

# Designing Olfactory Experience for Daily Practices with Interactive Olfaction Community

Mei-Kei LAI

Design Programme, School of Arts, Macao Polytechnic Institute, meikei.lai@gmail.com

Yan Yan CAO

User Experience Center, Singapore Polytechnic, yanyan.cao@gmail.com

Different from other modalities, olfactory experience is subjective among individuals based on previous experience and culture contexts. Coming from academic and design background, we aim to encourage dialogue and collaborations among researchers and practitioners to design olfactory experience for daily practices in real contexts and applications. We start interactive olfaction community building since TEI 2019 studio, and later on through the semi-formal format of online sharing session. It encourages live discussions and continual collaborations, as an alternative format to academic presentations, hence aiming to bring more fresh ideas forward. In this CHI STT21 workshop, we will show our case studies on how to adapt contextual inquiry into designing olfactory interactions, and to bring practitioners from different backgrounds to design olfactory experience for their proposed contexts and applications.

CCS CONCEPTS • Human-centered computing~ Interaction design~ Interaction design process and methods~ Contextual design

**Additional Keywords and Phrases:** Olfactory experience, interactive olfaction, smell, odor, community

## ACM Reference Format:

First Author's Name, Initials, and Last Name, Second Author's Name, Initials, and Last Name, and Third Author's Name, Initials, and Last Name. 2018. The Title of the Paper: ACM Conference Proceedings Manuscript Submission Template: This is the subtitle of the paper, this document both explains and embodies the submission format for authors using Word. In Woodstock '18: ACM Symposium on Neural Gaze Detection, June 03–05, 2018, Woodstock, NY. ACM, New York, NY, USA, 10 pages. NOTE: This block will be automatically generated when manuscripts are processed after acceptance.

## 1 INTRODUCTION

As interactive olfaction research have been growing attention steady in recent years, many studies have been drawn into olfactory display technology and the relevant user experiences. Yet olfactory experience has its unique expression that other modalities hardly have. Its aesthetic experience and the cultural meaning behind are seldom discussed. The aesthetic, affective and evocative aspects of smell are widely portrayed in daily practices. Smell is depicted aesthetically throughout literature from East to West, such as *The Tale of Genji* and *Remembrance of Things Past*. Smell not only portrays the beauty and identity of the characters, but also evokes the imagination and long-lost memory across time

and space. The aesthetic impact of smell can be found in cultural and religious practices. The smell of incense is treated as an art of refinement in Japanese Kodo incense ceremony. It is treated as the art of appreciating incense with body and soul. The smell of incense is also taken as symbolic of sanctification and purification in Catholic liturgy.

In everyday life, people tend to associate odors with objects, places, and previous experiences, such as the smell of rose, the smell of hospital, the smell of summer vacation, etc. The description includes their own public and private meaning. While “*the smell of rotten eggs*” conveys shared experience and similar message among the general public, “*the smell of my childhood playground*” conveys a personal experience and its private meaning. When olfactory experience comes to the digital world, the focus seems to be mainly drawn into the challenges of capturing and generating odors in human computer interaction systems, especially about olfactory devices and the relevant user experiences.

Each scent connotes various meanings toward people under different culture contexts. Hence, we believe that it is important to establish a community to bring practitioners from different cultural backgrounds for designing olfactory experience in real contexts and daily practices. In this CHI STT21 workshop, we would like to present our preliminary experience, in which attendees participated in hands-on practice sessions in order to apply contextual inquiry to interactive olfaction design. By providing Interactive Olfaction Design Toolkit, we invited them to create new type of storytelling and new dimension of medium in designing interactive olfactory experience.

## 2 APPROACH

In our TEI 2019 studio “*Designing Interactive Olfactory Experience in Real Context and Applications*”, we have recruited the participants from academic and industry background. The studio consisted of five sessions: introduction with case studies, brainstorming on contexts and applications, demo of Interactive Olfaction Design Toolkit, sketching interactions, group presentation and discussions. The aim of this experiential approach was to establish a community in discussion of a new perspective in designing and evaluating interactive olfactory experience in the participants’ real contexts and applications.

### 2.1 Brainstorming on Contexts and Applications through Storytelling

The participants were invited to bring the smells that could represent themselves, their families, their home town, their stories, anything about their background. In our TEI 2019 studio, participants have brought in fresh flower from the conference venue, saffron that represents one’s cultural identity, baby clothing and old books that carries smells (Figure 1). They shared their smell related stories or anecdotes altogether. The purpose was to think through the realistic scenarios and the challenges of integrating the experience with actual interactions in the participants’ backgrounds.



Figure 1: The Smell Samples Brought in by the Participants

## 2.2 Sketching Interactions through Interactive Olfaction Design Toolkit

The Interactive Olfaction Design Toolkit is a basic control module that allows interaction designers and practitioners to configure the dynamic programming of smells. This capability to support the interaction with various objects on the network allows us to explore different contexts and applications. In our TEI 2019 studio, prototype demo and a toolkit were introduced to the participants. We guided them through the design approach of integrating interactive olfactory experience with real contexts and applications. The participants were asked to sketch interactions by using the Interactive Olfaction Design Toolkit and prototyping materials provided (Figure 2).



Figure 2: Sketching Interactions through Interactive Olfaction Design Toolkit

For example, one group of the participants designed a scenario for the users to store up their smell samples to represent an important family event. The smell sample units were designed as part of the wearable accessory like a ring or a necklace. The units could be taken off from the accessory and became a smart scent album (Figure 3). The Interactive Olfaction Design Toolkit inspired the mechanics and design of scent album and how it could be made into a wearable piece.



Figure 3: Designing Scenario with Rapid Prototype by the Studio Participants

By introducing the Interactive Olfaction Design Toolkit, participants got a better understanding of how they could build the interactive experience and that really gave them the confidence to design olfactory experience. The participants explored different tangible forms of the diffusers, also designed different ways and forms that could be triggered. This approach embraces the physical form of the storage of smell units and how they could be organized into interactive olfactory experience. It helps the designers and practitioners to understand what is required and be able to prototype and imagine the possible scenarios and applications.

### **2.3 Building Dynamic Sharing Community**

By showing the capability of sketching interactive olfactory experience with the Interactive Olfaction Design Toolkit provided, we managed to engage researchers, designers and interested parties who are interested in taking part in the core development of the scenario of these applications. This is the beginning of bringing the knowledge and toolkits to build up the dynamic sharing community with conversations and connections for collaborations.

As part of the community building, sharing sessions are organized to share works beyond academic development. We emphasize the diversity of the cultural background of the attendees. It helps to discuss the real context of interactive olfactory experience in different cultures and the meaning behind. For example at our first online sharing session, we invited the participants from Sydney, Singapore, Tokyo, Berlin and Macau. The featured speakers presented topics in the areas of performance with wearable computing, augmented reality design and art installations. The news of events and workshops will be shown at Interactive Olfaction website (<http://www.interactive-olfaction>), where resources about Interactive Olfaction Design Toolkit as well as featured projects from contributors will be shared as well.

Our aim is to form a dynamic community of researchers and practitioners from academic as well as industry, including but not limit to interaction designers, engineers, perfumers in order to promote and advance the understanding of interactive olfactory experience design. In the future, we are planning to organize online and offline workshops and events. We hope to connect with organizations as well as practitioners and designers interested in this area, to realize the potential of interactive olfactory experience design in real contexts and applications from different culture backgrounds.