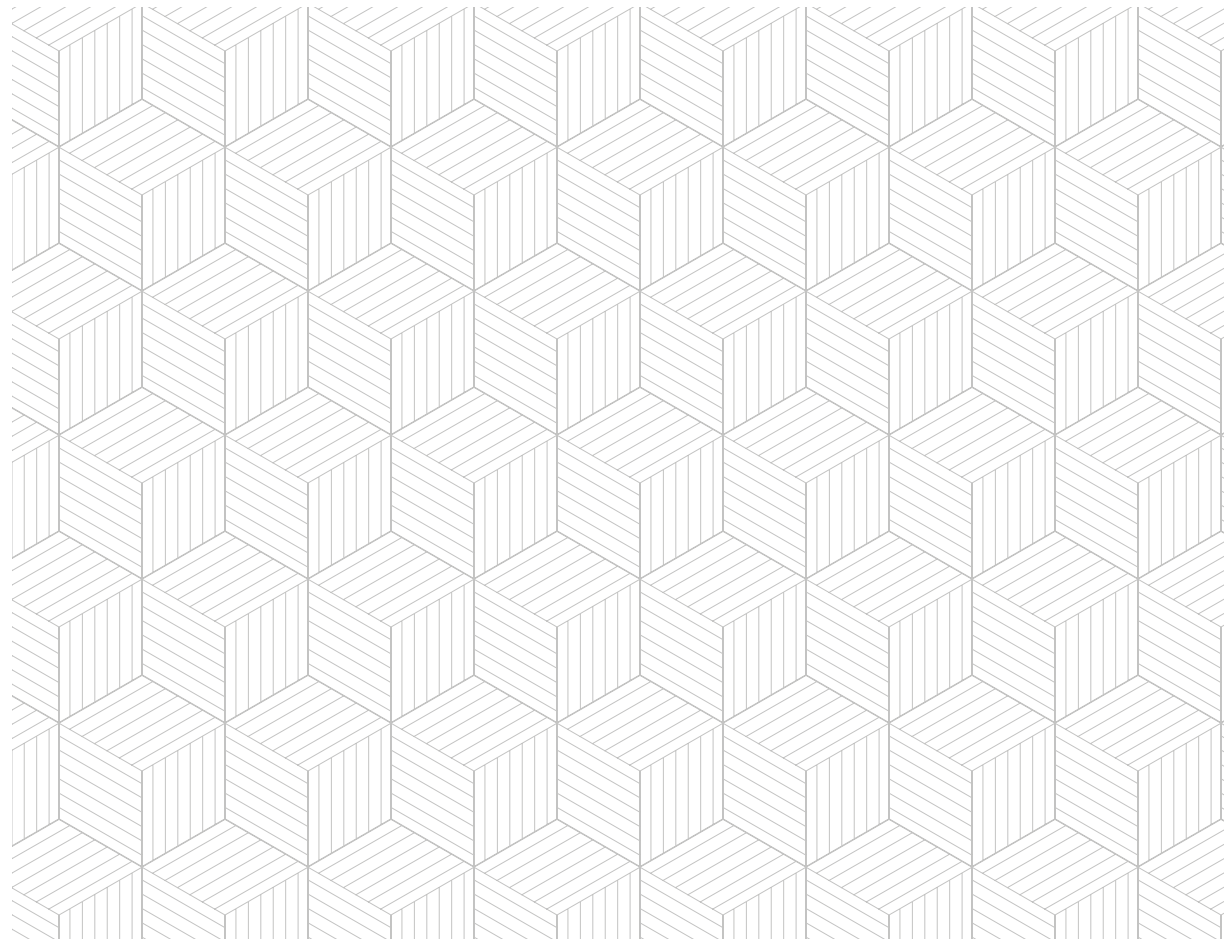
Elisa Giaccardi is Professor and Chair of Interactive Media Design at Delft University of Technology, where she leads the Connected Everyday Lab.

From her pioneering work in meta-design and participatory technology to the role of the non-human in a more-than-human world, her research reflects an ongoing concern with design as a shared process of invention of reality and a fascination for the role that technology can play.

Currently, she is establishing thing-centred design as a novel design framework and methodology that helps designers move past the blind spots of human-centred design in a 'more-than-human' world. Thing-centred design looks at artefacts as co-performers of practice next to humans, and thus as potential co-researchers and co-designers in the design process. In addition to academic research, Elisa works with companies and consulting firms to explore how thing-centred design can offer additional resources to human imagination and capabilities in the context of design practice.



Photo: Hans Stakelbeek





Room 1: Crafting Design | Morning Session | Talk 1

What's a Mallet For: A Woodworker's Critique of the Workmanship of Risk

Philip Luscombe | Northumbria University, Newcastle-upon-Tyne, UK
| philip.luscombe@northumbria.ac.uk

Abstract: At the woodworker's bench, a wooden mallet is used primarily for striking chisels. This is a straightforward answer to the question, 'What's a mallet for?'. It is an account that focuses upon tool use as an activity that does something to the world – a mallet drives a chisel in order to remove waste wood. In this paper however, I aim to reconsider mallets, and tools more generally, not just as artefacts that enable us to do things to the world, but also as instruments for finding out how those things are going. The paper is based around a critique of David Pye's concept of the workmanship of risk. My argument states that understandings of production such as Pye's rely on

an entirely pragmatic account of tool use, and action more generally, as a means of realising preconceived ideas in the material world. I draw on the concept of epistemic actions, which are actions intended to improve our understanding of a situation and aid decision making, in order to counter this tendency. This discussion is presented alongside a portable workbench and work-in-progress mallet I am making. By demonstrating the production and use of a mallet at the workbench during RTD 2017, I aim to illustrate my argument and describe its significance for how we talk about, and practice, designing and making.

Top left: A portable workbench, spokeshave, coping saw and mallet-in-progress | Top right: Using a spokeshave | Bottom right: Using a coping saw
All images: Luscombe | © Philip Luscombe

Crafted Evolution: The Creation of the HyperHive Series

Katharina Vones

| The University of Dundee, UK | k.b.childs@dundee.ac.uk or info@kvones.com

| Edinburgh Napier University, UK | k.childs@napier.ac.uk

Abstract: The following paper describes the conception and creation of the HyperHive Series of interactive pendants. This practice-led research analyses how the recent emergence of terms such as 'craft technologist' and 'alchemical craft' suggests a paradigm shift in the field of contemporary jewellery, describing practices and practitioners using craft methodologies to work with novel materials and processes. A return to the idea of interdisciplinary knowledge exchange between the arts and sciences, has reintroduced the essence of alchemical practice to contemporary crafts practitioners. The processes of serendipitous discovery and material experimentation lie at the heart of this practice, and smart materials with their

metamorphic qualities have yielded fertile ground for exploration. This body of research focuses on probing these materials' potential to create jewellery that comes alive on the body and responds to external stimuli by initiating a change in state, creating enchantment through playful interaction. Combining chromic smart materials with tactile silicone provides multifaceted colour transitions that react to the body and the environment in equal measures. Microelectronic elements imbue the jewellery with life, manifested through pulsating, breathing lights, and sensors that intimately connect object and wearer by measuring touch, light and movement.





Left: Moyeuve | Heart of Fusion | © Chaire IDIS - ESAD de Reims



Right: Levasseur | Vegetal Folly | © Chaire IDIS - ESAD de Reims - Baptiste Heller

Room 1: Crafting Design | Morning Session | Talk 3

Social Adventure Through Design & Making: Experiences of the IDIS Chair - *Industry, Design & Social Innovation*

Emeline Eudes, Véronique Maire | Ecole Supérieure d'Art et de Design, Reims, FR
| emeline.eudes@esad-reims.fr, chaireidis@esad-reims.fr

Abstract: How can the process of making objects create meaning and belonging for the agents involved? Through two objects and their process of making, we propose a journey in a territory, its people and a continuing history. This journey is meant to expose how meaning and belonging can be created by the process of making (objects); and moreover how this aim could be reached in the situation of a research through design. According to a heuristic approach, each situation created by the IDIS Chair is an opportunity to probe models of production and reflect on the ability of design to mediate experimental and valuable social experiences of work and creation.

The IDIS Chair has thus invited design students and young designers to meet and engage with various local companies and know-hows. It also helps them to develop communication tools to make social innovation visible and graspable, so that the general public understand the added human value of such objects. With the help of graphic designers and an anthropologist, experiential books, production cartographies and social mappings are under construction and probing for this purpose.

Polychronic Spoon Stories: Material Narrative in Multi-temporal Designing

Dr Jane Norris | The American University at Richmond, UK | drjanenorris@gmail.com

Abstract: In the light of current debates on the future of making, the Polychronic research focuses on what influences our decisions in material selection when designing objects, and how these decisions might be changed. The research triangulates: an aerial cultural viewpoint proposed by new media theory; a re-conceptualisation of time through the act of crumpling material history; and a practical translation of cultural narrative approaches to materiality through para-design, using both materials and fiction. A series of small polychronic bowls that combined materials from different historical eras, formed early material experiments in the research. This has been extended by focusing on spoons as objects that carry cultural narratives such

as hygiene, modernity, disposability and inherited history embedded in their material use. Spoons are intimate objects, closely related to, but separate from the body that have consistently channelled our desire and consumption of both food and material status, becoming effective narrative vehicles to communicate our cultural values. By shifting the material narrative in a selection of spoons, the research seeks to interrogate and problematize inherent material assumptions. The aim of this is to better understand some barriers to a polychronic approach to design. The practice of storytelling through making and writing endeavours to open up an alternative material narrative of spoons.

Image right: Norris | Material Narratives in spoons | Top down – Lead spoon; Plastic disposable spoon; Flocked Wooden spoon; Silver Jelly Trowel; Leather spoon; Stainless Steel teaspoon; Gilded ice cream scoop | © Jane Norris



Makers Marks: Glass in Translation

Lisa Naas on behalf of the Makers Marks Collaborative

| Edinburgh College of Art at the University of Edinburgh, UK

| LNAAS@icloud.com, s1347257@sms.ed.ac.uk

Abstract: Metaphorical language uses association and combination of concepts to aid in human understanding of the new and unfamiliar. This is often true for artists' articulation of original work developed through creative processes. 'Glass in Translation' brings together artists/designers working in the craft medium of glass with composers/sound designers focused on digital technologies. Examining our creative processes, we question the nature of glass and its characteristics through dialogue between media and conversation between the artists. Musicians sometimes use visual language to describe sounds in colour, texture, shape, and weight. The project exploits this metaphorical language of the visual in the

aural, through creation of new works in sound and glass, based on sounds of glassmaking itself. The project premise was to extract sounds of glassmaking to isolate them for examination and manipulation, and then to put these sounds back into glass forms. 'Glass in Translation' speaks to the Research Through Design 2017 themes '*Material: Fluidity in Knowledge*', as we question where the knowledge of glass is in the process, and '*Finishing: States of Completion*', as we reverse our process, incorporating the sound back into glass. The project process, outcomes, and reflections suggest that metaphor is a useful tool for interdisciplinary collaboration.

Delicate Hybrid Gift

Hyosun Kwon, Holger Schnädelbach, Boriana Koleva, Steve Benford
| Mixed Reality Lab, School of Computer Science, University of Nottingham, UK
| hyosun.kwon@nottingham.ac.uk

Abstract: A myriad of digital files such as digital photos, music tracks, and illustration images are exchanged through digital devices. Some are intentionally given as a gift for a gesture of good relationship, but they often get dismissed from the receiver’s attention due to many drawbacks of digital materials including intangibility. Gifts are realized in various forms such as artefacts, food, and hospitality, which embody multiple layers of functions and meanings that frame our social interactions. In this regard, it is questionable whether the digital gifts are able to express the sense of ‘gift-ness’ from the outset. If doubtful, can we reform the method of the gift exchange to be distinct from mere file exchange?

Building on the basis of literature in the gift exchange, this paper delivers design insights in a series of interactive prototypes to depict implications of our prior study. Prototypes are purposely designed to highlight the ephemerality of the unwrapping experience to employ in digital gifting. We demonstrate the Research Through Design practice that comprises of framing the problem space, prototyping the artefacts, and probing with potential users. Moreover, we discuss how tangibly wrapped digital gifts are appropriate in retaining the wider social recognition about the gift and gifting.



Kwon, Schnädelbach, Koleva, Benford | [Top left](#): Delicate Hybrid Gift | Kwon | [Top right](#): IoT Gifting Candle | [Bottom right](#): Ephemeral Lamp | © All images Hyosun Kwon



Exploring Space with *FieldVenturer*

Guy Schofield | Department of Theatre, Film and Television, University of York, UK
| guy.schofield@york.ac.uk

Tom Schofield | Culture Lab and Fine Art, School of Arts and Cultures,
Newcastle University, UK | tomschofieldart@gmail.com

Abstract: *FieldVenturer* is a project experimenting with a long-range remote-controlled and collaboratively-piloted vehicle. It centres on the design, development and public deployment of a Rover: a small tracked vehicle equipped with sensors and a camera and an elaborate 'Command Centre' through which it can be controlled by members of the public. Through a series of *FieldVenturer* events, we are beginning to explore how experiencing spaces through a 'drone's

eye view' can play a part in promoting discussion around the reconfiguration and re-articulation of public spaces. Through an interface that involves different temporal approaches to control and feedback we are also beginning to explore how varying the pace of interaction along multiple timescales can affect how spaces are experienced.

HOSPITaLe: Critical Design and the Domestication of Healthcare

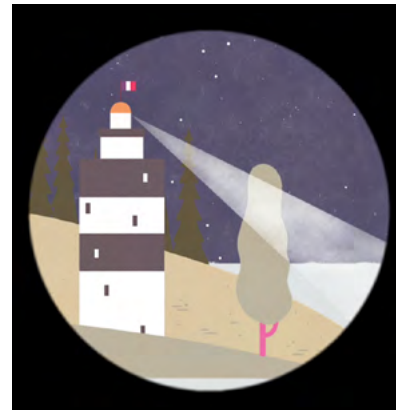
Paul Chamberlain, Claire Craig | Lab4Living, Art & Design Research Centre, Sheffield Hallam University, UK | P.M.Chamberlain@shu.ac.uk, C.Craig@shu.ac.uk

Abstract: The challenges society faces in providing future healthcare suggests radical changes to the way health services are delivered and the way we engage with them. There is recognition that this is likely to demand more self-care and a shift of care from hospital to our home. The home and hospital bring together very different cultural practices and environments and the inexorable geographical shift in care has potential to impact on our physical and emotional relationship with our home space. These cultural practices/ experiences can be mediated through objects, which in turn can provide vehicles through which to gain understanding of the richness and complexity of people's lives.

The research draws on the value of 'thinking with things' as a method and central to this is the notion of exhibition as a research tool that becomes a meeting space that enables this to happen. Exhibition provides a theatre for conversation and becomes the medium and method for data collection and creates the conduit, through which societal assumptions relating to ageing and healthcare care can be made visible, explored and challenged. From a critical design position we propose artefacts through structured engagement with individuals and communities might help develop insights and inform responses to the complex challenges facing current healthcare services.



Chamberlain, Craig | HOSPITaLe - Infusion lamp, Google aid, Dining chair | © John Hartley



Room 3: Critical interventions | Morning Session | **Talk 3**

Ritual Machine V: Where are You?

David Chatting | Open Lab, Newcastle University, UK | david.chatting@ncl.ac.uk

Paulina Yurman | Design Department, Goldsmiths University of London, UK
| p.yurman@gold.ac.uk

David P. Green, David S. Kirk | Northumbria University, Newcastle upon Tyne, UK
| d.p.green@northumbria.ac.uk, david.kirk@northumbria.ac.uk

Jo-Anne Bichard | The Helen Hamlyn Centre for Design, Royal College of Art, London, UK
| jo-anne.bichard@rca.ac.uk

Abstract: *Where are You?* is a bespoke machine for parents Emmie and Mark, regularly separated from their young son Joseph by their working patterns. The machine is a telescope allowing Joseph to explore an illustrated world in search of a flag, which is placed by his parents on their travels using a companion totem device. The machine is designed to create a ritual of playful location sharing.

The telescope reveals the world to Joseph as he points it in different directions and zooms in and out. Each layer is a detailed illustrated panorama of the world at successively greater distances from his home.

This was accomplished through an intense collaboration with the illustrator Naomi Elliott.

In the context of our Research through Design (RtD) process, we describe our development of this machine, consider some challenges when working with professional practitioners and contribute to current discourses. At each stage of our engagement, we have explored how our material choices, change the terms of our conversation with our participants about their everyday rituals and work/life balance. The machine is currently living with the family.

| [Top](#): Where Are You? | [Top right](#): Traveller's companion totem device | [Bottom right](#): Wexford at night (Illustration Naomi Elliott)

| [All images](#): Chatting, Yurman, Green, Bichard, Kirk | © The authors

Abacus Datagraphy: A Speculative Enactment

Chris Elsdén, David Chatting | Open Lab, Newcastle University, Newcastle upon Tyne, UK
| chris.elsden@ncl.ac.uk, david.chatting@ncl.ac.uk

Abigail Durrant, David Green, David Kirk | Northumbria University, UK
| abigail.durrant@northumbria.ac.uk, d.p.green@northumbria.ac.uk,
david.kirk@northumbria.ac.uk

Abstract: Anticipating an increasingly data-driven life, this speculative design project critically examines a future service called Abacus, for documenting weddings in the mode of the quantified self.

"At Abacus, we offer a full suite of wedding datagraphy services, personally tailored to you. Our services can help you plan for, collect and craft your personal data, into beautiful products and memories."

Our design-led research explores how people may experience, envision and remember their lives with data – living with a 'quantified past'.

We present bespoke design work that took place with two couples engaged to be married. In the context of a 'Speculative Enactment', the couples met a 'wedding datagrapher' from Abacus, as part of the service on offer. Through this design-led, but empirically focussed work, we offer design reflections about making artefacts to remember a data-driven life. We introduce our practice of Speculative Enactments as a Research through Design (RtD) approach for generating consequential speculation with participants, and argue for new and diverse ways to present and interact with speculative design work.

Image right: Elsdén, Durrant, Chatting, Green, Kirk | Abacus Datagraphy: A Speculative Enactment | © Christopher Elsdén, David Green, Abigail Durrant





Design Fiction as World Building

Paul Coulton, Joseph Lindley | Imagination, Lancaster Institute for the Contemporary Arts, Lancaster University, UK | p.coulton@lancaster.ac.uk, j.lindley@lancaster.ac.uk

Miriam Sturdee, Mike Stead | HighWire DTC, School of Computing and Communications, Lancaster University, UK | m.sturdee@lancaster.ac.uk, m.stead@lancaster.ac.uk

Abstract: Design Fiction has garnered considerable attention during recent years yet still remains pre-paradigmatic. Put differently there are concurrent, but incongruent, perspectives on what Design Fiction is and how to use it. Acknowledging this immaturity, we assert that the best way to contribute to the establishment of an evidence-based first paradigm, is by adopting a research through design approach. Thus, in this paper we describe 'research into design fiction, done through design fiction'. This paper describes the creation of two Design Fictions through which we consider the relationship between narrative and Design Fiction and argue that links between the two are often drawn erroneously.

We posit that Design Fiction is in fact a 'world building' activity, with no inherent link to 'narrative' or 'storytelling'. The first Design Fiction explores a near future world containing a system for gamified drone-based civic enforcement and the second is based on a distant future in which hardware and algorithms capable of detecting empathy are used as part of everyday communications. By arguing it is world building, we aim to contribute towards the disambiguation of current Design Fiction discourse and the promotion of genre conventions, and, in doing so to reinforce the foundations upon which a first stable paradigm can be constructed.

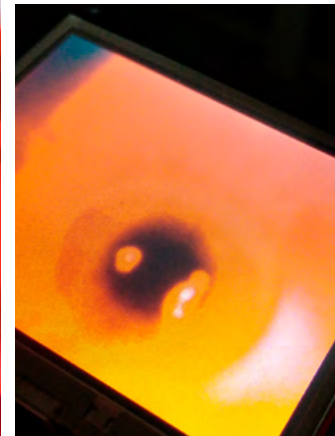
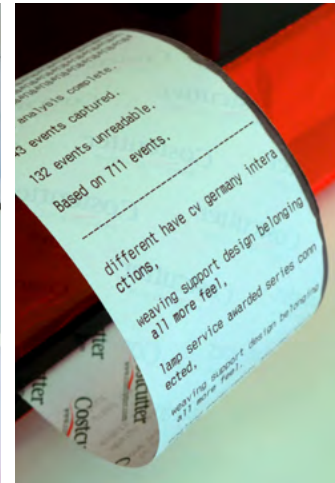
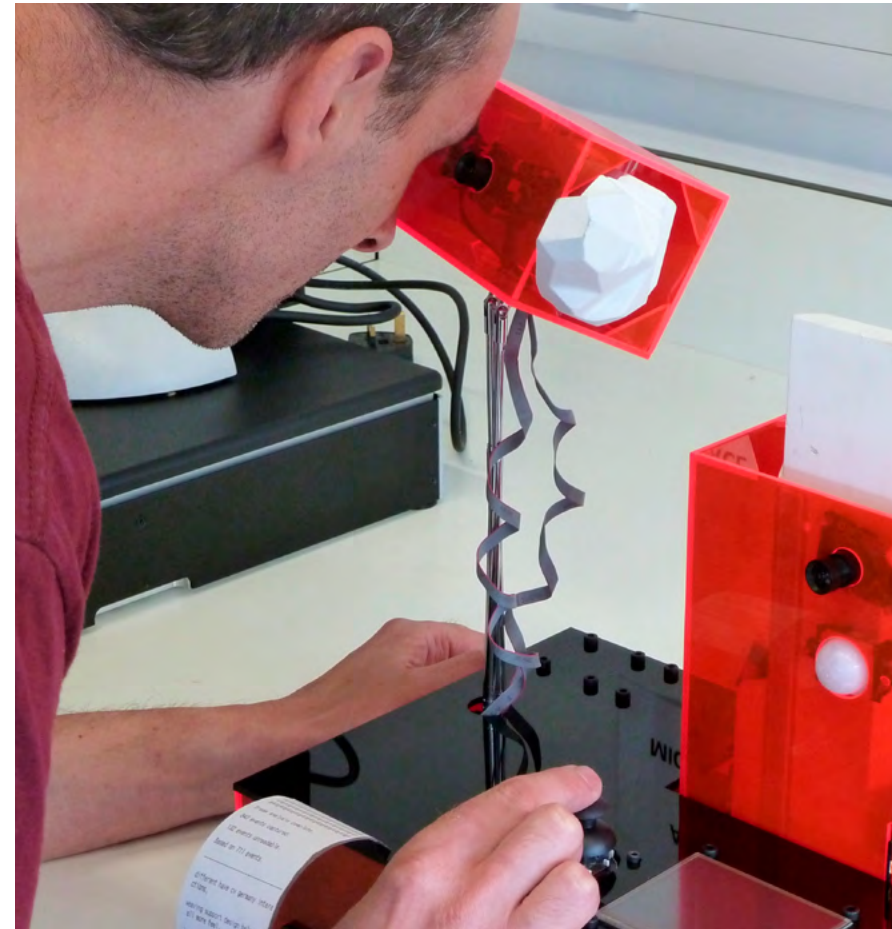
What's the Matter with[in] Design Fiction?

Enrique Encinas, Tommy Dylan | Northumbria University, Newcastle Upon Tyne, UK
| enrique.encinas@northumbria.ac.uk, tommy.dylan@northumbria.ac.uk

Robb Mitchell | University of Southern Denmark, DK | robb@sdu.dk

Abstract: What design fiction is seems to be a matter of debate whilst how design fiction accomplishes its feats lacks attention among the design research community. This research program focuses on how people engage with a fictional story world through interactive artefacts or in other words, how disbelief is suspended when design is employed as an ingredient that embodies some aspects of a fictional narrative. In order to explore this, we invited four participants to interact with a purposefully designed prototype: the Digital Dreamcatcher.

The Digital Dreamcatcher is a fictional device that interprets dreams by printing personalised poetry. Based on qualitative analysis from interviews with participants, we propose a preliminary conceptualisation of design fiction as system, rather than simply an object or a story. Looking at our data from the perspective of design fiction as a system also allowed us to identify 'suspension of disbelief' only in autopoietic design fictions. These are design fictions able to create, extend and maintain themselves. This insight might enable practitioners using or considering the use of design fiction to look at their current or prospective work from a new perspective.



| **Top:** What's the matter with[in] design fiction? | **Top right:** Close up of a poem produced by the Digital Dreamcatcher
| **Bottom right:** Close up image of the retina of a participant as shown by the Digital Dreamcatcher
| **All images:** Encinas, Dylan, Mitchel © Encinas, Dylan, Mitchell

Malentangled: Function Redacting Tape

Humphries, T., Pepperell, R., Thompson, S., | Cardiff School of Art & Design, UK
| thumphries@cardiffmet.ac.uk

Punt, M. | University of Plymouth, UK

Abstract: The neologism *entanglement* proposes that all things are connected through super-complex meshworks of mutable *interdependencies*. This entanglement of interdependencies is often obscured through *forgetness*, a radically reductive process by which things are taken to be isolated and interdependencies are forgotten.

In some instances – for example when objects break – people are again reminded of the inter-dependentness of things. *Malentanglement* theory proposes that forgetness may also encounter a *remindness* through humour, and not only through catastrophe (depunctualisation).

The 'Function Redacting Tape' project takes *redaction* as a method for doctoring documents, but it deploys this method in the material context of design. Project Participants are provided with black PVC adhesive tape and invited to consider the functions of designed objects. They are then asked to redact these functions (using the tape) and in doing so to make documented interventions that draw back the metaphorical veil of forgetness for reasons of design enquiry. The project functions as a sort of rudimentary cultural probe that might shed some light on entanglement, humour, and design, whilst simultaneously testing the employment of humour to aid participation in design research.



Thinking Through Robotic Imaginaries

Dave Murray-Rust | Edinburgh College of Art, UK
| d.murray-rust@ed.ac.uk

Rocio von Jungenfeld | University of Kent, Canterbury, UK
| r.von-jungenfeld@kent.ac.uk

Abstract: *Lichtsuchende* is a society of static robots: autonomous to some degree, exhibiting social behaviour and interacting with humans. Responsive and communicative, they perform creature-hood. We use this as a vehicle to question the relationship with their designers, and the reconfiguration of design methodologies around the bringing forth of situated, responsive *things*, that possess a sense of being in the world. Their quasi-creaturehood situates them between made objects and living beings. We are interested in how we design for the lifeworld of creatures who do not yet exist, how much we can support their being rather than imposing our will on their matter.

We argue for a sense of *stewardship* not ownership – a responsibility to the artefacts, made clear by their creaturehood. We look after them, hold robot surgeries, recognise personality in their defects, and support their life course from installation to installation, as their society grows and changes. We are interested in the pivotal moments in this journey, where design feels as if it is led by their needs rather than our desires: designing *with* and *for* the things. In particular, we are interested in beginning to understand the unplanned imaginaries latent in their socialisation, while acknowledging unavoidable design biases.

Image right: Murray-Rust and von Jungenfeld | *Lichtsuchende* installed in Vault 13, at the Hidden Door Festival, Edinburgh 2014. Participant interacting with the robots using a light torch. | © Chris Scott (@chrisdonia)





Loaded Dice: How to Cheat Your Way to Creativity

Kevin Lefeuvre, Sören Totzauer, Andreas Bischof, Michael Storz, Albrecht Kurze, Arne Berger

| Chair Media Informatics, Technische Universität Chemnitz, DE

| kevinlefeuvre@informatik.tu-chemnitz.de

Abstract: Interaction and product design are challenged to solve complex, oftentimes wicked problems by creating unique solutions. These solutions are created by means of exploring implied as well as actual properties of the problem and solution spaces and bringing them together in a unique artefact. Conceiving fitting connections of both spaces is a task of high uncertainty. With the increase in blending physical and non-physical interaction in designing for the Internet of Things these problem and solution

spaces are even more challenging to explore and subsequently to connect. We present the process of designing Loaded Dice, a tool to design smart connected products for experiences within the Internet of Things. It is a set of connected dice equipped with sensors and actuators. Our tool is an ideation device to support early phases of co-design processes to forge creativity in stakeholders for designing for the Internet of Things.

Listening to the Food: A Design Approach to Food Waste

Doenja Oogjes, Miguel Bruns Alonso | School of Interactive Arts + Technology,
Simon Fraser University, Surrey, BC, Canada | doogjes@sfu.ca, mbruns@tue.nl

Ron Wakkary | School of Interactive Arts + Technology,
Simon Fraser University, Surrey, BC, Canada | rwakkary@sfu.ca
| Department of Industrial Design TU/e, Eindhoven, NL | r.l.wakkary@tue.nl

Abstract: In this paper we present the design fiction Lyssna, a diegetic prototype in the form of a hearing aid for your refrigerator, that aims to reintegrate food waste back into cooking. Preventing food waste has been addressed mainly by promoting sustainable behaviour through design. However, there is little evidence supporting that these changes last. Furthermore, human behaviour concerning food waste is not solely the outcome of deliberate decisions based on awareness and efficiency. In this paper we elaborate on our studies of everyday food practices, in which we in part continue with thing-centred approaches. Rather than designing for a change in human

behaviour, we aim to understand the experience of the food in the dynamics of everyday food practices through the things we design. Within our studies, however, we are not solely interested in the human experience nor solely in the experience of the thing. Rather we are looking to uncover the relations between both and how this understanding can lead to designing for more sustainable relationships with food. We present and reflect on three probe-studies that have shaped and supported our stance. We conclude with how we see ontological perspectives as a design strategy, illustrated by our design fiction, Lyssna.

Image right: Oogjes, Wakkary, Bruns | Lyssna | © Doenja Oogjes





Room 3: Sensing Consumption | Afternoon Session | Talk 2

HotKarot & OpenSauce: Edible Storytelling & Design Speculations

Markéta Dolejšová | National University of Singapore, SG | marketa@u.nus.edu

Tereza Lišková | Material Times, Prague, CZ | Tereza.Liskova@happymaterials.com

Martin Obert | Cancel 356, Prague, CZ | martin@hotkarot.cz

Abstract: The HotKarot & OpenSauce project explores the possibilities of speculative food design in encouraging social inclusion and interaction among citizens of different socioeconomic backgrounds. The project employs the associative power of taste embodied in edible storytelling prototypes that consist of a carrot hotdog served with 'narrative' sauces created in the online OpenSauce cookbook. The cookbook enables users to input various text narratives and, using the network text analysis technique, convert them into

personalized sauce recipes to be served in a mobile street food bistro. As part of collaboration with the Homelike NGO providing social support to homeless women, we designed a series of 'StreetSauces' made of the life stories of nine Homelike's clients. Here we report findings from an ongoing series of design probes conducted at the StreetSauce bistro, with an aim to identify the challenges and opportunities of edible speculations used in the design-oriented research.



Network Anxieties Design Packets

James Pierce | UC Berkeley, California, USA, Jacobs Institute for Design Innovation
| pierjam@berkeley.edu
| Georgia Institute of Technology, Atlanta, USA

Carl DiSalvo | School of Literature, Media, and Communication
| Georgia Institute of Technology, Atlanta, USA | cdisalvo@gatech.edu

Abstract: To explore, reimagine, and intervene within network anxieties – for example, distrust, overstimulation, and creepiness associated with digital privacy and surveillance concerns – we have been experimenting with the design of relatively lighter-weight, smaller-scale, shorter-term, and inexpensive forms we refer to as design packets. We have designed these packets to circulate, evolve, and generate design potential and possibility without trying to fully anticipate or articulate their uses or effects. We present three examples from our ongoing design packeting. Our Network Anxieties Coloring Book allow people to both induce and alleviate their concerns with digital objects and events ranging from police Stingray

surveillance to Smart Barbie dolls with microphones. Our Ghost/Bug/Wave Detectors locate the curious intersections of paranormal activity, state surveillance, and harmful electromagnetic radiation, inviting people to participate in collective hunts for ghosts, bugs, and waves. And our Privacy and Data Policies in Print (Because Nobody Actually Reads Them) packet reproduces verbatim the privacy and data policies of five major technology companies. In this paper, we emphasize the power of these packets as design catalysts, as forms that vaguely function as the potentials to shift and evolve into other uses, outcomes, ideas, things, and more.

Image right: Pierce, DiSalvo | Ghost/Bug/Wave Detectors Product Packets | © The authors



The Design Panel

What does Research through Design as an activity mean to researchers? Like all forms of academic enquiry, design-led research can give rise to new knowledge. But unlike disciplines where research may lead to quantifiable data, the forms of knowledge arising from creative practice are often embedded in artefacts and processes. Indeed, processes have in recent times gained an ascendancy in knowledge value equal to or often greater than the actual outcomes.

The making narratives used by **Studio Swine** and **Max Lamb**, for example, are certainly discussed as much as the outcomes. These design-led processes can be intuitive, impulsive, or tactile, sometimes all three and lead to a type of tacit knowledge which can at times be difficult to unpick and unravel. So how do we give value to our research narrative as one that is meaningful to a wider audience? In other words, so what?

Our panel of academics and practitioners, **Kristina Andersen**, **James Auger**, **Tobie Kerridge**, **Sarah Kettley**, chaired by **Dr. Craig Martin**, will discuss and debate these questions, and more posed by the audience, in what we hope will be an hour of stimulating debate and argument on this key topic.

Craig Martin

Craig Martin is Senior Lecturer in Design Cultures in the School of Design at The University of Edinburgh. He is a cultural geographer and cultural theorist with a particular interest in design cultures. His research broadly addresses 'design geographies' – the interplay between cultural geography and the social forces of mundane design, with a particular focus on design mobilities, and illicit design. Recent publications include the sole-authored book *Shipping Container* (Bloomsbury Academic, 2016), and chapters in *Cargo-mobilities* (Routledge, 2015), and *Mobilising Design* (Routledge, 2017). He is currently at work on his next book *Deviant Design and Illicit Innovation* for Bloomsbury Academic.



Kirsten Andersen

Kristina Andersen is a designer and researcher based at STEIM (Studio for Electro-Instrumental Music) in Amsterdam and KTH in Stockholm. She works with electronics and reclaimed materials to create unusual devices and experience, but her work is increasingly concerned with how we can allow each other to imagine our possible technological futures through the making of non-functional exploratory objects. In these objects, several planes collide: the possible, the unknown, the feared and the desired. They are informed by concern and longing, but built from candy and cardboard and other increasingly ridiculous materials, chosen for their lack of permanence and accuracy. She works as principal researcher and expert reviewer in various EU contexts, teaches the combined MA between STEIM and Sonology in Den Haag as well as maintaining her own practice and taking part in the research group: Making Things Public at the Rietveld Academy of the Arts.



James Auger

James Auger is a designer, researcher and lecturer whose work examines the social, cultural and personal impacts of technology and the products that exist as a result of its development and application. On graduating from Design Products (MA) at the Royal College of Art in 2001 James moved to Dublin to conduct research at Media Lab Europe (MLE) exploring the theme of human communication as mediated by technology. Between 2005 and 2015 James was part of Design Interactions at the RCA, teaching on the MA programme and continuing his development of critical and speculative approaches to design and technology, completing his PhD on the subject in 2012. James recently moved to the Madeira Interactive Technologies Institute (M-ITI) in Portugal. His new research explores the potential of the Island as an experimental living laboratory through a combination of fictional, factual and functional multi-scale energy-related proposals and projects.



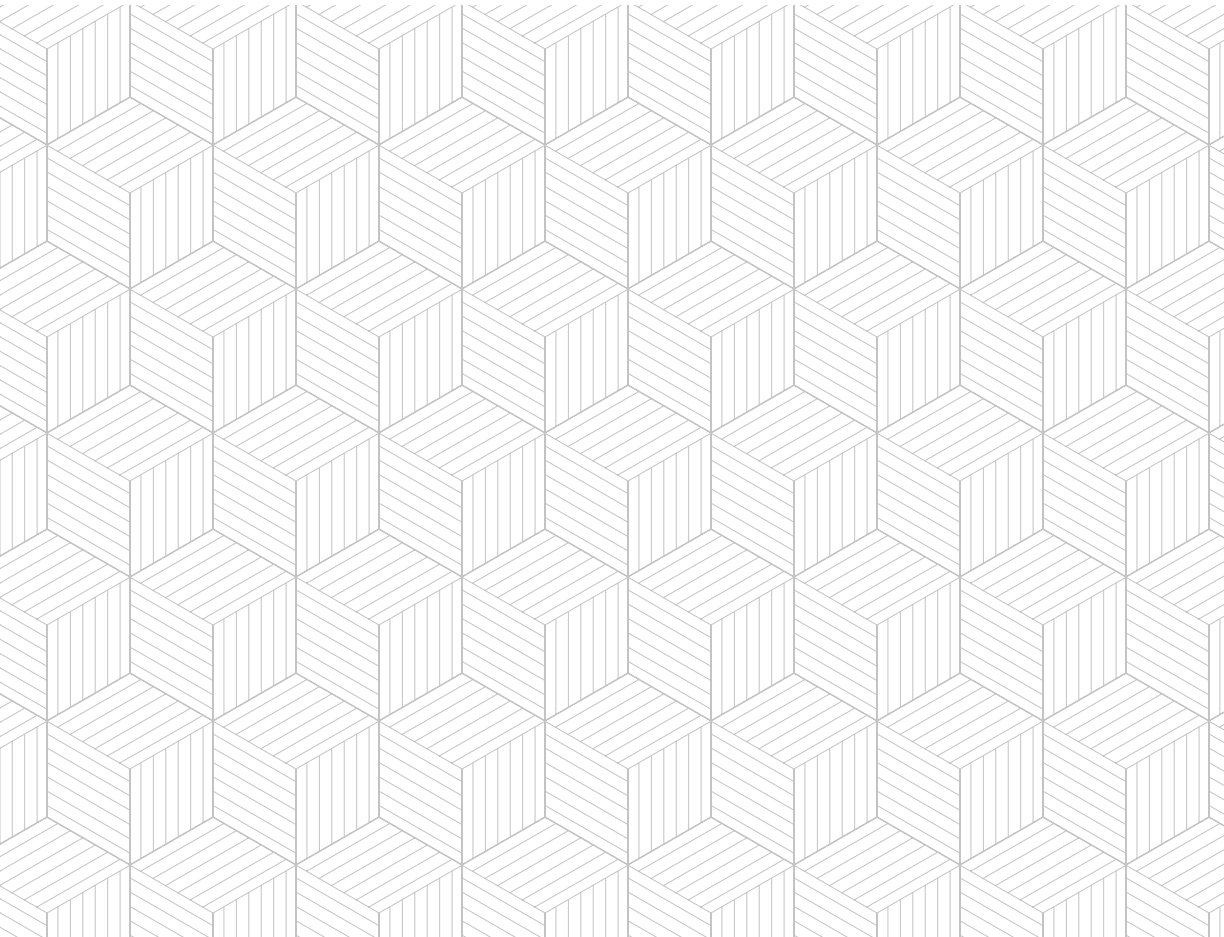
Tobie Kerridge

Tobie is a lecturer in Design at Goldsmiths, and from 2003 has worked as a design researcher with the Interaction Research Studio and as a Helen Hamlyn Research Associate. Projects have been supported by Philips Design, Intel and France Telecom, and funded by UK and EU funding councils. He led two EPSRC funded public engagement projects, Biojewellery with Nikki Stott and Ian Thompson at Guys Hospital, and Material Beliefs as a visiting researcher with the Institute of Biomedical Engineering at Imperial College. His PhD thesis discussed Material Beliefs as a case where speculative design and upstream public engagement became mixed up. Tobie is committed to taking a collaborative and speculative approach to design, and making empirical accounts of that practice.



Sarah Kettley

Sarah Kettley is Reader in Relational Design within the Product Design subject area at Nottingham Trent University. Her research is concerned with how we design networks of things for networks of people. This includes questions about philosophy, ethics and methodologies in participatory practices, and brings together fields such as craft theory, design for mental health and wellbeing, and design anthropology. She is a council member of the Design Research Society, and convenes the tentSIG special interest group in tangible, embedded and networked technologies. Her practice-led research resulted in the first user-centred application of the ubiquitous computing platform, Speckled Computing in 2005. She currently leads the EPSRC project, *An Internet of Soft Things*.



Crafting Design: craft; epistemic action; david pye — smart materials; photochromics; alchemical craft; chromic silicone; microelectronics; digital jewellery — social innovation; object design; collaboration; intergenerational transmission; cartography; aesthetics of engagement

Traces of Craft: polychronic; materiality; para-fiction; crumpling; aerial-view; design — glass and sound; creative process; translation; metaphor; visual language — digital gift; gifting; ephemeral; interaction design; experience design; delicacy

Critical Interventions: drone; UAV; rover; remote-control; interface design; DIY — critical design; co design; design for health; health technology — bespoke design; ritual; family; mobility; illustration

Fictions/Futures: data-driven life; remembering; speculative design; quantified self; weddings; data artefacts — design fiction; drones; empathy; voight-kampff; world building — design fiction; digital dreamcatcher; system; autopoiesis; suspension of disbelief; dream

Robots, Machines and Design: incongruity humour, entanglement, forgetness, malentanglement, adversarial design — robot design; cyber society; companionship; thingness — design cases; design methods; participatory design; co-design; internet of things; accessible technology; haptic technology

Sensing Consumption: food waste; sustainability; probe study; object oriented ontology; mediation theory — design research; speculative design; food design speculations; edible storytelling; social inclusion; female homelessness — speculative design, internet of things, privacy, surveillance, paranormal

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Conference Tours (Optional)

08.30-11.15 Meeting Point Chambers Street (Front Entrance) Tour of NMS Collections Centre in Granton Choice of two each (Jewellery, Textile & Fashion, Furniture, Vehicles & Bicycles, Technology, Science & Medicine. See p. 75	09.30-10.30 Meeting Point Lothian Street (Back Entrance) Edinburgh Walking Tour From Edinburgh Castle at the top of the Royal Mile, to the Scottish Parliament. With Rachel Simmonds See p. 77	09.00-10.30 Meeting Point Lothian Street (Back Entrance) Curator Tour of new NMS Art, Design & Fashion and Science & Technology galleries With Xavier Dectot and Sam Alberti See p. 74
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Exhibition and Demos

11:15 All Levels Making Spaces Reflection on the exhibition and presentation of the workshop outcomes	13.00 Lunch
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Process: Outcomes of the Unintended | 14:00–15:45

 Room 1 BioDesign Chaired by Jane Calvert	 Room 2 Design Ontologies Chaired by Ian Lambert	 Room 3 Spaces of Design Chaired by Chris Speed
Marty Dade- Robertson et al. <i>Bio-materialism: Experiments in Biological Material Computation</i>	Cassie Hester <i>In Pursuit of Serendipity</i>	Richard Banks et al. <i>Presenting Physical Things Digitally: New Collecting Practices</i>
Kazuya Kawasaki et al. <i>Bio-Hacking Fashion: A Study on 2.5 Dimensional Fashion Pattern Cutting and Bacterial Dyes</i>	Cristina Nan et al. <i>Emerging Territories of Digital Material Practice: Digital Concrete</i>	Liz Edwards et al. <i>Bee Boxes: Designing Spaces for Stories</i>
Anaïs Moisy et al. <i>Designing with Living Organisms</i>	Konstantia Koulidou et al. <i>Staged Atmosphere: The Air[craft] Workshop</i>	David Hamers et al. <i>Mapping Invisibility</i>

14:00 Level 4 Rooms of Interest 3 parallel sessions See schedule left	15:45 Break	16:15 Auditorium Museum and the Artefact Panel Chaired by Chris Breward with Sam Alberti, Xavier Dectot, Jayne Wallace and JP Singh	19:00–22:30 Dovecot Studios Conference Dinner
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Meeting point: Lothian Street (NMS) | 09.00–10.30

The National Museums Galleries Tour

In July 2016, to commemorate the Museum's 150th anniversary, the National Museum of Scotland opened ten new galleries, six on Science & Technology and four focussing on Decorative Art, Fashion and Design.

These spectacular new displays showcase the vast range of material the Museum has collected over that time, with a particular emphasis on contemporary design and technologies.

Join Xavier Dectot, Keeper of the Department of Art & Design, and Sam Alberti, Keeper of the Department of Science & Technology, as they introduce these exciting new displays, before giving you time to explore before the doors open to the public.

Image: © National Museums Scotland



Meeting point: Chambers Street (NMS) | 08.30–11.00

The National Museums Collection Centre Tours

The National Museums Collection Centre at Granton, Edinburgh provides a home for many of the 12 million objects and specimens that are not currently on display in our museums. Only a small proportion can ever be shown at once – around 10 percent at any one time.

The Collection Centre has facilities for undertaking research and conservation on objects ranging from Natural Sciences, Scottish History and Archaeology, World Cultures, Art & Design and Science & Technology.

The Research Through Design tours will give you a glimpse into the vast range of material held by the Museum's Art & Design and Science & Technology departments (Maximum 55 people).

Schedule

8.30am – Coach leaves from outside the National Museum of Scotland, Chambers Street.

9.00am – Arrive at the National Museums Collections Centre, divide into groups for a choice of two 30 minute tours focusing on specific collections, each maximum 10 people.

Image: © National Museums Scotland



Choose between these groups:

1 Jewellery followed by Textile & Fashion

2 Textile & Fashion followed by Jewellery

3 Furniture followed by Vehicles and Bicycles

4 Vehicles and Bicycles followed by Furniture

5 Technology followed by Science and Medicine

6 Science and Medicine followed by Technology

10.30am – Coach leaves the National Museums Collections Centre.

11.00am – Coach arrives at National Museum of Scotland, Chambers, Street.

Meeting point: Lothian Street (NMS) | 09.30–10.30

Walking Tour of Edinburgh's Old Town

Join Rachel Simmonds for an interesting walk around Edinburgh Historic Old Town. With a focus on architectural places of interest, she will lead you through the unique topology of closes that run from the Castle at the top of the Royal Mile, to the Scottish Parliament at the bottom. There will be opportunities to find hidden places of interest, and gain an understanding of the unique, and often gruesome history, of this part of the City.

Rachel is an RIAS Accredited Conservation Architect, and Programme Director of Interior Design at University of Edinburgh, Edinburgh College of Art. She has practised architecture in Edinburgh for 20 years, and her practice Studio Bof is based in the Old Town. She specialises in creating well designed contemporary insertions into historic buildings, and often collaborates with artists on site specific art interventions.



Top: Edinburgh Castle | © Rachel Simmonds

Bottom: Scottish Parliament | © Andrew Cowan

Image left: High Street Edinburgh | © Rachel Simmonds



Exhibition and Demos

Making Space

At the heart of the RTD conference experience is the discussion and debate around the exhibited artefacts and outputs.

Alongside the Rooms of Interest that offer a roundtable format for the presentation of work, we have made space in the programme for alternative presentations in and beyond the exhibition space. Some of the exhibited works may benefit from being demonstrated, or performed outside, or from being engaged with on a more intimate basis.

The Making Space session has an open and flexible schedule to accommodate different forms of engagement with the work. During this session, we ask that presenters spend time engaging with delegates about their work and provide new opportunities for interaction with it as they see fit.

Also at this time, there will be an opportunity to **engage with outputs of the four participatory workshops** that took place the day before the conference opened. Here, artefacts and recorded processes will be on display as a kind of snapshot of practice-led reflection on research.

Some presenters are planning performances or demonstrations of their work during the session, so please check at the main registration desk in advance of this session for specific details. Our hope is that the session creates additional opportunities for all attendees to meaningfully experience the full range of exhibited work.

Photo: Making Space session at RTD 2015 | © Research through Design conference



Bio-materialism: Experiments in Biological Material Computation

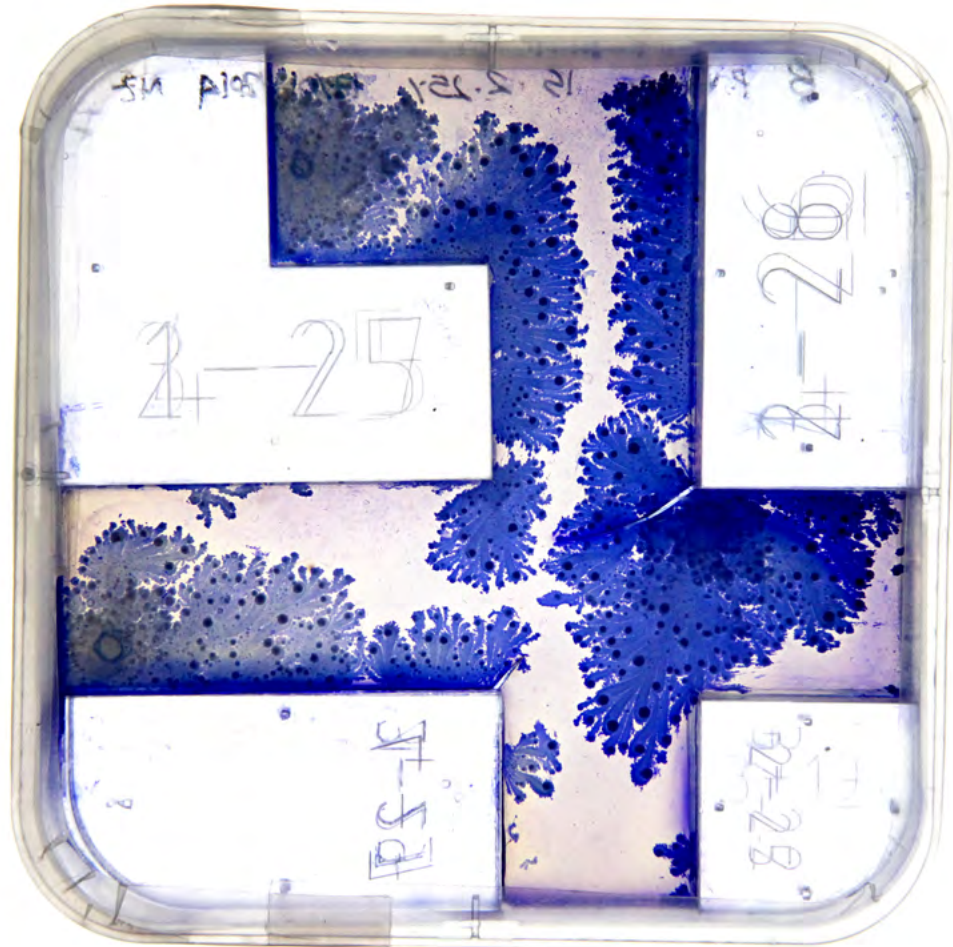
Martyn Dade-Robertson, Carolina Ramirez-Figueroa, Luis Hernan

| School of Architecture, Newcastle University, UK

| martyn.dade-robertson@newcastle.ac.uk

Abstract: In his article 'Towards a Novel Material Culture' Menges traces the origins of contemporary computational and fabrication techniques in architecture to 'New Materialism'. Developed by thinkers such as Manuel DeLanda and Jane Bennett, the philosophical school characterizes matter as active and 'empowered by its own tendencies and capacities'. In architecture, New Materialism has often

become associated with bio-mimetics. However, over the past four years we have been developing a series of projects that take inspiration from the New Materialist paradigm, but that aspire to develop demonstrators and technologies which go beyond biomimicry and make direct use of living systems, designing through the manipulation of living cells.



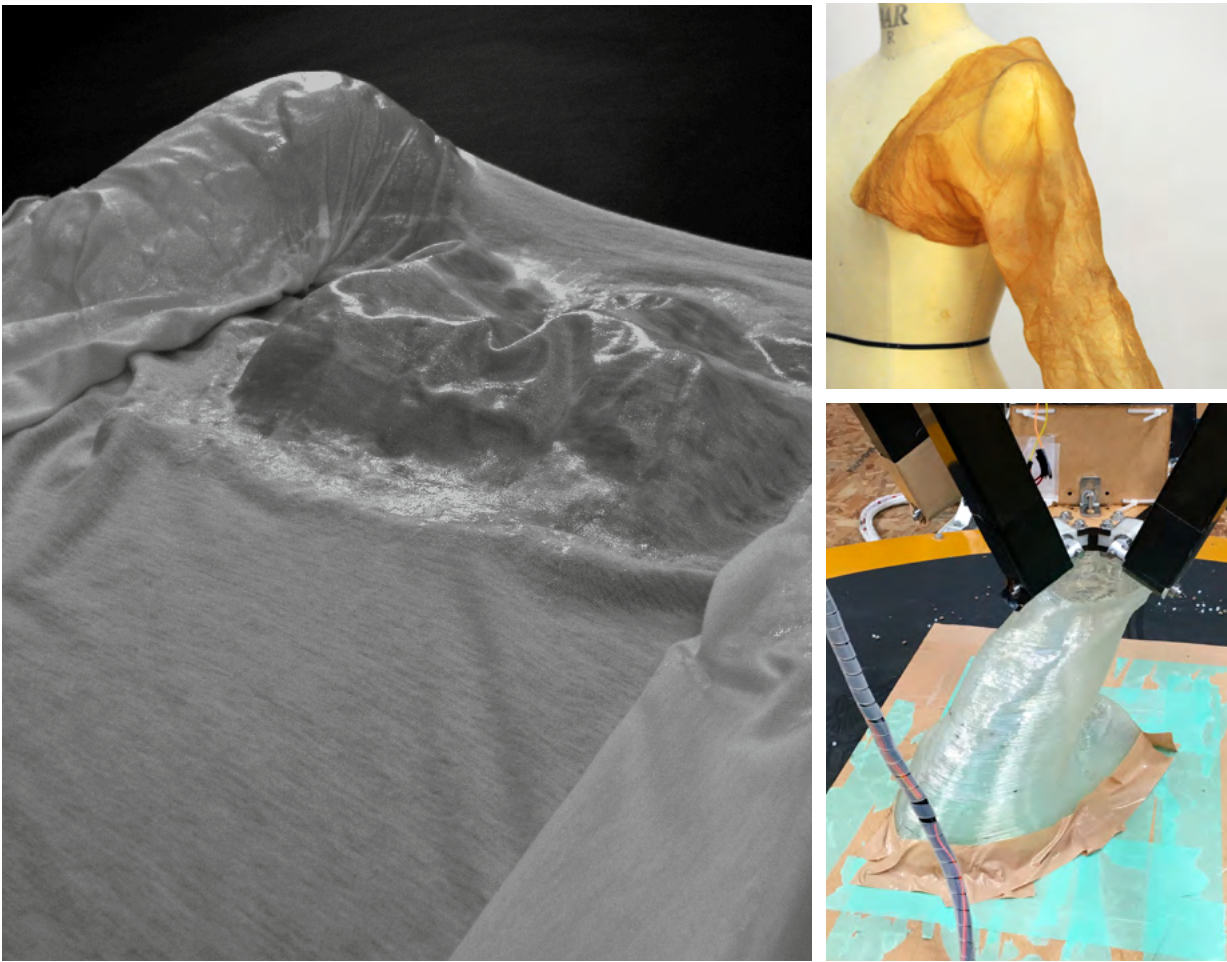
Bio-Hacking Fashion: A Study on 2.5 Dimensional Fashion Pattern Cutting and Bacterial Dyes

Kazuya Kawasaki | Keio University, Graduate School of Media and Governance, Tokyo, JP
k.kawasaki.r@gmail.com

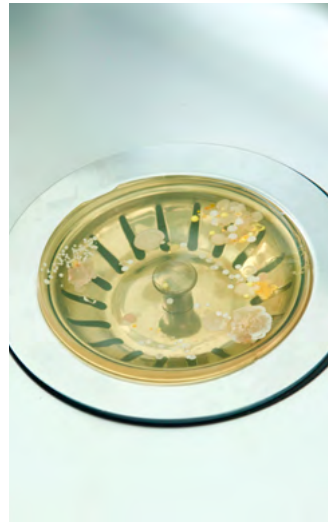
Dr. Daijiro Mizuno (PhD RCA) | Keio University, Faculty of Environment and Information Studies, Tokyo, JP | daijirom@hotmail.com

Abstract: There is a growing need for sustainable fashion since the 2010s. As artists and designers explore the potential use of innovative materials developed by synthetic biology and DIY bio-hacking, recent practice-led research in fashion design aims at building the better relationship between ecological sustainability and biotechnology to cope with the limited resources available on the earth. Based on this issue on the material sustainability, this practice-led research analyses the current production processes of the fashion industry to propose possible solutions by incorporating emerging biotechnology and fashion design in the context of sustainable design.

As the methodology, the authors adopt two processes to make a bio-garment. First, the experiment of DIY bio has been conducted for culturing ecological bio-material SCOBY (symbiotic colony of bacteria and yeast) that produces bacterial cellulose. The material has similar properties to leather. Second, designing the garment through 3D modeling has been tackled because we aim to make the bio-materials grow onto a 3D printed mold as ‘zero waste method’, which can eliminate textile waste at the design stage.



Top left: 2.5 Dimensional Fashion Pattern Cutting | Top right: Designing 'Curved Body Shape': Shoulder | Bottom right: Printing the edited data Kawasaki, Dr. Mizuno
 All images: Kawasaki, Dr. Mizuno | © Kazuya Kawasaki



Room 1: BioDesign | Afternoon Session | Talk 3

Designing with Living Organisms

Anaïs Moisy, Larissa Pschetz | University of Edinburgh, UK
| amoisy@exseed.ed.ac.uk, anais.moisy@me.com, L.Pschetz@ed.ac.uk

Abstract: Recent advances in biology and intersecting areas of research have brought a renewed interest in engaging with living materials. BioDesign is becoming increasingly popular, and has included diverse proposals, ranging from products that incorporate micro-organisms as new, often considered more sustainable materials, to speculations on future impact of synthetic biology.

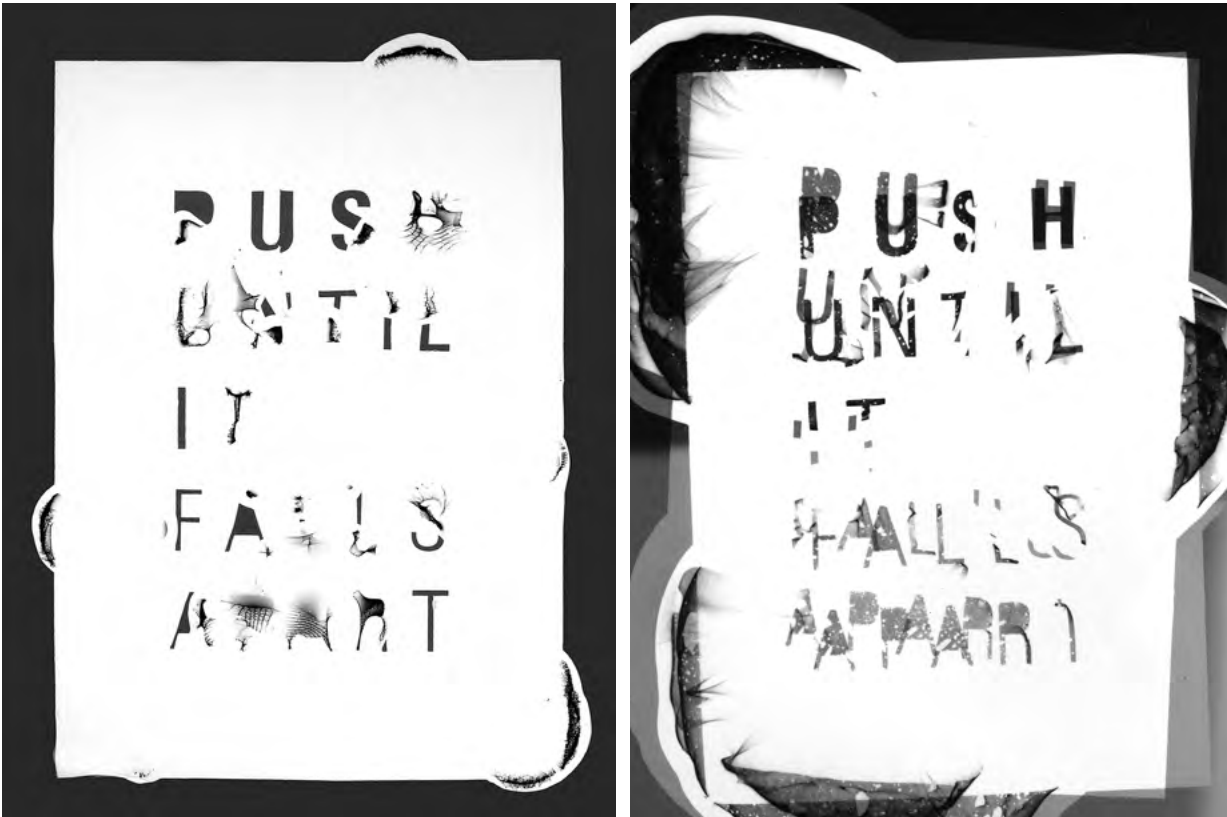
In this paper we present three objects that incorporate living organisms as a way to reflect on the design process. We discuss how engaging with living materials could be considered a shift in traditional design practices, and the challenges of integrating design in current biotechnology development.

Frameworks for Exploring Chance in the Creative Process

Cassie Hester | Mississippi State University, USA
chester@caad.msstate.edu, cassiehester@gmail.com

Abstract: In risk-averse contexts such as professional graphic design practice and the post-secondary classroom, final outcomes are often evaluated far more than the processes that informed them. Although final artefacts can be criticized as successes or failures via a variety of criteria, applying these same terms to developments in the creative process is a mistake. ‘Failures’ are simply iterations that deviate from pre-determined expectations; all steps in the process are valuable and inform the outcome. Developing the ability to recognize the potential inherent in the unexpected and appreciate the role of chance in the design process is critical to creative growth.

‘Playful’ investigations – that are more concerned with processes than outcomes – are essential in challenging perceptions about the role of failure in the development of design solutions. Methods for facilitating chance and engaging the play instinct in the studio and classroom include, but are not limited to, adopting limitations and constraints, creating and modifying tools, synthesizing both new and ‘dead’ technologies, and engaging in collaborative exercises. Guided by the psychologies of flow and play, Frameworks for Exploring Chance in the Creative Process is a small collection of exploratory methodologies for generating happy – and somewhat intentional – accidents.



Hester | Push Until It Falls Apart | © Cassie Hester



Emerging Territories of Digital Material Practice

Cristina Nan, Remo Pedreschi | Edinburgh School of Architecture and Landscape Architecture, University of Edinburgh, UK | Cristina.Nan@ed.ac.uk, R.Pedreschi@ed.ac.uk

Charlie Patterson | charliepatterson88@gmail.com

Abstract: This paper explores the emerging future field of fabric form work for concrete structures in combination with 3D printing. The showcased material experimentations represent studies which focus on the simultaneous use of fabric formwork and textile 3D printing in order to create a new type of material process for forming and fabricating non-standard geometries applied to architectural elements. Textiles in combination with 3D printed patterning are seen in this context as tools for form generation and to a certain extent also for form control.

This practice-based research offers a new alternative to predominant fabrication methods for complex geometries, showcasing the benefits of

hybrid digital crafting techniques. The developed manufacturing strategy will be explained through a series of material experimentations and resulting prototypes. The following studies investigate fabrication processes and surface texturing methods for the manufacturing of small and large-scale prototypes such as tiles or concrete columns. The studies represent material investigations with a hybrid material system – textile, concrete and 3D printed silicone – and are process driven, concentrating more on process experimentation – seen as a digital crafting methodology – rather than focussing on a predefined design output.

Staged Atmosphere: The Air[craft] Workshop

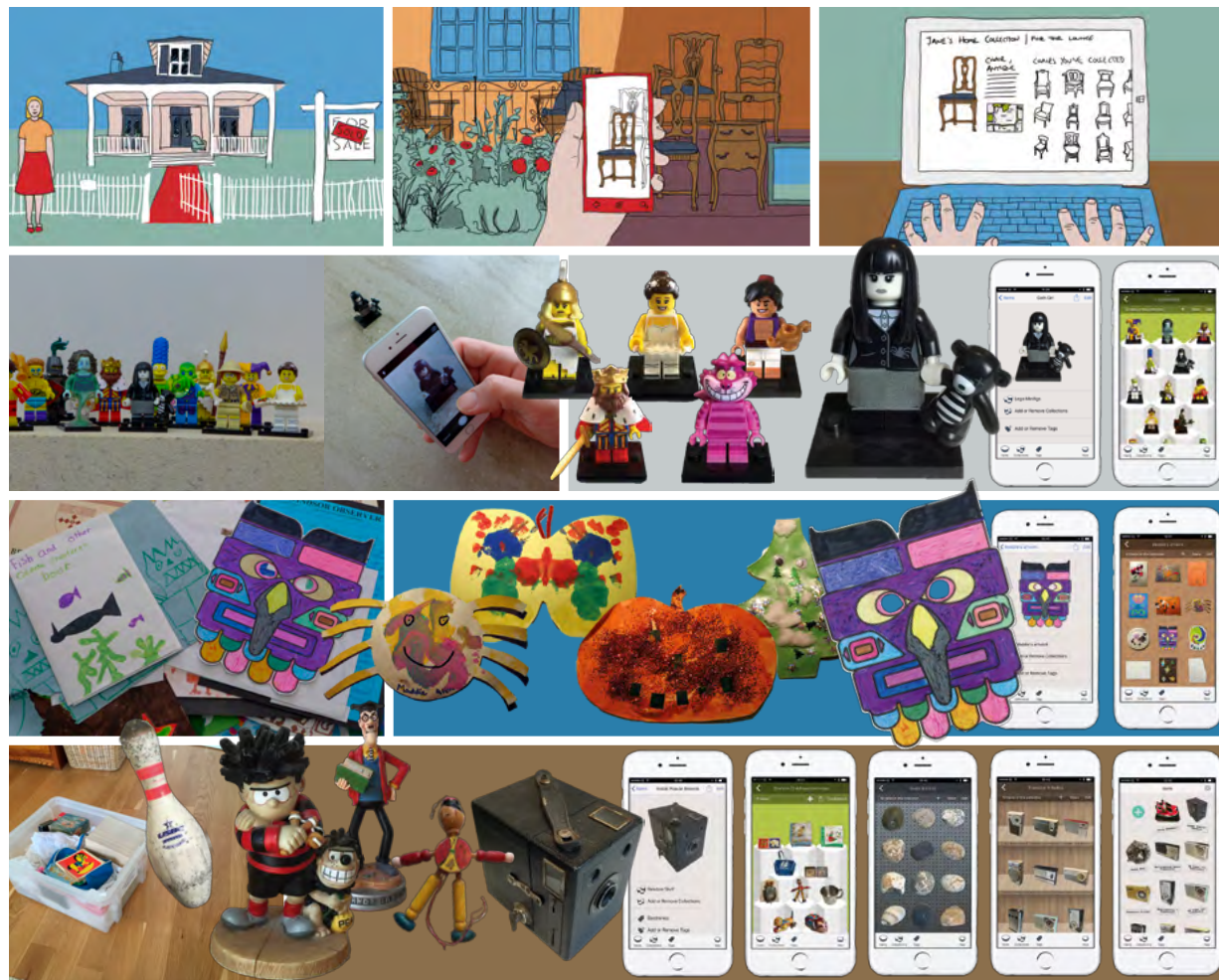
Nantia Koulidou, Jayne Wallace | Northumbria University, UK
konstantia.koulidou@northumbria.ac.uk, jayne.wallace@northumbria.ac.uk

Abstract: Probes and variations of this method are seen as valuable tools in design research enabling rich insights into lived-experiences. Although they have been adopted widely, significantly less attention has been given to the environments in which probes are being introduced. This study describes the experiential qualities of using probes within liminal spaces to gain a deep understanding of a lived experience, in this case a micro transition in participant's lives. The liminal spaces of planes and airports became the setting for the Air[craft] workshop, an exploratory co-design workshop, in a stationary plane and a group discussion at an airport.

In this paper we present our method. We argue for the value of a perspective in which the authentic environments, the probes and the theatricality of the workshops are all equally important. Widening the context of the probe approach, we propose the term staged atmosphere to describe this method of engaging people to talk about their feelings, their frustrations, their excitements or moments of anticipation and explore design opportunities of reassuring the self in a particular context. The word atmosphere is used to employ elements of authenticity; being in the real place and exploring the atmosphere of the real environment and the word staged is used to indicate that the experience has elements of theatricality leaving room for participants' reflections and imaginative thinking.

Image right: Koulidou, Wallace | The Air[Craft] Workshop | © Nantia Koulidou





Harrison, Banks, Regan, Grayson | Thinga.Me Storyboards | © The authors

Room 3: Spaces of Design | Afternoon Session | Talk 1

Presenting Physical Things Digitally: New Collecting Practices

Daniel Harrison | UCL Interaction Centre, University College London, UK
| daniel.harrison@ucl.ac.uk

Richard Banks, Tim Regan and Martin Grayson | Microsoft Research, Cambridge, UK
| rbanks@microsoft.com, timregan@microsoft.com, martin.grayson@microsoft.com

Abstract: The motivations for collecting and the idiosyncrasies of physical and digital collections have been long studied. However, how they are presented in the digital space is an unresolved challenge. To help better understand this problem from a design perspective, we built Thinga.Me. Thinga.Me is a system which allows users to capture photographs of physical objects and then cut them out, place them into digital collections, and share them. By segmenting the object from the background the interface creates the illusion of a physical item, giving a sense of carrying your stuff with you in your pocket. Following two years of development, iteration and feedback, we discuss uses of

the app and the implications it can have for changing the way we reflect on physical things in our lives. In particular, we focus on how digital collections are presented and displayed in a realistic way as a way of providing more meaning and helping shape users' identities. Demonstrating the importance of visual design choices, our results lead to considerations on how to most appropriately display physical objects in the virtual world, whilst avoiding the uncanniness some might experience when interacting with skeuomorphic collections.

Bee Boxes: Designing Spaces for Stories

Deborah Maxwell | University of York, UK | debbie.maxwell@york.ac.uk

Liz Edwards | Lancaster University, UK | liz.edwards@lancaster.ac.uk

Morvern Odling | Freelance visual artist and designer, Edinburgh, UK
| morvernoding@gmail.com

Abstract: Bee Boxes were one strand of a research through design project that worked with communities of beekeepers, storytellers, and school groups. The overarching project sought to understand existing and changing knowledge systems of beekeeping to imagine and potentially shape narratives and knowledge systems for future generations. The Bee Boxes were created in collaboration with three rural primary schools, in an area historically renowned for hard fruit production. To strengthen and contextualise school children's understanding of their local environment, a physical story box was designed in the shape of a wild hive to store pupils' stories. Each school had

their own hive shape, inspired by organic, parabolic forms of honeycomb. Following a talk by a beekeeper, pupils collaboratively wrote stories and decorated their Bee Box. This paper illustrates the value of a design-facilitated making process to extend engagement opportunities and provide a resource for inspiration and future narratives. We will discuss the use of research through design to create open experience-artefacts intended for use in environmental education about honey bees and pollination. We reflect on the ways that openness has enabled appropriation of these artefacts creating additional opportunities for knowledge sharing and gathering by considering the role of the Bee Boxes across five distinct life phases.

Image right: Maxwell, Edwards, Odling | Bee Boxes | © Lindsay Perth



Mapping Invisibility

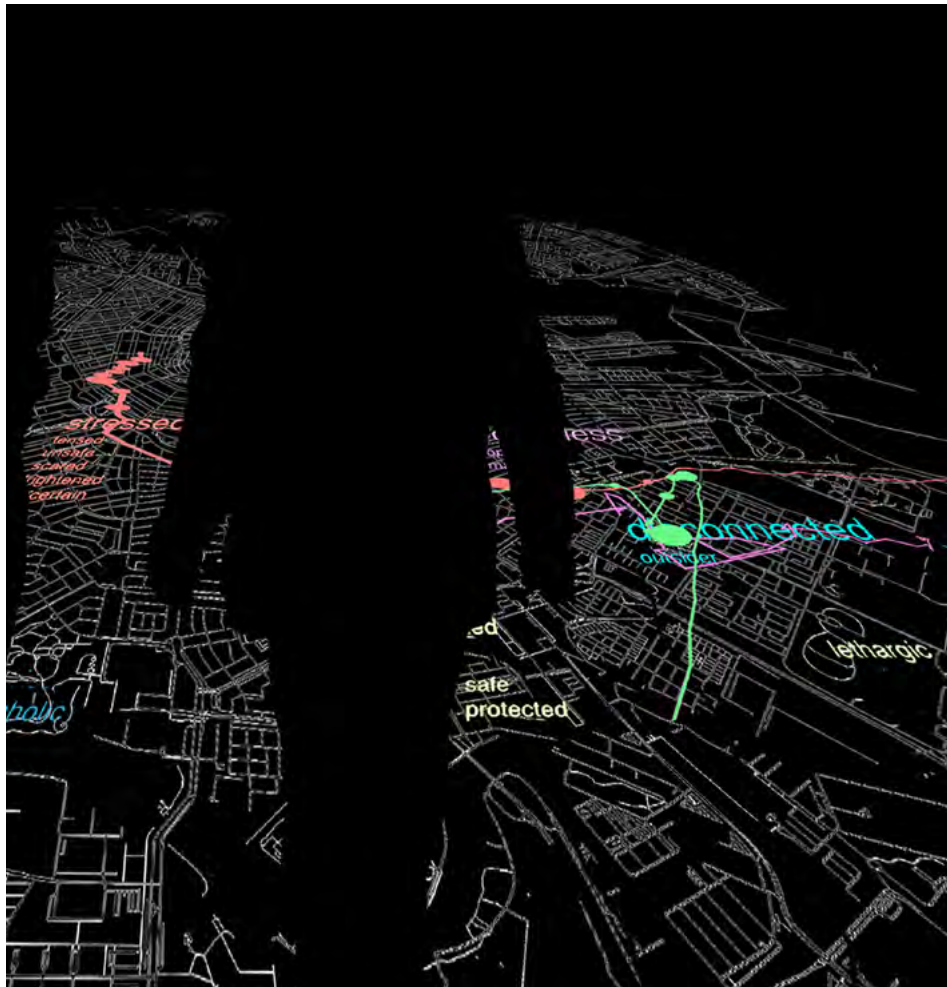
Naomi Bueno de Mesquita | Design Academy Eindhoven, NL and KU Leuven, Leuven, BE
| Dominomi79@gmail.com

David Hamers | Design Academy Eindhoven, NL | david.hamers@pbl.nl

Abstract: In the design research workshop Mapping Invisibility, undocumented immigrants and other participants undertook collective mapping in Amsterdam. The aim was to investigate the day to day practices of undocumented immigrants and to look for ways to make parts of those practices visible and perceptible for others – precisely because much of the life of the undocumented is about invisibility. In the workshop (at least) two cartographers – an undocumented immigrant (guide) and a participant (guest) – walked the city together. The walk was tracked via a web application on a mobile phone with GPS and visualised in real time on a digital map that could be viewed by others on a website. The undocumented immigrant

guided the participant to places which represented a certain emotion or feeling for them.

On the map, as it evolved, particular places would light up, representing the feeling associated with them. Along the way, the conversation between guide and guest was recorded, and these audio recordings stored in a location-based archive that makes ‘unheard’ stories available to ‘the public’. At the departure point of the original walk, using a mobile phone as a navigational device, at any time, invisible story-lines can be downloaded as mp3s. The story remains audible as long as the listener stays on the same route.



Museum and the Artefact Panel

Most of what we know of the history of mankind is through the traces of objects we have made. The value of these objects in forming an understanding of the development of human culture is without question, so much so that many museums are taking into their collections things which came into being only yesterday. Whether a pre-historic flint axe head or the latest iPhone, all define our history. This can only mean that our artefactual archives are continuously expanding, but how do museums go about selecting which of today's objects need to be preserved and why? How do they use these to map the lineage of our material culture, and how important are museum collections in giving rise to the new? What are the curatorial processes in place to achieve this?

Our panel of academics and curators, **Dr Sam Alberti**, **Dr Xavier Dectot**, **Dr Jayne Wallace** and **Prof. JP Singh**, chaired by **Prof. Chris Breward**, will help us reflect on these questions, and perhaps pose more that can stimulate new Research through Design.

Chris Breward

Chris Breward is Professor for Cultural History at the University of Edinburgh, where he also holds the positions of Principal of Edinburgh College of Art and Vice Principal of the University (Creative Industries & Performing Arts). He was trained at the Courtauld Institute of Art (BA) and the Royal College of Art (MA, PhD), London, and has subsequently taught at Manchester Metropolitan University, the Royal College of Art and London College of Fashion. Before taking up his post at Edinburgh he was Head of Research at the Victoria & Albert Museum, London.

Chris has published widely on the history and theory of fashion and its relationship to masculinities and urban cultures. Key publications include *The Culture of Fashion* (MUP 1995), *The Hidden Consumer* (MUP 1999), *Fashion* (OUP 2003) and *Fashioning London* (Berg 2004). He co-curated the V&A's major Olympic season exhibition *British Design 1948-2012*. Chris' latest book is *The Suit: Form, Function & Style* (Reaktion 2016).



Sam Alberti

Sam Alberti is Keeper of the department of Science and Technology at the National Museum of Scotland. Sam trained in the history of science and medicine and became interested in museums as the focus of historical study before working in them. He has worked at the Manchester Museum and as Director of Museums and Archives at the Royal College of Surgeons of England (which includes the Hunterian Museum).

Sam is an Honorary Professor at the University of Stirling Centre for Environment, Heritage and Policy. He has curated exhibitions on race, museum history, and the First World War; his books include *Nature and Culture: Objects, Disciplines and the Manchester Museum* (MUP, 2009) and *Morbid Curiosities: Medical Museums in Nineteenth-Century Britain* (OUP, 2011).

His research has focussed on the history of collections, in particular the trajectories and meanings of scientific, medical and natural objects in Britain since 1800.



Xavier Dectot

Xavier graduated from the École Pratique des Hautes Études, as well as graduating as a museum curator from the Institut National du Patrimoine in 2001. Between 2001 and 2011 Xavier was a curator in medieval sculpture and decorative arts at the Cluny Museum, Paris, France's National Museum of the Middle Ages.

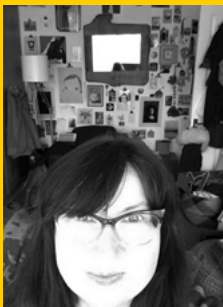
He joined National Museums Scotland in April 2016, having been Director of the Louvre-Lens in Northern France, a thriving and successful extension of the Louvre Museum.

Xavier's other activities include international lecturing and he has written several books including *L'art roman en France* (2005), *Pierres tombales médiévales* (2006), and *À la table de l'histoire: Recettes revisitées, des banquets antiques à aujourd'hui* (2012). He has served as an Adjunct Professor at a number of universities including the École du Louvre and the Sorbonne.



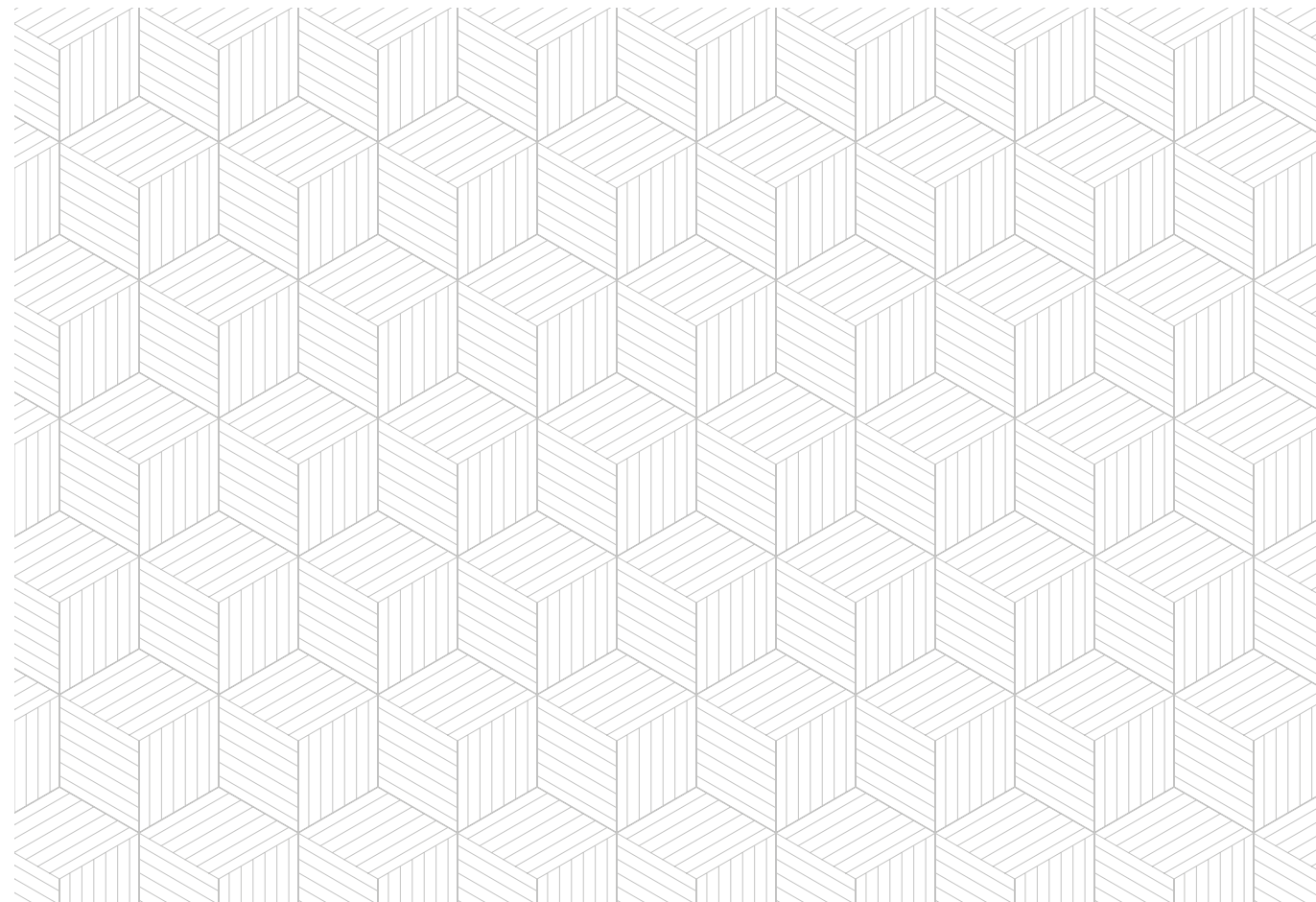
Jayne Wallace

Jayne Wallace is Reader in Craft Futures at the School of Design, Northumbria University. The potentials of jewellery, craft and digital technologies for health are a central to her work. A particular focus is the role that design can play within dementia to support personhood. She develops hybrid forms of physical-digital artefact, such as digital jewellery, to serve as a platform both for the exploration of new ways to support sense of self and also as a provocative lens on our current assumptions of the materialities and meanings of the digital. She is co-founder of the Journal of Jewellery Research and also the Research Through Design conference.



J.P. Singh

J.P. Singh is Chair and Professor of Culture and Political Economy, and Director of the Institute for International Cultural Relations at the University of Edinburgh. Singh has published widely, his latest book is: *Sweet Talk: Paternalism and Collective Action in North-South Trade Negotiations* (Stanford, 2017). His book *Globalized Arts: The Entertainment Economy and Cultural Identity* (Columbia, 2011) won the American Political Science Association's award for best book in information technology and politics in 2012. His current book projects is *Development 2.0: How Technologies Can Foster Inclusivity in the Developing World* (Oxford, forthcoming). He has advised international organisations such as UNESCO, the World Bank, and the World Trade Organization, played a leadership role in several professional organisations. He is founding Editor of the journal *Arts and International Affairs*. Previously he was Editor of *Review of Policy Research*, the journal specialising in the politics and policy of science and technology.



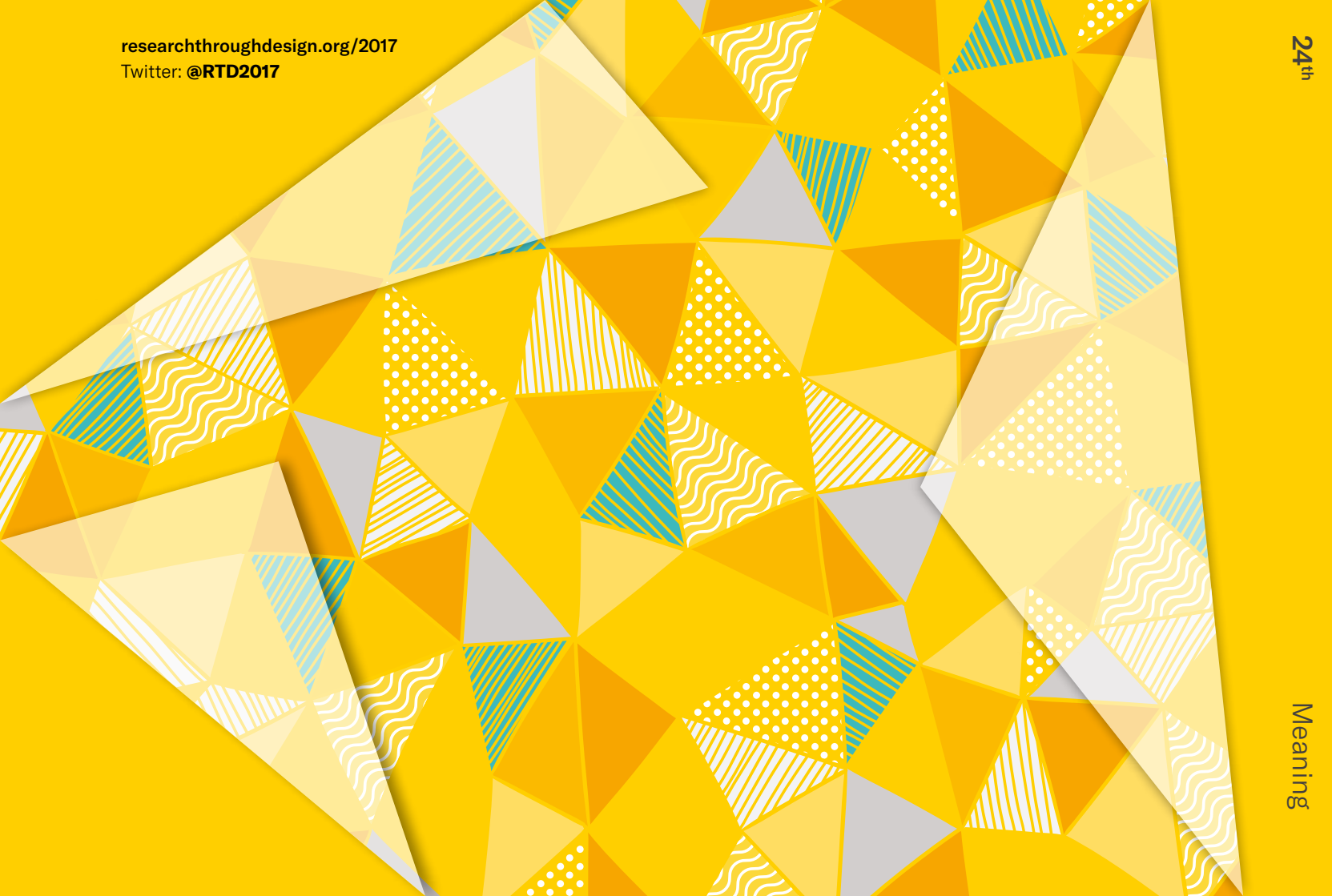
BioDesign: biodesign; materialism; new materialism; bio-materials; synthetic biology; soft technology — fashion design; sustainable fashion; bio design; wearable technology; digital fabrication; fashion pattern cutting — biodesign; synthetic biology; designing with life

Design Ontologies: creative process; chance; failure; serendipity; design; experimental — textile formwork; fabric cast concrete; textile 3D printing; digital crafting; digital fabrication — probes; liminal spaces; staged atmosphere; micro transitions; sense of self

Spaces of Design: collecting; visual; skeuomorphism; materiality; app; uncanny — storytelling; research through design; codesign; narrative; environment; knowledge — performative mapping; interactive navigation; interfacing; public realm; embodiment

researchthroughdesign.org/2017

Twitter: @RTD2017



09:00 Auditorium Town Hall Meeting Informal discussion around aims and ethos of the RTD series.	09:00 Level 4 Room 3 RTD for REF Presentation and discussion with Dean Hughes on what defines a good research portfolio
10:00–11:15 Auditorium Conference Documentation Presentation	
10:45 Coffee available	
11:15 Level 4 Rooms of Interest 3 parallel sessions See schedule opposite page	
13.00 Lunch	

Meaning: Belonging and Attachment | 11:15–13:00

Room 1 Crafting Cloth Chaired by Sam Vettese	Room 2 Closer to the Skin Chaired by Joyce Yee	Room 3 Future Spaces Chaired by Larissa Pschetz
Angella Mackey et al. <i>Beyond Speculation: Designing and Wearing Dynamic Fabric</i>	Sarah Kettley et al. <i>Electric Corset: An Approach to Wearables Innovation</i>	Steve Gibson <i>Repurposed Interface, Repurposed Medium, Repurposed Content</i>
Camilo Andrés Rodríguez Peralta et al. <i>The Craft of Tailoring</i>	Ji Won Jun <i>Plant-Like Robots</i>	Ben Kirman et al. <i>The Dog Internet: Autonomy and Interspecies Design</i>
Ania Sadkowska <i>Making and Writing; Writing and Making: Co-constructing Experiential Knowledge in and Through ‘Doing’ Fashion</i>	Julia Valle-Noronha <i>On the Agency of Clothes: Surprise as a Tool for Stronger Engagements</i>	
		14:00 Auditorium Closing Plenary Studio SWINE (Super Wide Interdisciplinary New Explorers) Azusa Murakami & Alexander Groves
		15:00 Conference Close
		15:30 Carriages and Exhibition Take Down

Presentation and Discussion RTD for REF

The Research Excellence Framework (REF) presents both challenges and opportunities for practitioners to present their work. Invited to submit to Unit 34 in the form of portfolios, how designers and makers build narratives through which the *rigour*, *significance* and *originality* of their practice is articulated is an art form in itself. With a diminishing window of opportunity to discuss and prepare for the REF, we have chosen to take the opportunity to run a session led by **Dean Hughes**, Head of Art, Edinburgh College of Art to explore the subject. Fresh from conversations across the CHEAD network (Council for Higher Education in Art & Design) Dean will present the latest thinking from the art and design community for the expectations of how portfolios submissions can demonstrate research quality through evidence.

With the central focus for RTD being on the presentation of critical frameworks for practice, the conference offers a vital opportunity for leading practitioners to explore how research that is embodied within artefacts or events can best accessed and understood. Beyond the rhetoric that we use to convince ourselves that our work matters, what are the characteristics that define a good research portfolio? How do we account for failure and risk if they are central to discovery? Through an initial presentation Dean will unpack what I meant by the criteria *rigour*, *significance* and *originality* that will become the lenses through which we will present our practice in 2021, and offer insight into the current discussions that are constructing the criteria for a strong portfolio.

Informal discussion Town Hall Meeting

This session, hosted by the Conference Chairs and Steering Committee, is intended to provide an opportunity for interested RTD community members (that is anyone who is at the conference!) to participate in an informal discussion around the aims and ethos of Research Through Design as a conference series.

We already have a number of questions we would like to explore, including: how can the round table format be developed? What are the publication options for the conference outputs alongside the challenges associated with the communication of practice-based research in traditional publishing formats? Where will RTD 2019 be held and who will lead it?

If you are unable to come to the Town Hall meeting you will still be able to pose questions for discussion. Just mention these to the chairs or SVs during the conference. Alternatively, if you'd like to do this anonymously, complete one of the postcards in your delegate pack and pop it in the Comments Box on the registration desk.

We are interested in capturing constructive comments and questions around the conference series – including the role of peer-review, the process of peer-review itself, and formats for dissemination at the conference and beyond (e.g. relating to exhibitions, Rooms of Interest, plenaries, documentation, workshops and the venue).



Day-to-Day Speculation: Designing and Wearing Dynamic Fabric

Angella Mackey | Philips Lighting Research | a.m.mackey@tue.nl

Ron Wakkary | Simon Fraser University, Surrey, Canada | r.l.wakkary@tue.nl

Oscar Tomico | ELISAVA, Barcelona, Spain | o.tomico@tue.nl

Stephan Wensveen, Bart Hengeveld and all authors above | Eindhoven University of Technology, NL
| s.a.g.wensveen@tue.nl, b.j.hengeveld@tue.nl

Abstract: In this paper we describe *Greenscreen Dress*, a material speculation inquiry that investigates the wearing experience of dynamic fabric in everyday life. In this study the researcher has worn a 'greenscreen garment' every day for seven months. Coupled with a chroma-key smartphone application, she has photographed the garment and digitally composited upon it multiple digital colours, patterns and videos. The fashion expressions were uploaded to Instagram and so situated within a digital social ecosystem.

We argue that combining the wearing of dynamic fabric with design activities, the inquiry of what it

might mean to wear dynamic fabric moves speculation into day-to-day living by drawing from the interactions of the researcher's everyday life. As innovations in smart textiles and wearable technologies become more accessible, knowledge gained from this research critically inquires into the every-dayness of this breed of technological system. The research draws insights from design, fashion, and material performances in the daily life of the researcher. The project contributes critical insights into fashion and technology for clothing designers and in to new methodological terrains for RtD.

The Craft of Tailoring

Camilo Andrés Rodríguez Peralta | Universidad Nacional de Colombia, Bogota, CO
| caarodriguezpe@unal.edu.co

Martha Patricia Sarmiento Pelayo | Universidad Nacional de Colombia, Bogota, CO
and University of Illinois, Chicago, USA
| mpsarmientop@unal.edu.co; msarmi2@uic.edu

Abstract: The existence of a gap between art, design and craft has been historically argued. This argument has distanced theory from practice and has demeaned knowledge situated in the experience of tailors. The aim of this research is to explore and describe the elements that can reveal the existence of design thinking, design practice and concept of design in the craftsmanship of tailors in Bogota. The study describes the ideation/creation process present in this craftsmanship and acknowledges the existence of a complete design process done by tailors. The study used a comparative case study design to explore and describe the elements that reveal an iterative design process. For each case analysis, synthesis, projection and communication were compared to identify patterns.

In addition a participatory approach was used to involve participants in the research process. Analysis shows the existence of design elements in the craftsmanship of tailors. These elements are present throughout the iterative process of design. They reveal actions and attitudes used by tailors to construct knowledge about the user, the process and the design existent in the craft of tailoring. The creation of a design space where ethical and aesthetical criteria are used to unravel desires and expectation. Finally, the craft of tailoring goes beyond the repetition of sewing patterns or predetermined movements and gestures preformed by the tailor. Its nature enables an understanding of design at the convergence of ethical, aesthetical and technical attitudes.



All images: Rodríguez Peralta, Sarmiento Pelayo | © Camilo Andrés Rodríguez Peralta

Making and Writing; Writing and Making: Co-constructing Experiential Knowledge in and Through ‘Doing’ Fashion

Ania Sadkowska | Coventry University, UK | ac3739@coventry.ac.uk

Abstract: This paper stems from my doctoral project in which the aim was to develop an in-depth understanding of how a small sample of mature men has experienced fashion and ageing. Working with such an open-ended aim allowed me to develop a fit-for-purpose methodology that accommodated two components: the topic of the investigation and the theoretical perspectives that, as a creative practitioner, I brought into it. A particular research mechanism, which was based on the integration of fashion theory and practice, synthesised to activities of interpretative making and writing, was implemented to suit my epistemological constructivist stance, my particular way of being in the world and conducting research-through-design.

In this paper, I focus on two artefacts I created in response to empirical data gathered via in-depth interviews and personal inventories with the study participants. The making processes of the Dis-Comforting suit jacket and film, involved deconstruction of a second-hand garment, a scenario-based reflective performance, and practical experiments with materials and objects. ‘Making’, as a means of embodied, visual enquiry became a highly metaphorical analytical tool that afforded the advanced insights into older men’s lived experiences. Consequently, I argue that through my embodied interactions with objects and materials, as the creative practitioner, I co-constructed new experiential understandings and offered fresh perspectives of the phenomenon under study.

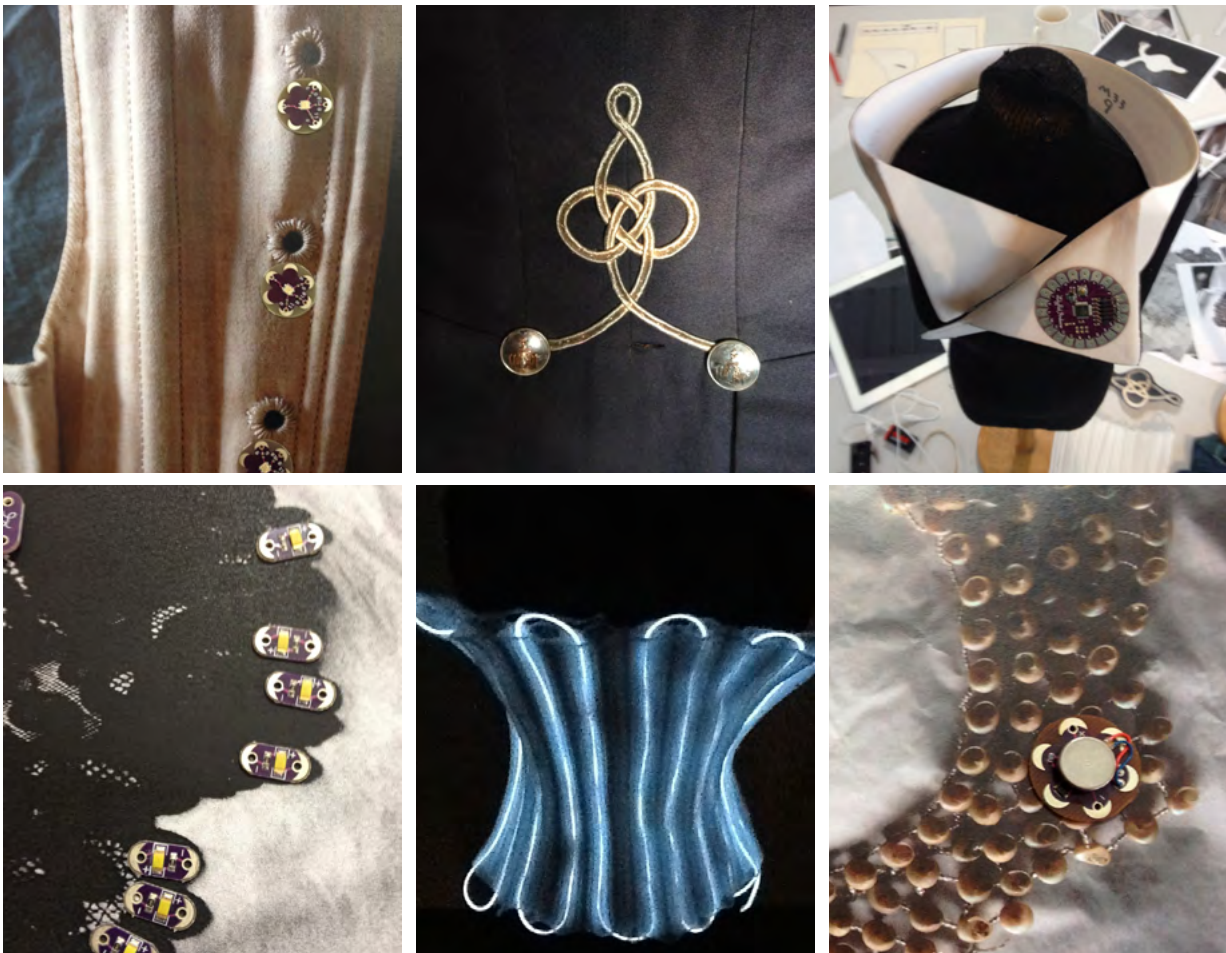


Electric Corset: An Approach to Wearables Innovation

Sarah Kettley, Katherine Townsend, Sarah Walker, Martha Glazzard
| Nottingham Trent University, UK
| sarah.kettley@ntu.ac.uk, katherine.townsend@ntu.ac.uk

Abstract: One criticism of electronic textiles and wearable technology is that instead of being integrated into the modern wardrobe, the electronic garment is perceived as the 'other', as an 'unusual' item within the wardrobe. Contemporary fashion is a field of play in which individuals constantly manage personal expressions of social belonging and transgression, at the same time as it closes down the potential for new forms as a result of increasingly fast fashion supply chains. The Electric Corset project proposes that the uptake of wearables is compromised when development is based on modern categories of dress/dressing, and proposes that designers look to obsolete and

'in-between' items of dress to rethink the foundations of wearables development. In collaboration with Nottingham Museums and Galleries Costume and Textiles Collection, we have reproduced a small selection of such items, and recast them as 'sacrificial' toiles to provide a non-precious basis for embodied experimentation. The paper describes some of the barriers to innovation in wearable technologies, and frames our approach through the twin concepts of deconstruction and reconstruction in fashion theory. It reports on our experiences of embodied responses to the toiles within the making process, and presents early findings from a pilot study using improvisation.



Kettley, Townsend, Walker, Glazzard | The Electric Corset; layering toiles, paper images and electronic components for creative wearables inspiration
| © Kettley, Townsend, Walker, Glazzard

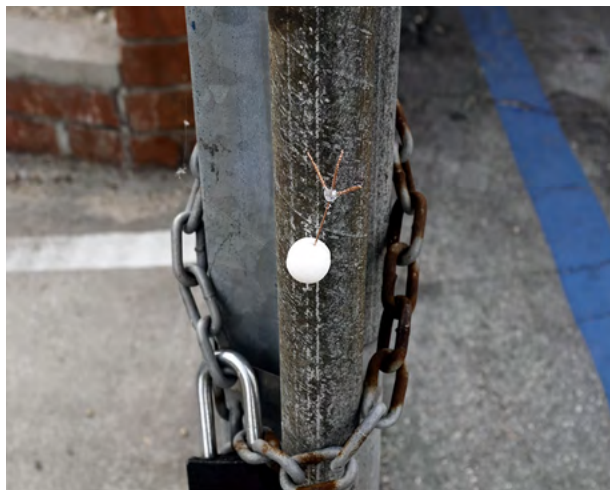
Room 2: Closer to the Skin | Talk 2

Plant-Like Robots

Ji Won Jun | Immersive Experiences Lab, HP Inc., Palo Alto, USA | jiwonjun.ixd@gmail.com

Abstract: This paper presents the critical design research project *Plant-Like Robots*, which explores a non-anthropocentric approach to human-robot interaction by imagining robots that have the form and natural function of seeds of plants. Adopting the lens of plant intelligence, the project investigates a possible design for a robot that interacts with a broad spectrum of its surroundings and uses humans as its vehicle. Through a series of short experiments based on a thinking-through-making process, plant-seed characteristics are reinterpreted as the robot's features. The robots proposed in this work are dispersed through the environment by using their barbs and magnetism to cling to humans, animals and objects.

Moving together with their dispersers, they collect the environmental data and map it based on their geo-location. With reference to plants' adhesive dispersal mechanism and sensing capability, the project attempts to envision plant-like robots in reality and provoke a discussion about the dispersal of these robots in a city. The recent research outputs consist of a film, a 3D simulation and tangible prop robot artefacts that were produced in the practice. These will allow audiences to imagine plant-like robots that avoid human-centred ways of thinking.



On the Agency of Clothes: Surprise as a Tool Towards Stronger Engagements

Julia Valle-Noronha | Aalto University School of Arts, Design and Architecture, FL

Abstract: Previous studies in fashion design reveal that a new garment in individuals' wardrobes can play various roles, such as causing excitement, keeping up with trends and feelings of belonging. But a new garment also raises other issues, such as the shortened lifecycles of clothes and loose bonds between wearer and the worn. Motivated by these previous findings, this study proposes clothes as agents as a means to sustain deeper engagements between the wearer and the worn. In the project investigated here, 'surprise' is suggested as a provocative method for promoting wearer-worn relationships and raising awareness of the agency of clothes. To gain understanding of these engagements, artefacts were

handed out to 23 individuals and were then discussed in a group. How can surprise, embedded in designed objects, contribute to the building of stronger and more reflexive dialogues? In this research-through-design, hints towards how to build more meaningful relationships with clothes are provided together with narrated experiences from users which aim at enlightening the research question. The paper concludes with findings oan qualitative aspects of the dialogues developed between wearer-worn. It intends to contribute to methods in design research and addresses both practitioners and researchers in the field.



Images left: Blouse with UV sensitive print turns blue when exposed to sun | © N. Chun

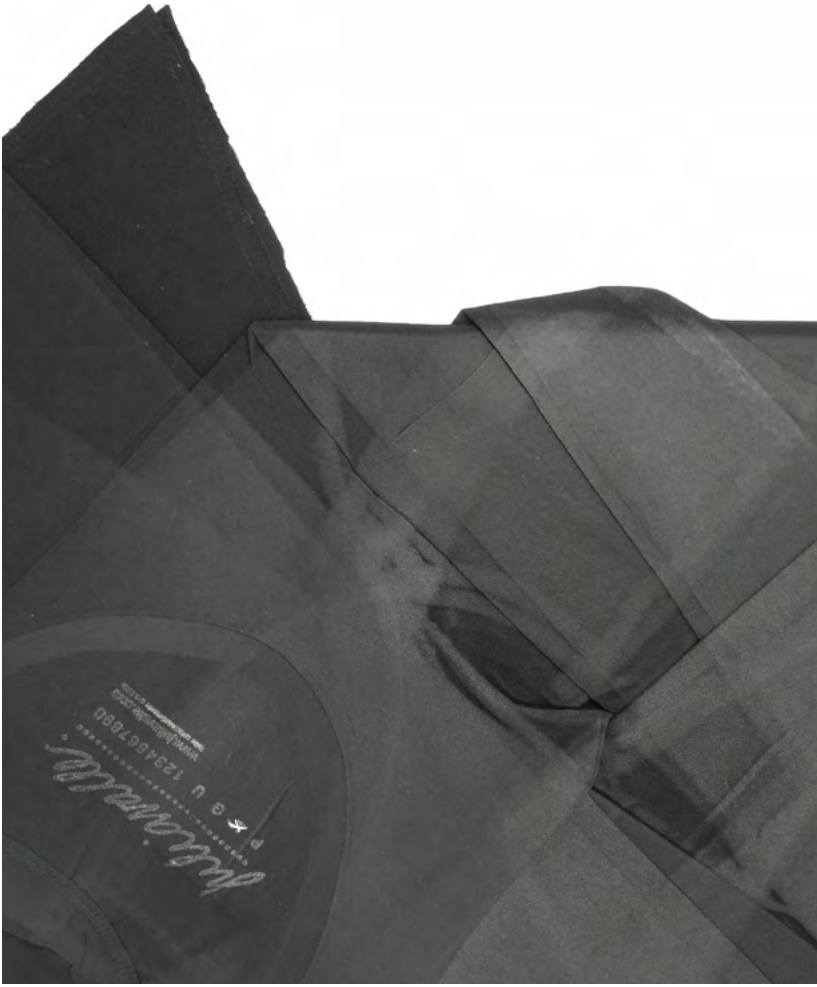


Image right: Valle-Noronha | WEAR\WEAR Dress | © Julia Valle-Noronha



Gibson, Love, Olson | Grand Theft Bicycle | © Stephen Gibson, Justin Love, Jim Olson

Repurposed Interface, Repurposed Medium, Repurposed Content

Dr. Steve Gibson | Northumbria University, Newcastle upon Tyne, UK
| stephen.gibson@northumbria.ac.uk

Abstract: This physical computing project proposes a circle of re-purposing, in which both the interface and content are repurposed, and portions of the content are updated according to geographical location of its exhibition. The artefact employed is a repurposed bicycle intended to navigate computer-based environments. There is a history of cycle repurposing for this intention, from Jeffrey Shaw's Media Art project The Legible City to commercial sports cycle simulators such as Tacx; however, very few projects propose a repurposing of a cycle interface along with the content, as well as a geographically-specific repurposing. The main research concern continues

a 25-year project by the author into the formal and material uses of 'found, sampled and stolen' objects. While this concept has been explored in extensive terms in relation to Sound and Media Art, in Interaction Design the uses of repurposed materials has yet to be extensively theorised. This paper proposes a provocation in the form of a repurposed artefact, not merely for the purpose of denying originality, but as a means of illustrating how repurposing can create a skewed version of the original(s) and therefore create new meaning. In the face of limited resources, repurposing also serves as a potentially advantageous option for Interaction Designers.

The Dog Internet: Autonomy and Interspecies Design

Ben Kirman | University of York, UK | ben.kirman@york.ac.uk
Shaun Lawson | Northumbria University, UK | shaun.lawson@northumbria.ac.uk
Conor Linehan | University College Cork, IE | conor.linehan@ucc.ie

Abstract: Activity trackers, smartwatches and other wearable technologies have become ubiquitous, and there is a corresponding interest in designing similar systems for pets. For example, Whistle, FitBark, and TailTalk, are devices that attach to dogs’ bodies and record data using a range of sensors and radio transmitters, ostensibly to facilitate health and activity tracking by owners. However, arguably these developments reduce animals into just another data source, or ‘things’ to be sensed, which raises issues of autonomy of the animal that is being subjected to technology that it does not understand. There appears to be significant tension in the design of such systems;

narrative frequently flips between the wellbeing and welfare of the animal, and the entertainment and satisfaction of the owner. Devices that appeal most to the human will be bought and used, regardless of whether there is any scientific basis to the claims. To problematise this impending ‘Internet of Dogs’, this Research through Design project asks instead what an ‘Internet for Dogs’ might look like. Through the design and construction of a series of prototypes for canine users, based on their needs and capabilities, the Dog Internet exposes some of the profound challenges presented by inter-species technology design.



| Top left: Rear view of DOG CAPTCHA | Bottom left: User H1 is alerted to the proximity of owners through high frequency audio and visual feedback
| Bottom right: DOG CAPTCHA – a speculative interface to the Dog Internet

| All images: Kirman, Lawson and Linehan | © Kirman, Lawson and Linehan

Auditorium | 14.00–15.00

Closing Provocation SWINE

SWINE (Super Wide Interdisciplinary New Explorers) is a collaboration between Japanese Architect Azusa Murakami and British Artist Alexander Groves.

Creating works that span across disciplines of art, design and film, SWINE explores themes of regional identity and the future of resources in the context of globalisation. SWINE's work manifests a deep research into materials and industrialisation.

Operating across a wide range of disciplines, SWINE's work has gained an international audience, their films have been awarded at Cannes and other film festivals around the world. SWINE has been widely exhibited at institutions such as the Victoria & Albert Museum in London, Museum of Art and Design New York, and the Venice Art Biennale.

Studio Swine will be presenting their work and their research into vernacular design and the part history, travel and materials plays in their design.

They will be discussing how they made their projects and the research which took them to far flung corners from the worlds biggest human hair market in China, to the middle of the North Atlantic Gyre to collect sea plastic and to the streets of Sao Paulo to learn from informal economies and recycling.

Using design to address and connect seemingly incongruous themes of regional identity and globalisation, sustainability and industrialisation. Studio Swine will also be presenting their most recent project Fordlandia which took them to Brazil to explore Henry Ford's forgotten Jungle City in the depths of the Amazon Rainforest.



Crafting Cloth: material speculation; speculative design; dynamic textiles; smart textiles; fashion; wearable technology — situated knowledge; research through design; ideation process; iterative design; process design; fashion thinking — fashion and clothing; ageing; mature men; meaning-making; writing and making; arts-informed interpretative phenomenological analysis

Closer to the Skin: archival research; wearable technology; electronic textiles; interaction design; fashion; categories of dress — robot; human-robot-interaction; anthropocentrism; plant Intelligence; seed dispersal — fashion design probes; fashion design practice; surprise; research through design

Future Spaces: repurposing; interaction design; media art; game mods; interface design; sampling — interspecies design; companion animals; autonomy; speculative design

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Web Developer

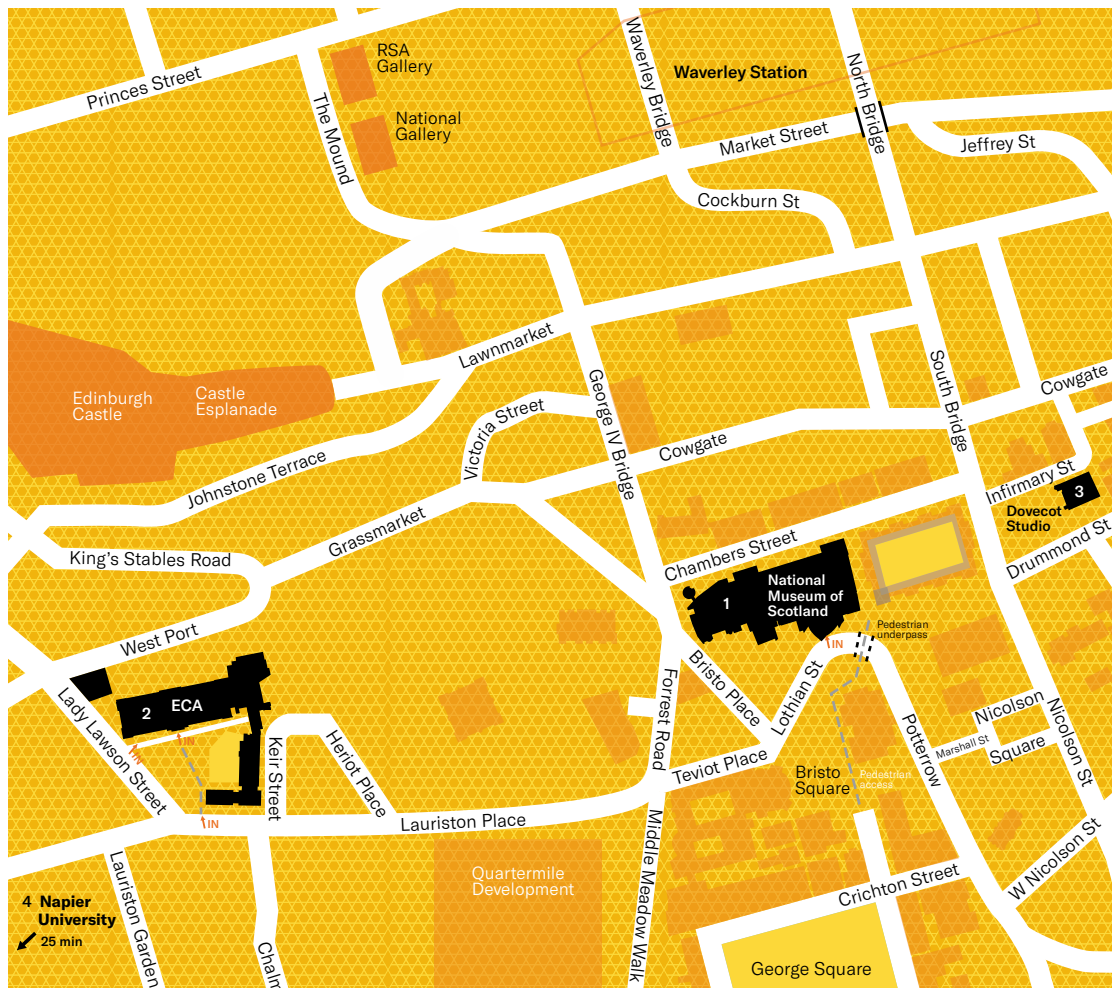
Shi hui Tan

Design (Web and Promotional material)

Yifan Li and Yuxi Liu

Book concept & design

Sigrid Schmeisser (Peak15)



1 National Museum of Scotland

Back entrance entry via
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Edinburgh EH1 1JF

2 Edinburgh College of Art (Workshops)

Main Building
74 Lauriston Place
Edinburgh, EH3 9DF

3 Dovecot Studio (Conference Dinner)

10 Infirmity Street
Edinburgh EH1 1LT

4 Edinburgh Napier University (Workshop)

Merchiston Campus
10 Colinton Rd,
Edinburgh EH10 5DT



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SMALL BATCH SCOTTISH GIN





RESEARCH THROUGH DESIGN

RTD is an experimental conference that supports the dissemination of practice-based design research. RTD welcomes submissions from all areas of design and comprises a curated exhibition of design research artefacts accompanied by round-table discussions in 'Rooms of Interest'. With this format, RTD aims to present an alternative to the traditional conference presentation of papers in darkened auditoriums, and supports a more discursive, synergistic setting that places the presentation of designed artefacts at the heart of proceedings.

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