CHI-JUI WU

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RESEARCH INTERESTS

My research interests are in Human-Computer Interaction and Artificial Intelligence, including sensing technologies, mobile devices, smart environments, ubiquitous computing, proxemic interaction, tangible interfaces and machine learning. I build novel supporting toolkits for group collaborations and multi-device interactions, and leverage machine intelligence to enhance existing sensing capabilities within interactive spaces. Recently, I have developed a new tracking infrastructure *EagleSense* that enables HCI researchers to build and evaluate proxemic-aware, activity and device-centric interfaces; the work is accepted to CHI'17. In my further research, I would like to design and build new cross-device interactions to support large-scale ad hoc individual and group work in public and private spaces. This includes doing in-the-wild research and deployment.

EDUCATION

MRes. Computational Statistics and Machine Learning, Distinction — 2015 – 2016
University College London, UK
Supervisors: Professor Nicolai Marquardt, Professor Steven Houben

BSc. Computer Science, First-Class Honours — 2011 – 2015
University of St Andrews, UK
Supervisor: Professor David Harris-Birtill

PUBLICATIONS

[C.1] **Wu, CJ.**, Houben, S., Marquardt, N. 2017. EagleSense: Tracking People and Devices in Interactive Spaces using Real-Time Top-View Depth-Sensing. To appear In *Proceedings of the 35th Annual ACM Conference on Human Factors in Computing Systems* (Denver, Colorado, USA, May 6 - 11, 2017). CHI'17. ACM, New York, NY.

[J.1] **Wu, CJ.**, Quigley, A., Harris-Birtill, D. 2016. Out of Sight: A Toolkit for Tracking Occluded Human Joint Positions. In *Personal and Ubiquitous Computing,* 21(1), 125-135. Springer London.

RESEARCH EXPERIENCE

Research Intern, University College London, UK — November 2015 – September 2016
Explored research areas and tools within physical computing, ubiquitous computing, proxemic interaction, and sensor-based systems. Adapted computer vision and machine learning algorithms to develop non-invasive tracking systems for ad hoc proxemic interaction.
Supervisors: Professor Nicolai Marquardt, Professor Steven Houben, Frederik Brudy

Research Intern, University of St Andrews, UK — June 2015 – September 2015
Explored computer system infrastructures for software recomputation. Developed a web application that takes a GitHub repository URL as input and creates a virtual machine from scratch, within which the computer program is rebuilt from source.
Supervisor: Professor Ian Gent

Research Intern, University of St Andrews, UK — June 2014 – September 2014
Investigated interactions between depth-sensing data visualization and user's ability to detect visual notifications and their awareness of other surrounding users. Designed and conducted individual and group user studies with the interface developed, focusing on tasks that require the awareness of other users' spatial location.
Supervisors: Professor Aaron Quigley, Professor Per Ola Kristensson

TEACHING EXPERIENCE

English Teaching Assistant, Wanrong Junior High School, Hualien, Taiwan — January 2017 – Present
Teaching in remote rural areas in Taiwan as substitute (compulsory) military service

Personal Tutor — January 2010 – Present
Mathematics and Chemistry (high school), Computer Science (undergraduate and graduate), English Writing (non-native speakers)

AWARDS

Honourable Mention, University College London Data Science Student Challenge, UK	February 2016
Best Use of Mendeley API, Hack Cambridge, UK	January 2016
Dean's List, University of St Andrews, UK	June 2015
Dean's List, University of St Andrews, UK	June 2014
Finalist, Barclays Openminds Hackathon, UK	November 2013
Winner, J.P. Morgan Code for Good Challenge, UK	November 2013

SCHOLARSHIPS AND GRANTS

ACM SIGCHI Student Travel Grant for ISS'16 ($1,500)	2016
International Undergraduate Scholarship, University of St Andrews, UK (£2,500 / year)	2011 – 2015

SKILLS

Programming
Java, Python, C, C++, C#, Matlab, JavaScript, Go

User Interface
Swing, JavaFX, WinForms, WPF

Hardware
Microsoft Kinect, Phidget, Arduino

Computer Vision (OpenCV), **Machine Learning** (Scikit-Learn, Keras, XGBoost), **Scientific Computing** (Numpy, Scipy, Pandas, Matplotlib, Seaborn), **Information Visualization** (D3.js), **Graphics** (WebGL, Processing), **Mobile** (Android), **Web Front-End** (Markdown, HTML, CSS, Bootstrap, jQuery), **Web Back-End** (Flask, Tornado, Django), **Game** (Unreal, Phaser, pixi.js), **Version Control** (Git, TravisCI), **Word Processing** (LaTeX), **Operating System** (UNIX), **Virtual Machine, Container** (Vagrant, Docker)

COURSES

University College London
Supervised Learning, Graphical Models, Advanced Topics in Machine Learning, MRes Computational Statistics and Machine Learning Dissertation, Investigating Research, Research Professional Development

University of St Andrews
Computer Science (Year 1), Internet Programming, Mathematics (Year 1), Psychology (Year 1 and 2), Reasoning and Knowledge, Foundations of Computation, Advanced Computer Science, Software Engineering, Computational Complexity, Major Software Team Project, Operating Systems, Artificial Intelligence, Human Computer Interaction, Component Technology, Logic and Software Verification, Computer Graphics, Multimedia, Constraint Programming, Artificial Intelligence Practice, Human Computer Interaction Practice, Major Software Project

POSITIONS OF RESPONSIBILITIES

Treasurer, University of St Andrews Computing Society, UK	2014 – 2015
Secretary, University of St Andrews Psychology Society, UK	2013 – 2014
Events Coordinator, University of St Andrews Psychology Society, UK	2012 – 2013
First-year Rep, University of St Andrews Breakaway (Hill-Walking) Society, UK	2011 – 2011