

# Critical Ways of Making: Design Artefacts, De-Computation and Un-Crafting

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## ABSTRACT

This workshop intends to elaborate on new and emerging critical approaches that aim to question the nature of contemporary computational artefacts. By interrogating interactive systems from a perspective that is focussed on the arrangement of their constituent parts and the relations between them, we seek to challenge the constructive paradigms that might have led to those configurations. In particular, with this workshop we will introduce and further explore De-Computation as a methodology, and Un-Crafting as a method, both targeting a critical examination of contemporary computational artefacts and the interaction paradigms they follow. Both De-Computation and Un-Crafting approach and explore possible computational futures by critically examining the present. The workshop will include collaborative hands-on activities with reflection in practice and discussions around the topic. We are inviting interdisciplinary viewpoints that will enable us to further ground De-Computation and Un-Crafting in a diverse set of contexts.

## WORKSHOP DESCRIPTION

Making things is fundamental to design activity, and to human agency in the world. Physical and virtual artefacts mediate work, art, sport, and love. They contribute to the texture of social relations that gives rise to society. Current computational artefacts embody particular interpretations of how to integrate computation with the artefacts of daily life. The prevalent interaction paradigms that touch based technologies follow are the results of a history we do not necessarily want to pursue, as

“claiming that *Pictures Under Glass* is the future of interaction is like claiming that black-and-white is the future of photography. It’s obviously a transitional technology. And the sooner we transition, the better.” [9]

Aiming to explore the potential and consequences of computational form from an interaction perspective calls for a critical assessment of current artefacts in order to unveil the underlying assumptions, paradigms and interpretations. This workshop aims to position a way of thinking about physical and virtual artefacts focussed on their arrangement of parts and the complex relations between them. How those relations cohere in an emergent gestalt is seen as dependent on how social meanings are manipulated and configured by design. The workshop objectives are to confront participants with objects and systems that can be pulled apart, critically examined, and remade in new ways.

The particular process we use to do this is called De-Computation [1, 10]. De-Computation combines design making and computational thinking in a two-way exchange aimed at understanding and reacting against the increasing computational control of our natural, artificial and social systems. This is not mutually exclusive form other critical practices, e.g., critical design that aims at designs that introduce “new ways of looking at the world and the role that designed objects can play for them in it” [5, p. 51]. An aim of this workshop is to introduce the emerging De-Computation methodology and its respective steps of deconstruction, pattern recognition, abstraction, and construction. While these categories of analysis are adapted from the orthodox sequence of computational thinking<sup>1</sup> De-Computation applies them in the field of design. We propose that the application of these principles to design, thought of here as a structured creative activity applied to real world problems, is a distinct alternative to other critical approaches. With this workshop we aim to explore the paradigmatic potential of De-Computation as a critical interaction design practice.

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<sup>1</sup>E.g., <https://www.google.com/edu/resources/programs/exploring-computational-thinking/>

A key method involved in the practice of de-computational design is taking things apart to find out what they are made of. As demonstrated by earlier work, taking things apart and disassembling can be meaningful practices in collaborative and explorative design projects [3]. Moreover, there are qualities to be found in extending the mundane ‘taking things apart’ into an elaborate practice of un-crafting [4]. Un-Crafting implies unravelling the various tangible and intangible threads that comprise any given system or object. This includes its physical properties, its visible and invisible components, social meanings, and the rules governing their interrelations.

If we understand interaction design as a practice of giving form to computational material [7], un-crafting can be one means to unveil the paradigms that might have directed the form-giving of one particular artefact. For the conceptual design of interactive artifacts Hallnäs and Redström proposed a methodological exercise, turning the classical leitmotif “form follows function” upside down in order to discover functionality in expressions. Taking things apart might be a suitable practice to actually achieve this goal of rediscovering “the hidden aesthetical choices in the expressiveness of things in use.” [2, p. 107]

The objectives of this workshop are to introduce and explore De-Computation as a methodology, and Un-Crafting as a method. Together they represent alternative methods of doing design, alternative ways of thinking about how new things come into being, and what they are for.

The benefit of running this workshop is to propose and explore a new critical design approach, one that addresses the ecosystem of physical and digital objects in a hands-on, participative way. We are interested in positioning this approach within Simon’s definition of design as “the process by which we [devise] courses of action aimed at changing existing situations into preferred ones” [6, p. 54]. Furthermore, we aim to discuss how questioning the nature of interactive artifacts and computation paradigms by means of De-Computation and Un-Crafting relates to current – constructive – framings of design practices, such as tinkering or bricolage [8]. In line with the conference’s statement that “critical alternatives matter and make people reflect” we propose this workshop and its theoretical standpoint as a way of accomplishing the work of creating new agendas for critical analysis and design practice.

### **Participants**

In order to ground the discussion in as many contexts as possible, we invite researchers, activists and practitioners from the fields of human-computer interaction, interaction design, education, craft, DIY electronics, making, and design for activism. We invite contributions in form of theoretical reflections, application scenarios, or interactive artifacts, presented as position papers, short videos, or documentations of interactive artefacts.

### **Proposed Workshop Schedule**

The workshop will take place over one day and will involve some clearly defined tasks. The program will be broken down into different sessions, aiming to combine hands-on activities

with continuous reflections in practice and discussions following the main themes of the workshop. Dedicated sessions will contrast those reflections with the position statements, videos or artefacts provided by participants.

*Warmup and Introduction (30 min)* An introduction to De-Computation featuring examples of designs and objects to illustrate the proposed methodology and method. An outline of the day.

*Presentation session 1 (30 min)* Presentations of a selection of participant position papers, videos or documentations. This is intended to identify common themes and possible collaborative partnerships. (Participants’ contributions will be assigned to one of the two presentation sessions according to their connection to the different themes of the workshop procedure.)

*Hands-On Session 1 – De-Computation (60 min)* This session will introduce the essential principles of De-Computation and the specific steps it consists of, i.e. de-construction, pattern recognition, abstraction and construction through the setting and completion of a design brief.

*Discussion Session 1 – Feedback / Reporting (60min)* Participants will present what they have done and what it implies for how critical design practice addresses information resources in society.

### *Lunch*

*Presentation session 2 (20 min)* Presentations of the remaining participant position papers or videos.

*Hands-On Session 2 – Un-Crafting (60 min)* This session will in particular focus on Un-Crafting as the de-construction phase in the De-Computation methodology. After an introduction to some examples of previous projects, participants will work in pairs to take apart and examine an interactive artefact.

*Discussion Session 2 – Feedback / Reporting (60 min)* Participants will present their learnings and reflections from the un-crafting session.

*Closing Session (60 min)* In the closing session we will wrap up the workshop, discuss potentials for future collaboration on this as well as related topics.

### **ORGANIZERS**

**Martin Murer** is interaction designer and researcher at the Center for Human-Computer Interaction, University of Salzburg. He is working towards a PhD that addresses the intersections between crafting and technology. He has reasonable teaching experience around the creative usage of electronics and has co-organized workshops at international conferences, e.g., a Studio Workshop on “Un-Crafting” at TEI’15.

**John Fass** is a designer, researcher and lecturer in the Information Experience Design programme at the Royal College of Art. He has a background in designing for interaction and interfaces, his work in design practice has included working for international clients all over Europe. As a researcher,

his interests include the role for design in externalising digital experiences, and the semiotics of interaction. John has presented research at national and international conferences including CHI, DIS, ICTArt Connect, iJart, and NordiCHI. At the Royal College of Art, John runs the De-Computation elective for the Information Experience Design programme.

**Kevin Walker** is Head of the Information Experience Design MA program at the Royal College of Art. Kevin is a researcher, designer, writer and artist working at the boundaries of digital and physical creative practice – specifically in curation and computation in physical spaces, grounded in cognitive and cultural theory. Kevin Walker's research covers mobile and pervasive technologies, anthropology, cultural heritage, media, and overlaps between the arts, social and physical sciences. He has published research at international conferences on topics including museum learning, data representation, and user generated trails.

**Anna Vallgård** is an assistant professor and head of the IxD lab at the IT university of Copenhagen. She is practicing design research through a combination of making and studying the makings of others with the aim and continuously develop and strengthen the practices of designing computational things. She teaches both graduate students and undergrads in interaction design and run a diverse set of hands-on workshops through the IxD lab.

**Verena Fuchsberger** is research assistant at the Center for Human-Computer Interaction (University of Salzburg). She has done master degrees in Educational Sciences and Psychology and is currently finishing her PhD in HCI. In her research, she focuses on agency in the interrelation of materials, artefacts, interaction designers, and users. She co-organized workshops at e.g., IDC 2011 and NordiCHI2012.

**Manfred Tscheligi** is professor for HCI & Usability at the University of Salzburg. He further is head of the business unit Technology Experience at the Austrian Institute of Technology. He was involved in a range of conference activities (e.g., co-chairing CHI 2004 in Vienna, ACE 2007 or AUI 2011 in Salzburg) and co-organized several workshops and SIGs (CHI, Mobile HCI, AUI, CSCW).

## CALL FOR PAPERS DRAFT

*Call for Participation: Let's have a break! Workshop on Critical Ways of Making: Design Artefacts, De-Computation and Un-Crafting, Critical Alternatives 2015, Aarhus, DK*

### Topic

Applications are invited for a one day workshop on “De-Computation & Un-Crafting” to be held as part of Critical Alternatives 2015.

Design processes and creative artefacts are a powerful way to explore alternative scenarios for information technology and its place in society. In this workshop, we introduce **De-Computation** (a particular critical design process) and **Un-Crafting** (an associated method) for generating designs. Both approaches focus on taking apart objects and artefacts, as well as their underlying assumptions, paradigms and interpreta-

tions. We invite researchers, designers, activists and practitioners from the fields of human-computer interaction, education, design, craft, DIY electronics, making, and design for activism, to explore the themes of computational thinking, design making, and critical practice in relation to the proposed methodology of De-Computation. The guiding questions for the workshop are: How can de-computing and un-crafting things allow space for critical reflection about interaction design and computer technologies? How can critical design practices account for our contested and shifting relationship with information technologies? How can emerging attitudes to craft processes contribute to a new model for how artefacts are situated in the context of every day life?

This one-day workshop will take a creative, co-creation approach to the topic, encouraging collaborative exploration and allowing for surprising and playful results.

### Submission

We invite designers, authors, researchers and craft practitioners to submit a description of relevant research, theoretical reflections, a design project, or alternative making project that addresses, explores or represents one of the following topics:

- Approaches or artefacts that critically examine prevailing interaction paradigms and related phenomena
- Approaches or artefacts that react against the increasing computational control of our natural, artificial and social systems
- Novel approaches that utilize taking things apart as means to foster imagination, creativity and innovation
- New ways of re-appropriating disassembling practices and techniques (originating from mechanical artifacts) to un-craft digital artifacts
- Approaches in specific application areas and contexts (e.g., for teaching)
- Theoretical contributions concerning un-crafting in its relation to notions such as constructionist learning, reflective practice or current phenomena in the realm of making cultures

We invite submissions that are formatted as a position paper (up to 4 pages), a video (up to 5 minutes max), or a documentation of a physical or virtual artefact. Submissions are due 15 May 2015. Please note at least one author of each accepted paper must register for the workshop and one or more days of the conference.

### RECRUITMENT

In order to recruit participants, the call for papers will be widely distributed via related mailing lists (e.g., mailing lists related to Interaction Design and HCI, such as the CHI announcement list). Furthermore the CfP will be promoted on social media (e.g., Facebook, Twitter, etc.). All workshop organizers will actively spread the call in their professional networks, addressing participants that are expected to match with the workshop topic. Additionally, a workshop website

will be created to provide the call for papers, including information about the objectives and procedure of the workshop, contact information, as well as submission details and the selection procedure

#### ACKNOWLEDGMENTS

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