出國報告（出國類別：會議）

參加「第 29 屆使用者介面軟體及技術研討會議」

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出國期間：105 年 10 月 14 日~10 月 20 日
報告日期：105 年 11 月 2 日

目　　錄

參加「第29屆使用者介面軟體及技術研討會議」

出國報告

壹、 會議源起與目的

「使用者介面軟體及技術研討會議」(User Interface Software and Technology Symposium)主要係供學術單位、研究機構及民間部門等不同領域人員討論人機界面相關軟硬體創新技術，如圖形(Graphical)、使用者介面、雲端運算、人工智慧、擴增實境(AR)、虛擬實境(VR)、多媒體、新輸入輸出設備、製造、穿戴式電腦等，提供所有的人員共享研究成果並促進知識交流的機會。

第 29 屆會議於 105 年 10 月 16 日至 19 日於日本東京國立情報學研究所(Hitotsubashi Hall, National Center of Sciences Building)舉行，除我國外，尚有美國、加拿大、英國、丹麥、德國、中國大陸、埃及、法國、以色列、日本、韓國等國參加，會議網址為 https://uist.acm.org/uist2016/。

會議主辦單位今年共收到 384 篇技術論文投稿，經過審查後選出 79 篇上台報告及 29 篇海報展示，今年討論之議題主要在於觸控、製造、計算、裝置工具、感測、顯示器、資訊軟體、視頻及音頻、電子印刷、虛擬實境、手勢及其它與交互技術有關之議題。

貳、 會議過程

以下按日分別紀錄現場聆聽、參觀之會議活動項目：

一、10 月 16 日：辦理報到手續

此會議於 10 月 16 日下午 4:00~20:00 開放各與會人員辦理報到及註冊手續，本人亦於當日規定時間內辦理報到。

二、10 月 17 日：參加開幕儀式及專題研究發表會

(一)舉行開幕儀式及聆聽 Keynote 演講，演講主題為「Smart Headlight: An

Application of Projector-Camera Vision」，摘要如下：

智能頭燈(Smart Headlight)未來可能是一種新的計算機視覺技術，它使用數位光學處理投影機（projector），透過電腦控制光束分散射出並調整個別光束的照射角度，當照相機偵測到來車，電腦便開始快速計算，進而對燈具進行控制，主動減弱對來車駕駛的光線，對方來車駕駛的眼睛就不會受到強烈刺激而產生眩光，此項科技目前卡內基梅隆機器人學院(Carnegie Mellon's Robotics Institute)正在開發中。

(二) Keynote 演講完畢，依議程分為 A、B 會場，後續這 3 日將由各論文發表人進行各專題研究成果發表，與會人員可自行選擇有興趣之議題參加，本人亦參加下列專題研究發表會，摘要如下：

1. Enabling Touch Interaction in Display Fixed UIs for Mobile Virtual Reality

   FaceTouch 是一種行動裝置的新型的互動作法，它利用虛擬實境（VR）頭戴式顯示器（HMD）的背面作為觸控表面，使用者不須攜帶任何配件(如 gamepad)，就可於 HMD 的觸控背面觸摸相對應的位置自行操作及選擇虛擬實境內容。

2. Supporting Mobile Sensemaking Through Intentionally Uncertain Highlighting

   目前很多使用者都用行動裝置閱讀文章，想要複製一些文句或於手機上標註文章重點並保存，常因螢幕、字體大小以及手指觸摸螢幕的不準確性，致使用者要按複製之起迄範圍是耗時及緊張的。發表人提出只要在螢幕上輕壓您要複製的範圍，系統自動會將這些文句儲存，而且選擇範圍的速度比以前更快。

3. A Flexible Light-Field Smartphone with a Microlens Array and a P-OLED Touchscreen

   HoloFlex 是一個 3D 可彎曲的智慧手機，它是由高分辨率之塑膠有機發光二極體(P-OLED)光場顯示器和 16,640 微透鏡陣列組成，非常靈活，

可允許使用彎曲輸入與 3D 物象相互作用進行互動。

4. Enabling Expressive Around-Smartwatch Interactions with Electric Field Sensing

目前現有的智慧手錶依靠觸控螢幕進行顯示和輸入，但因區域小致手指不好操作。為改善此項瑕疵，智慧手錶使用電場感測，可用手勢或用手指觸摸手錶螢幕旁之肌膚與智慧手錶進行互動。

5. Persistent, Tweakable Alignment and Distribution with StickyLines

StickyLines 是一種可以精確對齊和分配圖形的工具，它的執行速度比傳統的工具快 40%，所需要的動作少 49%，適用於畫複雜的複合指南(guidelines)。

6. Porous Interfaces for Small Screen Multitasking using Finger Identification

目前智慧手機缺乏專用的多工介面(multitasking interface)功能，導致用戶須透過頻繁的應用程序切換才能進行多工，未來在同一個小螢幕上要進行多工(multitasking)，可利用多孔介面(porous interfaces)使部分應用程序的視窗重疊在彼此的頂部，就可同時使用不同手指輸入(利用指紋識別)。

7. Fine-Tuned Discovery of Interactive Web UI Feature Implementation

專業網站包含豐富的交互功能(interactive features)，開發人員可以從中學習，但是不熟悉該程式碼的性質，要知道他們如何建置仍然是一個挑戰。現有的工具提供了分析程式碼(code)的功能，但看到成千上萬程式碼，常讓人無從下手。因此，發表人提出 Telescope 工具，一個找出 JavaScript 和 HTML 如何支援網站交互的平台，幫助開發人員了解不熟悉的網站程式碼。

8. Assisting Interactive Programming with Bimodal Embedding

軟體 API 通常包含很多方法和參數，供開發人員使用。如果忘記使用方

法，開發人員需透過線上搜索引擎才能找到答案。但尋找和彙整 solution 的過程通常非常耗時。儘管搜索引擎的品質有所提高，語言仍需符合 user 需要。新手經常缺乏查詢語言可將他們找到的碼(code)移轉出來。為了解決這個問題，發表人提出 CodeMend，一個可找到碼(code)的系統。它是利用神經嵌入模型模擬自然語言和代碼。透過此工具，開發人員可用自然語言描述他們想要的目的。系統亦提供相關的 API 函數，讓開發人員使用。

(三)晚上參觀研究論文海報及展示，我國的臺灣大學、淡江大學及資策會亦有參加展示，展示主題如下：

1. Attachable Augmented Haptic on Gaming Controller for Immersive Interaction (臺灣大學及淡江大學)(此篇獲得本次大會舉辦之「最佳展示獎 Best Demo Award」)
2. Action Recognition Using Wearable Device Apply on Parkour Game(臺灣大學及資策會)
3. A Novel Real Time Monitor System of 3D Printing Layers for Better Slicing Parameter Setting(臺灣大學)

三、10 月 18 日：參加專題研究發表會

今日接續昨日議程，繼續舉行專題研究發表會，本人今日亦參加下列發表會，摘要如下：

1. High-Fidelity Bio-Acoustic Sensing Using Commodity Smartwatch Accelerometers

   智慧手錶因戴在手腕上，非常方便，是取得生物聲信號的理想選擇。發表人提出他們開發了一個客制化的 smartwatch 核心(kernel)，將智慧手錶現有的加速度計的採樣率(sampling rate)提高到 4 kHz，使智慧手錶之應用更為廣泛。例如使用手勢輕拂、拍擊、抓、敲擊或用機械振備振動，智慧手錶都能立即感應到您的動作。這種技術已突破了以往需用特殊儀器

之使用者介面(user interface)技術，未來這種交互技術可應用於消費者設備。

2. Sensory Augmentation of Prosthetic Limbs Using Smart Textile Covers

   目前市售的假肢，提供觸覺之功能並不是那麼普及，為了彌補那些買不起或買不到新型假肢的使用者，發表人提出在衣物上(襪子)安裝傳感器，使笨拙的假肢變得靈活聰明的想法。當壓力出现在脚的特定部位時，該產品就能感應壓力及位置，另外該產品反應非常靈活，而且成本很低。

3. Semi-Automated SVG Programming via Direct Manipulation

   直接操作界面(Direct manipulation interfaces)具有「所見即所得」及交戶的特點，但是常常內建之功能無法全部涵蓋所有使用者所需及 user 不易看到內部的內容，倘能使用一般用的程式當作顯示格式給使用者同步查看，更能方便 user 使用，因此作者提出 SVG 半自動編輯器。user 編寫程式產生圖形後，就可以直接對圖形進行操作(如放大、縮小、複製)，在操作圖形時，系統就會自動並即時變更程式所設定之參數，您不用手動更新。

4. Reading and Learning Smartfonts

   使用者於小顯示器上閱讀文字(如智慧手錶或手機上之螢幕)，是一件非常困難的事，尤其是對老花眼的人來說。今發表人提出可設計很多不同的符號來取代英文字母，以方便使用者閱讀。

5. Creating Interactive Data-Driven Web Applications by Authoring HTML

   許多人會使用 HTML 和 CSS 編寫靜態網頁，但對於編寫交互式的 Web 應用程式會覺得較難。今發表人提出 Mavo，它強化 HTML 之宣告語法，以描述管理、存儲和轉換資料的 Web 應用程式。具有基本 HTML 知識的作者在設計他們 HTML 佈局(layout)時，他們僅需要向其 HTML 元素添加一些屬性，轉換他們的靜態設計為一個持久的資料驅動 Web 應用程序，其資料可透過瀏覽器直接進行操作編輯。

6. A Panning-Based Text Entry Technique for Ultra-Small Touchscreens

   為解決胖手指不便於超小型可穿戴設備（如智慧手錶）輸入問題，今作

者開發「DriftBoard」，user 輸入時，在交互區域之固定光標點(cursor point)內，移動線上鍵盤，就會自動帶入所要輸入之字元。

7. A 3D Printer for Interactive Electromagnetic Devices

   用於交互式電磁設備的 3D 印表機，它是一種新型的低成本 3D 印表機，該印表機的核心是用於在五自由度（5DOF）熔融沈積模型（FDM）3D 印表機中線材。銅線可以與該裝置一起使用俾電流通過它們時產生磁場的線圈。軟鐵線可以另外用於形成具有高磁導率的元件。

四、10 月 19 日：參加專題研究發表會及閉幕儀式

今日參加下列專題研究發表會及閉幕儀式，摘要如下：

1. Graphical Manipulation of Human's Walking Direction

   這是一種新穎的操作方法，通過頭戴式顯示器（HMD）上的視覺處理來潛意識地改變 user 的行走方向，其原理是讓 user 透過立體相機和 HMD 提供的立體圖像來感知真實世界。

2. High-fidelity 3D Haptic Shape Rendering on Handheld Virtual Reality Controllers

   手持虛擬實境 VR 控制器，透過相關回饋原理，使 user 能夠感覺到 3D 表面、紋理及整個視覺呈現。

3. Immersive Scuba Diving Simulator Using Virtual Reality

   潛水，可讓人們探索海洋的多樣性，但僅少數人有實際潛水的經驗。現今的潛水模擬器大都僅提供視覺和聽覺功能，今發表人提出他們已強化這種功能，所研發之模擬器除有視覺、聽覺功能外，也能讓使用者感受浮力、阻力及溫度的變化。

4. Advancing Hand Gesture Recognition with High Resolution Electrical Impedance Tomography

   最近在人機交互(HCI)領域中採用 Electrical Impedance Tomography（EIT）

用智慧手錶偵測手勢。今發表人提出他們引入了一個新的系統，提高了採樣速度和分辨率以識別手勢。

5. One-handed Continuous Smartwatch Input using Wrist Gestures

今發表人提出一種新的輸入模式，使用手腕單手持續輸入智慧手錶。當佩戴者的手指作出擠壓運動的時候，錶帶上的 1 個壓電振動傳感器和 12 個红外近距傳感器就可以偵測到。因此，使用者可以像操控遊戲手柄一樣地控制智慧手錶。近距傳感器會監測使用者的動作，而板載的 Arduino Due 微計算機可以可對手勢進行識別並分配給特定的指令。

參、心得與建議

(一)本次會議提及行動裝置之資訊安全是未來需關注努力方向，包括資料洩漏、遺失、網路攻擊及惡意程式等，目前本署已有開發各種資訊系統行動APP供同仁或民眾使用，本署亦應注意相關資訊安全防護機制，以避免資安事件發生。

(二) 目前本署之APP軟體設計，大都為簡易式之資料輸出，倘能於畫面設計上結合語音、圖形及其它介面之輔助，並強化資料處理速度，將可提升系統親和性及友善性，未來本署可朝此方向努力。

(三) 在傳統技術條件下需要運用模具或其他複雜工藝才能完成的製作，現在透過3D列印只需輕輕一按滑鼠，即可列印出一些簡單的工藝品、玩具、模型，3D列印不僅成本低、速度快、彈性高，因此被業者廣泛使用，未來本署在推展環境保護業務時，應多宣導業者多使用保特瓶、檔案夾、塑膠袋等廢棄塑料當作列印原料，不僅可使回收廢棄物再利用，也減少環境污染。

(四) 持續參與相關國際會議，瞭解現階段電腦資訊科技介面軟體之相關技術及發展趨勢，並參考各國相關研究及應用，作為我國未來導入參考。

肆、活動照片

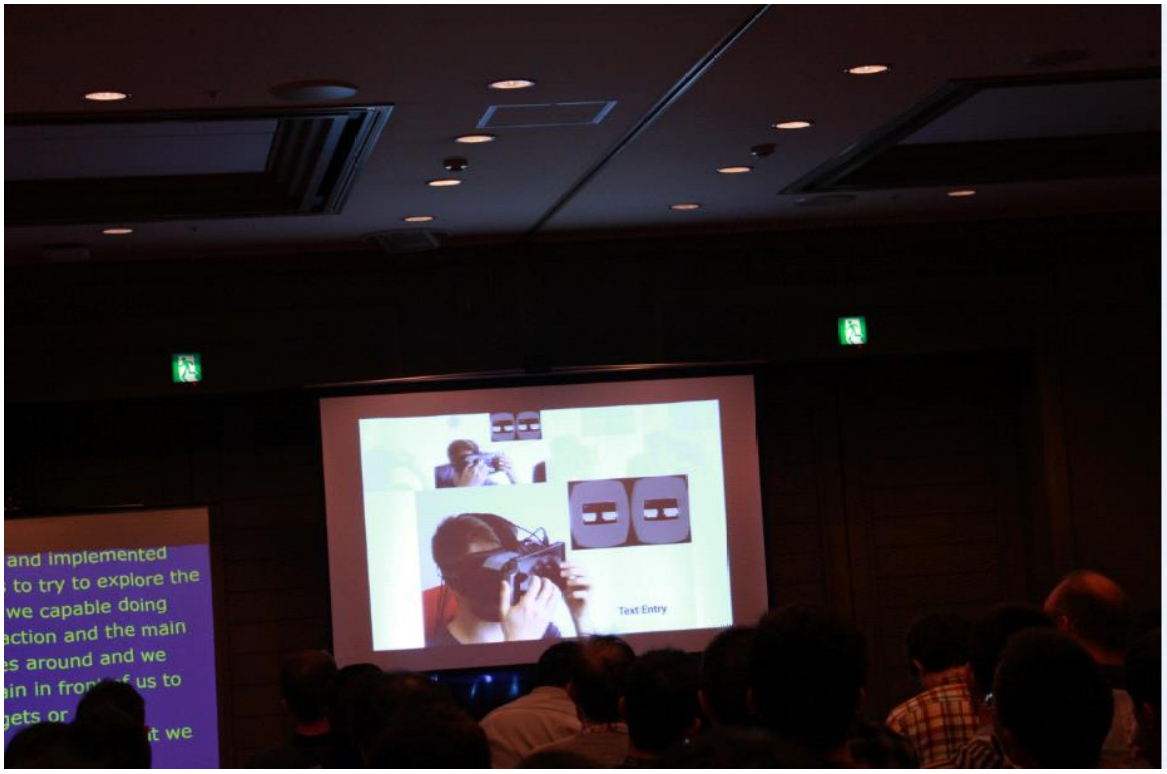
出席人員曾灼灼分析師辦理報到手續

曾灼灼分析師(右)於會場與資策會羅先生(左)合影

參加開幕儀式人員陸續進場就坐

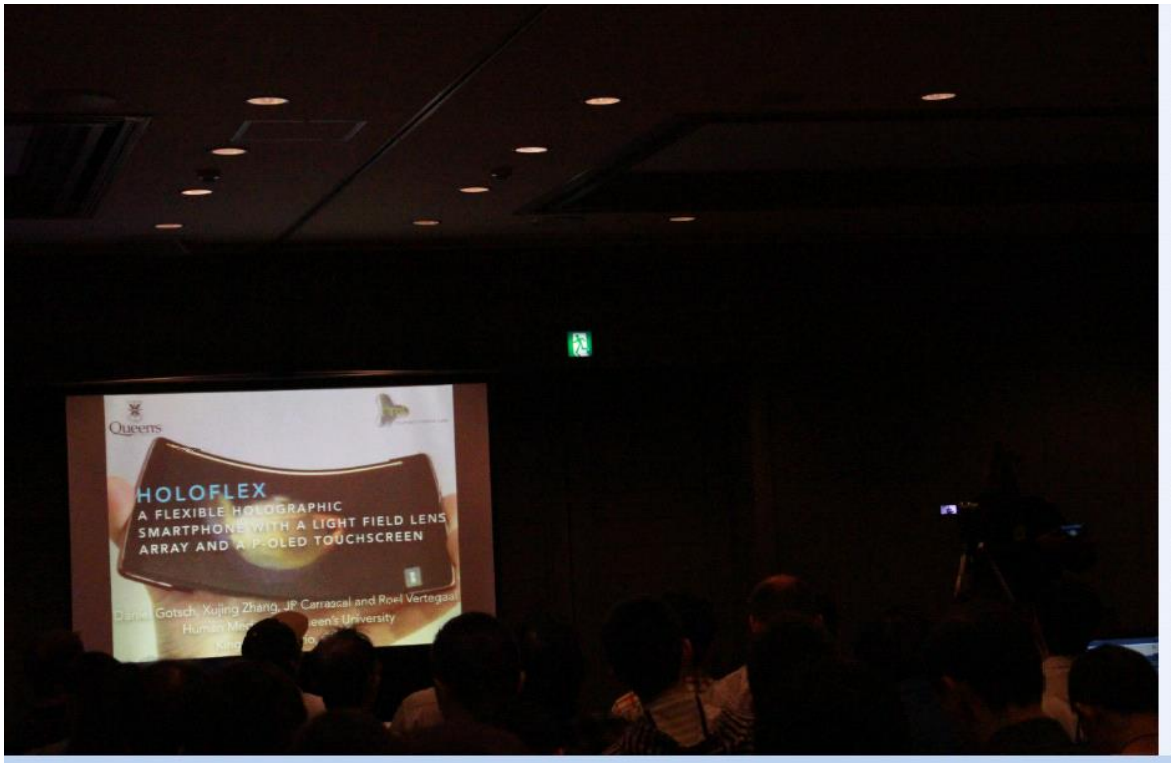
參加開幕儀式之人員專心聆聽 Keynote 之精彩演講

參加專題發表會之人員非常踴躍



「Enabling Touch Interaction in Display Fixed UIs for Mobile Virtual Reality」之發表會現場

「Supporting Mobile Sensemaking Through Intentionally Uncertain Highlighting」之發表會現場



「A Flexible Light-Field Smartphone with a Microlens Array and a P-OLED Touchscreen」之發表會現場

Day 0 (Oct. 16)

16:00 - 20:00 Registration

18:00 - 20:00 Welcome Reception
↳Josui Kaikan (5min. by walk)

Day 1 (Oct. 17)

8:45 - 9:30 Refreshment (Coffee & Snacks)

9:30 - 11:00 **Opening Remarks and Keynote**
@ Auditorium, Ballroom (streaming)

11:00 - 11:20 Coffee Break (20 min)

11:20 - 12:40 **Session 1**
A. Fabrication
B. Touch and Beyond

12:40 - 14:00 Lunch (provided)

12:40 - 14:00 Women's luncheon

14:00 - 15:20 **Session 2**
A. TUI
B. Interaction Techniques

15:20 - 16:00 Coffee Break (40 min)

16:00 - 17:20 **Session 3**
A. Touch It, Feel It
B. Dev Tools

18:00 - 21:00 **Demo Reception**
↳Josui Kaikan (5min. by walk)

Events and Rooms

Women's Luncheon
- Day 1 — 12:40 - 14:00
- room: 101, 102, 103

SIC
- Day 2 — 17:00 - 19:30
- room: 201, 202, 203

BoF
- Day 1, 2, 3 — 12:40 - 14:00
- room: 201, 202, 203

Speaker prep
- Day 0 (17:30-20:00), Day 1 (9:00-20:00) Day 2 (9:00-16:00), Day 3 (9:00-12:00)
- Room: 203

Day 2 (Oct. 18)

8:45 - 9:30 Refreshment (Coffee & Snacks)

9:30 - 10:50 **Session 4**
A. Touch
B. Sensing

10:50 - 11:20 Coffee Break (40 min)

11:20 - 12:40 **Session 5**
A. Viz
B. Physical Displays

12:40 - 14:00 Lunch (provided)

13:00 - 14:00 Becoming a Volunteer at ACM SIGCHI @ Ballroom

14:00 - 15:00 **Session 6**
A. Information & Obfusc**ion
B. Video & Audio

15:00 - 15:40 Coffee Break (40 min)

15:40 - 17:00 **Session 7**
A. Fab with New Materials
B. Text Entry

17:00 - 19:30 **Poster & Student Innovation Competition**

17:00 - 19:30 Coffee & Snacks

20:00 - 22:30 **Banquet**
↳Hotel Gand Palace (30min. by walk)

Day 3 (Oct. 19)

8:45 - 9:30 Refreshment (Coffee & Snacks)

9:30 - 10:50 **Session 8**
A. Crowds
B. Electronics Printing & Prototyping

10:50 - 11:20 Coffee Break (30 min)

11:20 - 12:40 **Session 9**
A. ~Reality
B. Creativity

12:40 - 14:30 Lunch (provided)

13:00 - 14:00 Town hall meeting @ Ballroom

14:30 - 15:50 **Session 10**
A. Innovative Interaction
B. Gesture

15:50 - 16:30 Coffee Break (40 min)

16:30 - 18:00 **Closing Keynote and Ceremony**
@ Auditorium, Ballroom (streaming)

會議議程

Welcome to UIST 2016 in Tokyo!

Lunch

- Pick a lunchbox **at the registration desk during 12pm — 3pm**. Bring your ticket.
- We offer a couple of variations on the lunchbox. Please check "Today's lunchbox" at the registration desk on each morning.
- **After 3pm, lunchboxes will be free.** You can get extra lunchboxes without ticket.
- Special lunchboxes (vegetarian etc.) are reserved. Ask for them at the desk.

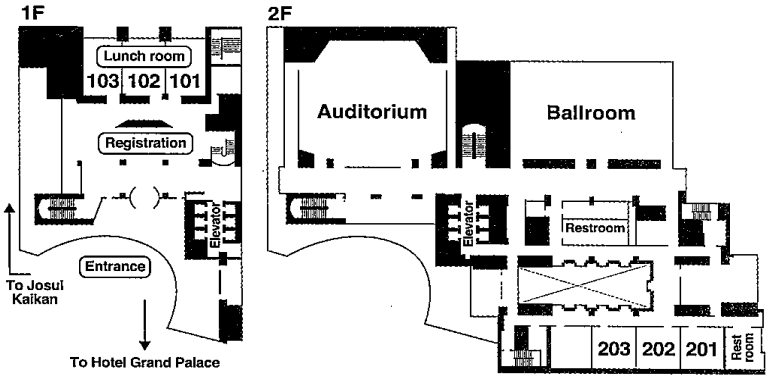
Places for lunch

- Lunch box is not allowed in the auditorium or corridors. Please eat lunch in a designated room or outside.
  - **Auditorium: Strictly no foods or drinks**
  - **Corridors: Drinks and snacks are allowed, but no lunchbox.**
  - **Ballroom, 101-103, and 201-203 (BoF rooms): Have lunch in these rooms.**
- We reserved room 1208 on the12th floor for lunch (126 seats with tables) during 12:00-15:00. Take the elevator to get there. Please keep the room clean.
- We recommend you to go out for lunch. The imperial palace is within 5-minute walk from the venue and there are park benches along the moats.

Internet / WIFI

- UIST provides Wi2 300 WiFi service. **(ID and password are sent by e-mail)**
- Wi2 300 WiFi service is available all over Japan. See http://wi2.co.jp/en/300/
- Search for the following **signs.**
- Your account is "1 Week Pass." It will expire within 168 hours starting from your initial login.
- **Eduroam** is also available in the conference venue.

WIFI signs



Keynote address

@ Auditorium, Ballroom (streaming)

Day 1 — 10:00-11:00

"Smart Headlight: An Application of Projector-Camera Vision"
Takeo Kanade
(Carnegie Mellon University)

Day 3 — 16:30-17:30

"ambient"
Naoto Fukasawa
(Product designer)

Voting

- **Best Demonstration, Poster and SIC** use ballot paper included in the registration bag. Write a number on a ballot paper and post it into a ballot box.
- Best Talk uses the interactive program. Open the interactive program on the UIST web page and clicks "best talk" button in it. You can vote as many time as you want. If you like a talk, just press the button.

The University of Tokyo Open Labs

Date: October 20 (Thu), 2016. 10:00-13:00
Location: The University of Tokyo Hongo Campus (東京大学本郷キャンパス)
Details: https://utopenlab.github.io

- Please directly come to any lab you are interested in.
- It is 2.5km from the conference venue (30 min on foot, 20 min by subway, 10 min by taxi).

Paper session

Day 1 — 11:20-12:40

Session 1 A: Fabrication

Session Chair: Stefanie Mueller (Hasso Plattner Institute)

Mobile Fabrication
Thijs Jan Roumen, Bastian Kruck, Tobias Dürschmid, Tobias Nack, Patrick Baudisch

Crowdsourced Fabrication
Benjamin Lafreniere, Tovi Grossman, Fraser Anderson, Justin Matejka, Heather Kerrick, Danil Nagy, Lauren Vasey, Evan Atherton, Nicholas Beirne, Marcelo Coelho, Nicholas Cote, Steven Li, Andy Nogueira, Long Nguyen, Tobias Schwinn, James Stoddart, David Thomasson, Ray Wang, Thomas White, David Benjamin, Maurice Conti, Achim Menges, George Fitzmaurice

[demo] **Reprise: A Design Tool for Specifying, Generating, and Customizing 3D Printable Adaptations on Everyday Objects**
Xiang 'Anthony' Chen, Jeeeun Kim, Jennifer Mankoff, Tovi Grossman, Stelian Coros, Scott E Hudson

Exploring the Design Space for Energy-Harvesting Situated Displays
Tobias Grosse-Puppendahl, Steve Hodges, Nicholas Chen, John Helmes, Stuart Taylor, James Scott, Josh Fromm, David Sweeney

Session 1 B: Touch and Beyond

Session Chair: Xiaojun Bi (Google / Stony Brook University)

FaceTouch: Enabling Touch Interaction in Display Fixed UIs for Mobile Virtual Reality
Jan Gugenheimer, David Dobbelstein, Christian Winkler, Gabriel Haas, Enrico Rukzio

Supporting Mobile Sensemaking Through Intentionally Uncertain Highlighting
Joseph Chee Chang, Nathan Hahn, Aniket Kittur

HoloFlex: A Flexible Light-Field Smartphone with a Microlens Array and a P-OLED Touchscreen
Daniel Gotsch, Xujing Zhang, Juan Pablo Carrascal, Roel Vertegaal

AuraSense: Enabling Expressive Around-Smartwatch Interactions with Electric Field Sensing
Junhan Zhou, Yang Zhang, Gierad Laput, Chris Harrison

Day 2 — 9:30-10:50

Session 4 A: Touch

Session Chair: Seok-Hyung Bae (KAIST)

Next-Point Prediction Metrics for Perceived Spatial Errors
Mathieu Nancel, Daniel Vogel, Bruno De Araujo, Ricardo Jota, Géry Casiez

Wearables as Context for Guiard-abiding Bimanual Touch
Andrew M. Webb, Michel Pahud, Ken Hinckley, William A.S. Buxton

Gaze and Touch Interaction on Tablets
Ken Pfeuffer, Hans Gellersen

Predicting Finger-Touch Accuracy Based on the Dual Gaussian Distribution Model
Xiaojun Bi, Shumin Zhai

Session 4 B: Sensing

Session Chair: Aaron Quigley (University of St. Andrews)

ViBand: High-Fidelity Bio-Acoustic Sensing Using Commodity Smartwatch Accelerometers
Gierad Laput, Robert Xiao, Chris Harrison

proCover: Sensory Augmentation of Prosthetic Limbs Using Smart Textile Covers
Joanne Leong, Patrick Parzer, Florian Perteneder, Teo Babic, Christian Rendl, Anita Vogl, Hubert Egger, Alex Olwal, Michael Haller

SleepCoacher: A Personalized Automated Self-Experimentation System for Sleep Recommendations
Nediyana Daskalova, Danaë Metaxa-Kakavouli, Adrienne Tran, Nicole Nugent, Julie Boergers, John McGeary, Jeff Huang

Bootstrapping User-Defined Body Tapping Recognition with Offline-Learned Probabilistic Representation
Xiang 'Anthony' Chen, Yang Li

Day 2 — 11:20-12:40

Session 5 A: Viz

Session Chair: Fanny Chevalier (INRIA)

[demo] Eviza: A Natural Language Interface for Visual Analysis
Vidya Setlur, Sarah E Battersby, Melanie K Tory, Rich Gossweiler, Angel X Chang

[demo] Semi-Automated SVG Programming via Direct Manipulation
Brian Hempel, Ravi Chugh

Reading and Learning Smartfonts
Danielle Bragg, Shiri Azenkot, Adam Kalai

Interactive Volume Segmentation with Threshold Field Painting
Takeo Igarashi, Naoyuki Shono, Taichi Kin, Toki Saito

Session 5 B: Physical Displays

Session Chair: Nicholas Chen (Microsoft Research)

SkyAnchor: Optical Design for Anchoring Mid-air Images onto Physical Objects
Hajime Kajita, Naoya KOIZUMI, Takeshi Naemura

[demo] Changing the Appearance of Physical Interfaces Through Controlled Transparency
David Lindlbauer, Joerg Mueller, Marc Alexa

JOLED: A mid-air display based on electrostatic rotation of levitated Janus objects
Deepak Ranjan Sahoo, Takuto Nakamura, Asier Marzo, Themis Omirou, Michihiro Asakawa, Sriram Subramanian

[demo] LIME: Liquid MEtal Interfaces for Non-Rigid Interaction
Qiuyu Lu, Chengpeng Mao, Liyuan Wang, Haipeng Mi

Phyxel: Realistic Display of Shape and Appearance using Physical Objects with High-speed Pixelated Lighting
Takatoshi Yoshida, Yoshihiro Watanabe, Masatoshi Ishikawa

Day 2 — 14:00-15:00

Session 6 A: Information & Obfusc**ion

Session Chair: Parmit K. Chilana (Simon Fraser University)

Private Webmail 2.0: Simple and Easy-to-Use Secure Email
Scott Ruoti, Jeff Andersen, Travis Hendershot, Daniel Zappala, Kent Seamons

CloakingNote: A Novel Desktop Interface for Subtle Writing Using Decoy Texts
Sehi L'Yi, Kyle Koh, Jaemin Jo, Bohyoung Kim, Jinwook Seo

[demo] Wysie: Creating Interactive Data-Driven Web Applications Entirely with HTML
Lea Verou, Amy X. Zhang, David Karger

Session 6 B: Video & Audio

Session Chair: Rubiat Habib Kazi (Autodesk Research)

[demo] QuickCut: An Interactive Tool for Editing Narrated Video
Anh Truong, Floraine Berthouzoz, Wilmot Li, Maneesh Agrawala

[demo] Dynamic Authoring of Audio with Linked Scripts
Hijung Valentina Shin, Wilmot Li, Fredo Durand

VidCrit: Video-based Asynchronous Video Review
Amy Pavel, Dan B Goldman, Björn Hartmann, Maneesh Agrawala

Day 2 — 15:40-17:00

Session 7 A: Fab with New Materials

Session Chair: Scott Hudson (Carnegie Mellon University)

[demo] Metamaterial Mechanisms
Alexandra Ion, Johannes Frohnhofen, Ludwig Wilhelm Wall, Robert Kovacs, Mirela Alistar, Jack I. C. Lindsay, Pedro Lopes, Hsiang-Ting Chen, Patrick Baudisch

Digital Gastronomy: Methods & Recipes for Hybrid Cooking
Moran Mizrahi, Amos Golan, Ariel Bezaleli Mizrahi, Rotem Gruber, Alexander "Zoonder" Lachnise, Amit Zoran

A 3D Printer for Interactive Electromagnetic Devices
Hualshu Peng, François Guimbretière, James McCann, Scott Hudson

Foundry: Hierarchical Material Design for Multi-Material Fabrication
Kiril Vidimce, Alexandre Kaspar, Ye Wang, Wojciech Matusik

Session 7 B: Text Entry

Session Chair: Koji Yatani (University of Tokyo)

[demo] DriftBoard: A Panning-Based Text Entry Technique for Ultra-Small Touchscreens
Tomoki Shibata, Daniel Afergan, Danielle Kong, Beste F Yuksel, Scott MacKenzie, Robert J.K. Jacob

[demo] Expressive Keyboards: Enriching Gesture-Typing on Mobile Devices
Jessalyn Alvina, Joseph W Malloch, Wendy Mackay

EdgeVib: Effective Alphanumeric Character Output Using a Wrist-Worn Tactile Display
Yi-Chi Liao, Yi-Ling Chen, Jo-Yu Lo, Rong-Hao Liang, Liwei Chan, Bing-Yu Chen

[demo] On Suggesting Phrases vs. Predicting Words for Mobile Text Composition
Kenneth C Arnold, Krzysztof Z Gajos, Adam T Kalai

Day 3 — 9:30-10:50

Session 8 A: Crowds

Session Chair: Walter Lasecki (University of Michigan)

[demo] IdeaHound: improving large-scale collaborative ideation with crowd-powered real-time semantic modeling

Pao Siangliulue, Joel Chan, Steven P Dow, Krzysztof Z Gajos

Boomerang: Rebounding the Consequences of Reputation Feedback on Crowdsourcing Platforms

Snehalkumar (Neil) S. Gaikwad, Durim Morina, Adam Ginzberg, Catherine Mullings, Shirish Goyal, Dilrukshi Gamage, Christopher Diemert, Mathias Burton, Sharon Zhou, Mark Whiting, Karolina Ziulkoski, Alipta Ballav, Aaron Gilbee, Senadhipathige S. Niranga, Vibhor Sehgal, Jasmine Lin, Leonardy Kristianto, Angela Richmond-Fuller, Jeff Regino, Nalin Chhibber, Dinesh Majeti, Sachin Sharma, Kamila Mananova, Dinesh Dhakal, William Dai, Victoria Purynova, Samarth Sandeep, Varshine Chandrakanthan, Tejas Sarma, Sekandar Matin, Ahmed Nasser, Rohit Nistala, Alexander Stolzoff, Kristy Milland, Vinayak Mathur, Rajan Vaish, Michael S. Bernstein

[demo] Habitsourcing: Sensing the Environment through Immersive, Habit-Building Experiences

Katherine Lin, Henry Spindell, Scott Cambo, Yongsung Kim, Haoqi Zhang

VizLens: A Robust and Interactive Screen Reader for Interfaces in the Real World

Anhong Guo, Xiang 'Anthony' Chen, Haoran Qi, Samuel Christopher White, Suman Ghosh, Chieko Asakawa, Jeffrey Bigham

Session 8 B: Electronics Printing & Prototyping

Session Chair: Otmar Hilliges (ETH Zurich)

Aesthetic Electronics: Designing, Sketching, and Fabricating Circuits through Digital Exploration

Joanne Lo, Cesar Torres, Isabel Yang, Jasper O'Leary, Mira Dontcheva, Wilmot Li, Danny Kaufman, Eric Paulos

[demo] The Toastboard: Ubiquitous Instrumentation and Automated Checking of Breadboarded Circuits

Daniel Drew, Julie L. Newcomb, William McGrath, Filip Maksimovic, David A Mellis, Björn Hartmann

[demo] CircuitStack: Supporting Rapid Prototyping and Evolution of Electronic Circuits

Chiuan Wang, Hsuan-Ming Yeh, Bryan Wang, Te-Yen Wu, Hsin-Ruey Tsai, Rong-Hao Liang, Yi-Ping Hung, Mike Y. Chen

[demo] Stretchis: Fabricating Highly Stretchable User Interfaces

Michael Wessely, Theophanis Tsandilas, Wendy Mackay

Day 3 — 11:20-12:40

Session 9 A: ~Reality

Session Chair: Yuta Sugiura (Keio University)

Optical Marionette: Graphical Manipulation of Human's Walking Direction

Akira Ishii, Ippei Suzuki, Shinji Sakamoto, Keita Kanai, Kazuki Takazawa, Hiraku Doi, Yoichi Ochiai

[demo] NormalTouch and TextureTouch: High-fidelity 3D Haptic Shape Rendering on Handheld Virtual Reality Controllers

Hrvoje Benko, Christian Holz, Mike Sinclair, Eyal Ofek

Immersive Scuba Diving Simulator Using Virtual Reality

Dhruv Jain, Misha Sra, Jingru Guo, Rodrigo Marques, Raymond Wu, Justin Chiu, Chris Schmandt

Holoportation: Virtual 3D Teleportation in Real-time

Sergio Orts-Escolano, Christoph Rhemann, Sean Fanello, David Kim, Adarsh Kowdle, Wayne Chang, Yury Degtyarev, Philip L Davidson, Sameh Khamis, Mingsong Dou, Vladimir Tankovich, Charles Loop, Qin Cai, Philip A Chou, Sarah Mennicken, Julien Valentin

Session 9 B: Creativity

Session Chair: Joel Brandt (Adobe Research)

[demo] Energy-Brushes: Interactive Tools for Illustrating Stylized Elemental Dynamics

Jun XING, Rubaiat Habib Kazi, Tovi Grossman, Li-Yi Wei, Jos Stam, George Fitzmaurice

[demo] ERICA: Interaction Mining Mobile Apps

Biplab Deka, Zifeng Huang, Ranjitha Kumar

The Elements of Fashion Style

Kristen Vaccaro, Sunaya Shivakumar, Ziqiao Ding, Karrie Karahalios, Ranjitha Kumar

Multi-Device Storyboards for Cinematic Narratives in VR

Rorik Henrikson, Bruno Araujo, Fanny Chevalier, Karan Singh, Ravin Balakrishnan

Day 3 — 14:30-15:50

Session 10 A: Innovative Interaction

Session Chair: Justin Matejka (Autodesk Research)

[demo] SketchingWithHands: 3D Sketching Handheld Products with First-Person Hand Posture
Yongkwan Kim, Seok-Hyung Bae

Authoring Illustrations of Human Movements by Iterative Physical Demonstration
Pei-Yu Chi, Daniel Vogel, Mira Dontcheva, Wilmot Li, Björn Hartmann

AggreGaze: Collective Estimation of Audience Attention on Public Displays
Yusuke Sugano, Xucong Zhang, Andreas Bulling

[demo] RadarCat: Radar Categorization for Input & Interaction
Hui-Shyong Yeo, Gergely Flamich, Patrick Schrempf, David Harris-Birtill, Aaron Quigley

Session 10 B: Gesture

Session Chair: Meredith Ringel Morris (Microsoft Research)

Advancing Hand Gesture Recognition with High Resolution Electrical Impedance Tomography
Yang Zhang, Robert Xiao, Chris Harrison

Interacting with Soli: Exploring Fine-Grained Dynamic Gesture Recognition in the Radio-Frequency Spectrum
Saiwen Wang, Jie Song, Jaime Lien, Ivan Poupyrev, Otmar Hilliges

WristWhirl: One-handed Continuous Smartwatch Input using Wrist Gestures
Jun Gong, Xing-Dong Yang, Pourang Irani

A Rapid Prototyping Approach to Synthetic Data Generation for Improved 2D Gesture Recognition
Eugene M. Taranta II, Mehran Maghoumi, Corey R Pittman, Joseph J LaViola Jr.

Demonstration

Day 1 — 18:00-21:00 @ Josui Kaikan (5 minutes from the venue)

101 Luminescent Tentacles: A Scalable SMA Motion Display
Akira Nakayasu

102 Rig Animation with a Tangible and Modular Input Device
Oliver Glauser, Benedek Vartok, Wan-Chun Ma, Daniele Panozzo, Alec Jacobson, Otmar Hilliges, Olga Sorkine-Hornung

103 Watch Commander: A Gesture-based Invocation System for Rectangular Smartwatches using B2B-Swipe
Yuki Kubo, Buntarou Shizuki, Shin Takahashi

104 MagTacS: Delivering Tactile Sensation over an Object
Hyung-Sik Kim, Seong-Young Gim, Woo-Ram Kim, Mi-Hyun Choi, Seungmoon Choi, Soon-Cheol Chung

106 floatio: Floating Tangible User Interface Based on Animacy Perception
Toshiya Yui, Tomoko Hashida

108 3D Printed Physical Interfaces that can Extend Touch Devices
Kunihiro Kato, Homei Miyashita

109 Thickness Control Technique for Printing Tactile Sheets with Fused Deposition Modeling
Haruki Takahashi, Homei Miyashita

114 Sparkle: Towards Haptic Hover-Feedback with Electric Arcs
Daniel Spelmezan, Deepak Sahoo, Sriram Subramanian

116 The UIST Video Browser: Creating Shareable Playlists of Video Previews
Carla Griggio, Nam Giang, Germ√°n Leiva, Wendy Mackay

118 WithYou: An Interactive Shadowing Coach with Speech Recognition
Xinlei Zhang, Takashi Miyaki, Jun Rekimoto

119 Representing Gaze Direction in Video Communication Using Eye-Shaped Display
Mai Otsuki, Taiki Kawano, Keita Maruyama, Hideaki Kuzuoka, Yusuke SUZUKI

122 Gushed Diffusers: Fast-moving, Floating, and Lightweight Midair Display
Ippei Suzuki, Shuntarou Yoshimitsu, Keisuke Kawahara, Nobutaka Ito, Atushi Shinoda, Akira Ishii, Takatoshi Yoshida, Yoichi Ochiai

123 SoEs: Attachable Augmented Haptic on Gaming Controller for Immersive Interaction
Yang-Sheng Chen, Ping-Hsuan Han, Jui-Chun Hsiao, Kong-Chang Lee, Chiao-En Hsieh, Kuan-Yin Lu, Chien-Hsing Chou, Yi-Ping Hung

125 LaserStroke: Mid-air Tactile Experiences on Contours Using Indirect Laser Radiation
Hojin Lee, Hojun Cha, Junsuk Park, Seungmoon Choi, Hyung-Sik Kim, Soon-Cheol Chung

127 M.Sketch: Prototyping Tool for Linkage-Based Mechanism Design
Han-Jong Kim, Yunwoo Jeong, Ju-Whan Kim, Tek-Jin Nam

130 Depth Based Shadow Pointing Interface for Public Displays
Jun Shingu, Patrick Chiu, Sven Kratz, Jim Vaughan, Don Kimber

131 A Tangible Interface to Realize Touch Operations on the Face of a Physical Object
Saraha Ueno, Kunihiro Kato, Homei Miyashita

133 AmbioTherm: Simulating Ambient Temperatures and Wind Conditions in VR Environments
Nimesha Ranasinghe, Pravar Jain, David Tolley, Shienny Karwita, Yilei Shi, Ellen Yi-Luen Do

136 Wrap & Sense: Grasp Capture by a Band Sensor
Natsuki Miyata, Takehiro Honoki, Yusuke Maeda, Yui Endo, Mitsunori Tada, Yuta Sugiura

137 Facial Expression Mapping inside Head Mounted Display by Embedded Optical Sensors
Katsuhiro Suzuki, Fumihiko Nakamura, Jiu Otsuka, Katsutoshi Masai, Yuta Itoh, Yuta Sugiura, Maki Sugimoto

138 An Input Switching Interface Using Carbon Copy Metaphor
Kaori Ikematsu, Itiro Siio