

# Designing Recipes for Digital Food Lifestyles

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## ABSTRACT

Human-Food Interaction (HFI) has been gaining currency within HCI over the past decade, with a focus on how we grow, cook and eat food using digital technologies. Practices emerging around 3D food printing, food sharing economy, or quantified diets offer a promise of more sustainable, fun and healthier food lifestyles but also risks of data privacy breaches and vanishing food traditions. This workshop aims to bring together experts in HCI and related fields to engage in critical discussion around digital food trends and controversies. Through scenarios and a hands-on making of edible prototypes navigated by specially designed Digital Food Cards, we will unpack existing as well as near-future digital food issues, and suggest possible design approaches.

## Author Keywords

human food interaction; digital food cultures, critical food design

## ACM Classification Keywords

H5.m.

## INTRODUCTION

Since the recent surge of new startup companies aiming to “disrupt the food system” [7] our mundane food practices are becoming increasingly data-driven and influenced by digital industry. The ‘food dot-com boom’ of online food hubs, mobile apps, diet tracking devices, or smart kitchenware began to change the ways we make, share, consume, and dispose of food. The growing confluence of digital and food cultures has been reflected in HCI and related disciplines under an umbrella term “Human-Food Interaction” (HFI) [2,9,11].

HFI research has highlighted both the promissory aspects of sustainable, participatory, fun and healthy digital food lifestyles, as well as limitations regarding health safety and data privacy risks and marginalization of food traditions. For instance, Kuznetsov et al. [13] suggested a potential use of digital technology in advancing at-home food science activities as a form of expert-amateur knowledge production. The use of self-tracking and data

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sharing services for diet personalization was shown to have a positive impact on user's nutrition literacy, while at the same time creating health safety and data security hazards [5]. HCI researchers have repeatedly suggested a potential of food sharing networks to improve environmental sustainability and users' social bonding [2,8] and Ferdous et al. [6] have further shown positive commensality experiences of introducing interactive technology at the dinner table. On the contrary, Dolejšová et al. [4] shown that digital tools had only a peripheral impact on traditional food making and sharing practices. Studies of 3D food printing kitchenware identified food printing's potential in food waste minimization [14] as well as in user's playful engagement with personal health care [10], but also its undue distance from existing food cultures that made consumers hesitant to use it. Although the existing body of HFI work is still in its preliminary stage to provide any firm conclusions, it outlines both advantages and limitations of digital food lifestyles that invite further research.

## Motivation and Goals

This workshop seeks to extend the existing HFI research by addressing personal, socio-political, and environmental consequences of digital food lifestyles. More specifically, our focus is on digital technologies used in **food making** (e.g. 'smart' kitchenware, digital and Machine Learning cookbooks [3,10]; **diet planning** (e.g. diet tracking devices and personalized nutrition services [5, 16]); **food sharing** (food sharing apps and IoT sensors [4,8]); **dining** (e.g. social dining services and interactive dining tools [6,15]); and also **food play** (celebratory technology [9,10], food based games [1]).

While approaching digital food cultures as a contested area navigated by stakeholders from corporate, governmental, as well as private and NGO sector, we want to critically unpack issues surrounding digital food technologies, and address questions such as: What advantages and challenges does digital food technology bring into the day-to-day lives of users? What are the present digital food trends and controversies and how will they look in the near future? How can HCI help scaffold these developments and support playful but also sustainable, safe, and just digital food practices? Building on our inaugural SIG CHI meeting at CHI 2017 [11] and workshop at Interact 2017 [12], our aims are to develop a stronger HCI community surrounding digital food themes.

## WORKSHOP THEMES

The workshop themes reflect on existing and possible implications of digital food technology in following categories:

### 1. Personal implications

What are the impacts of digital technology on user's food-related literacy, decisions and actions? What are the advantages and risks of digital technology used for experimental diet personalization? How is technology reflected in the emotional aspect of human-food relationship?

### 2. Social implications

How does digital food technology impact user's social life and capital? What changes does it provide to user's mundane dining habits and commensality experiences? How does it affect traditional culinary practices and techniques? How can we include traditional food knowledge to design culturally aware food technologies?

### 3. Policy implications

Which stakeholders are involved in the development digital food technology? What kind of data is produced and shared within digital food cultures, by whom, and for what ends? Who has access to and who is excluded from digital food practices? What are the existing and potential uses of digital technology for food activism?

### 4. Environmental implications

To what extent can digital technology support sustainable food practices? What are the opportunities of digital technology in advancing user's environmental consciousness? How can we design for playful, but also critical user engagement with sustainable food practices?

More info: <http://datamaterialities.org/ozchi2017.html>

## WORKSHOP STRUCTURE AND ACTIVITIES

This full-day workshop will involve a mix of presentations, digital food technology demonstrations, and playful group activities. The activities will be navigated by specially designed Digital Food Cards<sup>1</sup> and consist of a scenario session focused on the workshop themes, followed by a hands-on making of “digital food prototypes” to embody the scenarios in actual (or even edible) form. The Cards outline food routines of dietary groups such as Food Gadgeteers, Chew Transcenders, Gut Gardeners, or Datavores and offer both plausible and more speculative digital food envisions. Inspired by a similar card technique used by [17] we hope this ambiguity will provoke playful participant engagement as well as critical reasoning about existing and near-future digital food lifestyles.

### Prior to the Workshop

Potential participants (10-20 ppl) will submit a 2-page position paper exploring issues related to the workshop themes. All accepted position papers will be pre-published on the workshop website<sup>2</sup>.

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<sup>1</sup> <http://materie.me/digifood>

<sup>2</sup> <http://datamaterialities.org/ozchi2017.html>

## After the Workshop

We will focus on ensuring an ongoing discussion and sharing of resources among workshop participants and other interested parties. This will be comprised of scenarios, prototypes, and other media content created during the workshop to be shared on the workshop website. To extend the outcomes of workshop activities to the wider HCI audience, we will invite selected participants to contribute towards a special issue on digital food in a leading HCI journal.

## TARGETED AUDIENCE AND AIM

This workshop invites contributions from researchers, designers, and others interested in the digital food themes. Together with participants, we hope to reach a framework for future research into digital food themes. More specifically, the workshop aims to:

- Provide a forum to share experiences of using digital technologies in food-related practices and spaces
- Identify common issues faced in HFI research and explore how these have been and could be addressed
- Discuss how challenges and opportunities will grow along with the further technological advancement
- Discuss the possible impacts of digital food technology on specific social groups and communities (e.g. families, colleagues, children, seniors, food science hobbyists, food activists)
- Build collaborations between workshop participants to work towards a framework for complex HFI research

## ORGANIZERS

**Markéta Dolejšová** is a food designer and PhD candidate at the National University of Singapore. In her work, she uses critical and speculative design methods to question techno-centric promises of digital food cultures and data-driven food lifestyles. She has organized workshops on digital food and health issues at conferences including CHI and FoodCHI (<http://materie.me>).

**Rohit Ashok Khot** is a VC Postdoctoral fellow in the Exertion Games Lab at RMIT University. Rohit investigates new playful ways of enriching our interactions and association with data using technologies like food printing (<http://datamaterialities.org>).

**Hilary Davis** is a Senior Research Fellow at the Centre for Social Impact, Swinburne University of Technology. Her work investigates the role digital technologies play in people's work, social activities and home lives. She is interested in how digital cookbooks, and digital technologies generally, might impact on intergenerational familial relationships at mealtimes (<http://hilaryjdavis.com/>).

**Hasan Shahid Ferdous** is a research fellow in the Microsoft Research Centre for Social Natural User Interface at University of Melbourne, Australia. His current research focuses on dining experiences and the sociality and interaction among the family members in the shared family space (<http://www.hsferdous.com/>)

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