UCL

UCLIC
News
2018

April 2018
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Editorial

Welcome to our UCLIC newsletter for 2018!

Since the last newsletter, even more has happened in our department, as we have welcomed a new academic staff member, Dr Enrico Costanza, as well as his group of students and post-docs (see more about this below), but sadly said goodbye to a number of staff and students as they have graduated, finished their projects or found other opportunities and moved on to pastures new. Two of these were Paul Marshall and Aisling O'Kane, who got married and then both got Lectureships in the University of Bristol – we are very sorry to see them go, but wish them all the best for the future!

While some have moved on, our student body has been growing fast, following the award of a large number of studentships over the past two years – we now have 33 PhD students in total working on a diverse range of projects related to our main research themes.

We've also had a number of new grants, some of which were awarded via the EU Horizon 2020 scheme – these include the WeDraw project, the HUMAN Manufacturing project and also the X5GON project – there is more about these and our other projects further on in the newsletter.

All this creativity and hard work has not gone unnoticed and many of our staff and students have received notable awards and promotions over the past two years! Please see the article further on about our 'Movers and Shakers', also featuring two new books published since the last newsletter.

Yvonne Rogers
UCLIC Director

www.ucl.ac.uk/uclic

New arrivals in UCLIC

September 2016 saw the arrival of a new Lecturer to UCLIC – this is **Dr Enrico Costanza**, who joined us from the University of Southampton along with his group of students and post-docs – we are very happy to welcome them to our group!

Enrico was a Lecturer in Electronics and Computer Science in Southampton since 2010; earlier on he had gained 7 years of research experience across the EPFL Media and Design Lab (Switzerland), MIT Media Lab (USA), MIT Media Lab Europe (Ireland) and the University of York (UK).

His current research focus is on helping people make sense of data and on interaction with smart and autonomous systems in everyday situations. His work lies at the intersection of design and technology and it is influenced by behavioural and social sciences. He designs, implements and evaluates novel interactive systems on desktop, mobile and embedded platforms. Some of his earlier research was about tangible user interfaces and wearable devices.

Enrico was working on three EPSRC-funded projects when he transferred to UCL – these included C-Tech (Creating the Energy for Change), Aperio: Low Cost Façade Management in Naturally Ventilated Buildings and A-IoT (Future Everyday Interactions with the Autonomous Internet of Things). C-Tech and Aperio were both concerned with developing interactive technologies that would support users in consuming energy more efficiently and avoid waste. His current grant, A-IoT, explores the design of interaction mechanisms and user interfaces for a future Automonous Internet of Things (A-IoT) – this is a system of interconnected devices that reaches beyond most current incarnations of the IoT to include aspects of autonomy or automation as a key feature. Examples include smart thermostats that learn to autonomously control central heating systems based on users' routines and washing machines that can order detergent for delivery when it runs out.

He is joined by two post-docs, **Diana Nowacka** and **Rayoung Yang**, as well as three PhD students, **Jhim Verame**, **Jacob Kittley-Davies** and **Pedro Garcia Garcia**.

For more information on Enrico's project, please check out:

https://uclic.ucl.ac.uk/people/enrico-costanza and **http://a-iot.org**

A smart Internet-connected food storage container could detect when it is running empty and autonomously order a sustainable and fair refill through the Internet.

I'm running out of oranges!

Monitor · Sustainable & Fair Market · Autonomous Order
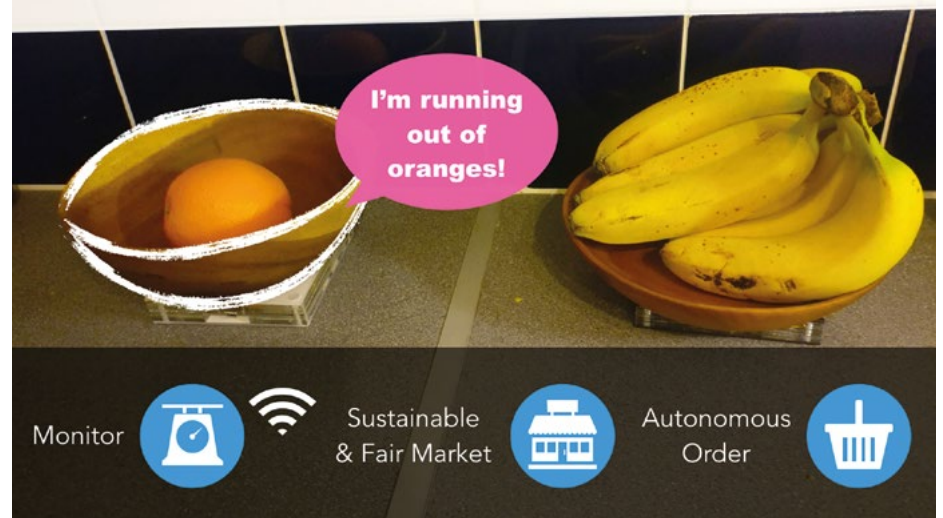
Movers and Shakers

A number of our staff and students had their hard work and achievements recognised with promotions and awards in the past two years! These include Anna Cox, who is now a Professor, enabling us to make up a quartet of female professors in UCLIC! Duncan Brumby was also promoted to Reader and Enrico Costanza is fast moving up the ranks, being promoted to Senior Lecturer within his first year of joining UCLIC.

In 2016, Yvonne Rogers was recognised as a Microsoft Research Outstanding Collaborator, as part of its 25th Anniversary celebrations. She has since been named as an ACM Fellow in 2017 in recognition of her contributions to human-computer interaction. Ann Blandford was also awarded for achievements in Computing as part of the MRC Clinical Sciences Centre's initiative to celebrate women in maths and computing. Congratulations were due more recently to Catherine Holloway and Susan Lechelt, who both won the UCL Provost's Engineering Engagement Awards 2017. Dr Holloway also received a Commendation for the UCL Provost's Spirit of Enterprise and Entrepreneurship Award 2017 for her work creating a multi-partner and multidisciplinary approach at the Global Disability Innovation (GDI) Hub (launched in 2016, see article on page 4) to research and create innovative solutions with regard to disability.

Even more recently, Rachel Benedyk (Honorary Senior lecturer and former MSc Programme Director) and the Design for Real People Action Group were awarded the Richard Clive Holman Communications Award for their recent work creating the Teacher's Guide to UCD for Design and Technology in schools.

We are also proud to reveal that a number of our staff and students' work was featured in prestigious magazines – for example, the work done by Yvonne, Nic Marquardt, Venus Shum, Rose Johnson and Susan Lechelt on Magic Cubes was featured in the Institution of Engineering and Technology (IET) magazine.

Work by Anna Cox & Marta Cecchinato on microboundaries to reduce digital distraction featured in a New Scientist article in August 2017 and Youngjun Cho's work on new software to turn your mobile phone into a breathing monitor featured on the Phys.org website in September 2017.
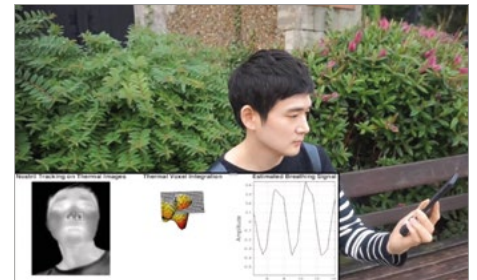
We have also had a couple of books authored by UCLIC staff published in the last two years – these include 'Research in the Wild' by Yvonne Rogers and Paul Marshall and also 'Body tracking in Healthcare' by Nadia Berthouze and several co-authors.
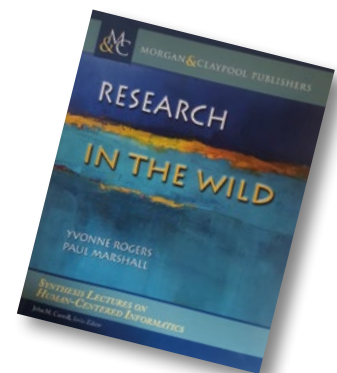
You can see more about UCLIC books on our website at: **https://uclic.ucl.ac.uk/publications/books**

Global Disability Innovation Hub Launch

The Global Disability Innovation Hub launched in 2016 as a UCL-led innovation, research and teaching centre designed to harness technology for good and think about disability innovation from a new perspective. The Hub, directed and co-founded by Dr Cathy Holloway, is a unique partnership of UCL and the London Legacy Development Corporation, with Loughborough University London, UAL's London College of Fashion, and world-leading partners including Leonard Cheshire Disability, the Victoria and Albert Museum, Sadler's Wells, Helen Hamlyn Centre for Design, and a range of disabled peoples' organisations and community groups.

The GDI Hub recently celebrated several key events, including launching its brand new MSc in Disability, Design and Innovation programme, and holding its first Town Hall event at its new location at UCL Here East, Queen Elizabeth Olympic Park. Attended by over a hundred and twenty people, the Town Hall presented a vision for the GDI Hub's interdisciplinary work, which unites innovative research in areas such as assistive technology, disability studies, AI and robotics with a commitment to building a fairer and more equal world. During the Town Hall, the GDI Hub announced that the Snowdon Trust has generously decided to fund scholarships for three disabled students on the new MSc Disability, Design and Innovation. A first cohort of PhD students has now also joined the GDI Hub, and the new MSc in Disability, Design and Innovation will be offered from September 2018.

Researchers win £1.4m grant to develop affordable body-powered prostheses

A project focused on improving upper limb prostheses for people in lower and middle-income countries has been awarded a £1.4m grant from the Engineering and Physical Sciences Research Council (EPSRC) and the National Institute for Health Research (NIHR). The project is led by the University of Salford's Professor Laurence Kenny, with Dr Catherine Holloway from UCLIC and the Global Disability Innovation Hub, and Professor Mark Miodownik from the Institute of Making, as research investigators from UCL. The research team also partners with Makere University in Uganda and the University of Jordan, as well as the Universities of Southampton and Greenwich, and hopes to address problems that amputees in lower and middle-income countries face in accessing prosthetics. The project aims to develop prostheses that are comfortable, functional, and easy for amputees to access and maintain, thereby improving their quality of life and having a long-term, positive impact on millions of people.

Horizon 2020 Funding: CROWDBOT Project

Dr Tom Carlson (PI, Aspire Create) and Dr Catherine Holloway (UCLIC and GDI Hub) have been awarded €600K of Horizon 2020 funding for the CROWDBOT project to lead on the co-design and evaluation of the CROWDBOT system, as well as developing a crowd-aware smart wheelchair. Dr Carlson and Dr Holloway's project adds new capabilities to the CROWDBOT initiative (aka 'Safe Robot Navigation in Dense Crowds'), which is a project working to enable mobile robots to navigate autonomously and assist humans in crowded areas.

CROWDBOT examines three realistic situations:

1) a semi-autonomous wheelchair that will adapt its trajectory to unexpected movements of people in its vicinity;

2) the commercially available Pepper robot that will navigate in dense crowds, whilst actively approaching people to assist them;

3) the cuyBot (under-development) that will adapt to compact crowds, as well as to being touched and pushed by people.

Dr Carlson and Dr Holloway's work brings together a number of organisations focused on developing technology to improve the lives of disabled people and developing new approaches towards accessibility in city-environments.
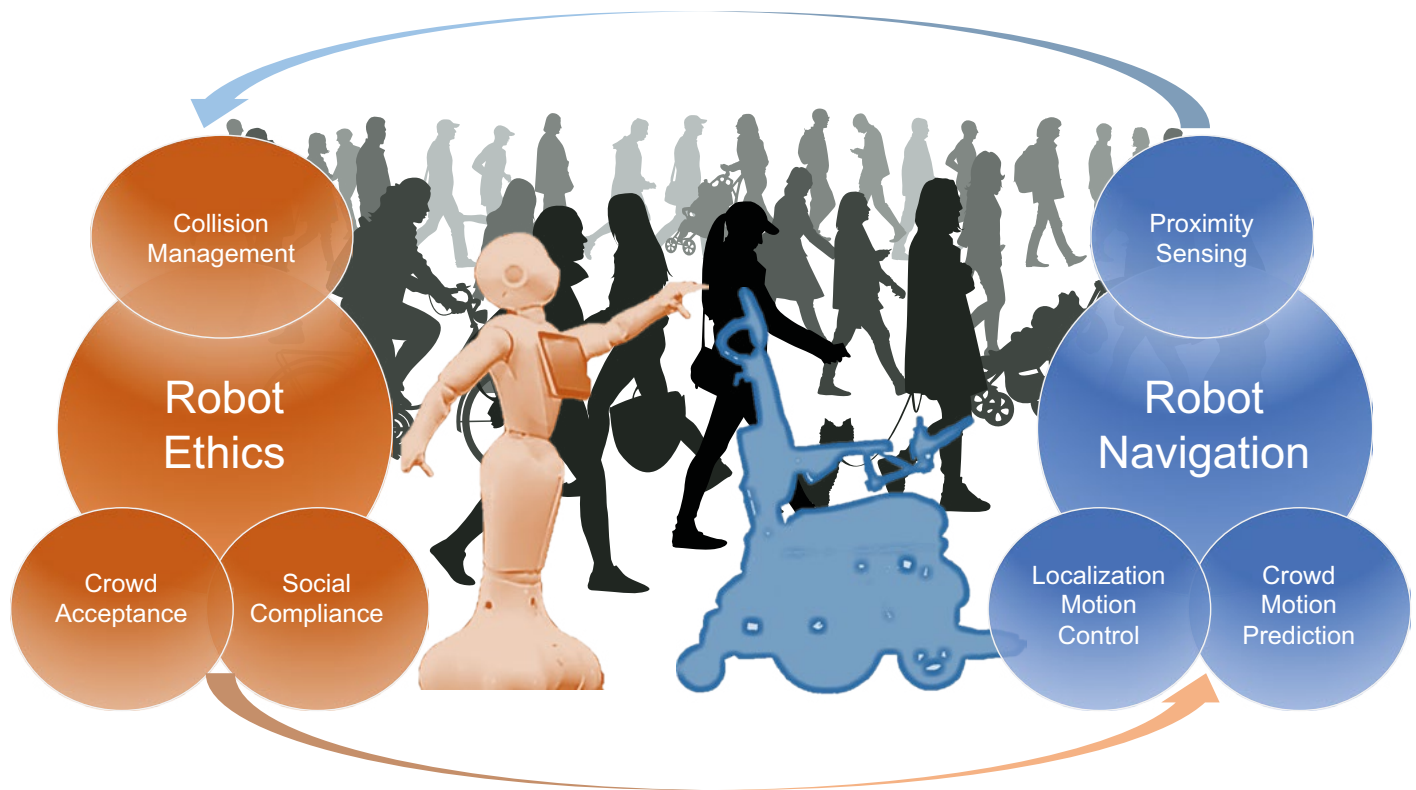
X5GON – Transforming online learning into a whole new experience

Imagine you want to learn more about AI. Where would you start? Most people would begin by typing into Google search "learning about AI". But this will bring up nearly 4 million results! Which do you look at and how do you know it is a good way to start? What materials are the most up-to-date? Should you watch a YouTube video, a TED talk, or follow a free online course? The choice can be overwhelming and this can result in giving up: many people don't get very far when learning online. They might try clicking on the first few links in the Google search results and get disappointed that they are not what they need to get started. Or they might find the online material too dry, too high level, too long or too boring. How can we make learning online for everyone more exciting, stimulating and even exceed expectations?

X5GON (**www.x5gon.org**) is a new €3 million EU project (2017–2020) with eight partners from the UK, France, Slovenia, Germany and Spain (UCL is the co-ordinator). It is intended to help students and the general public learn effectively and enjoyably by providing a personalized route through appropriately prioritized open education resources (OERs) such as talks, lectures, texts, slideshows, and online activities. There are millions of these now freely available on the Web and ever more being added each day. Our plan is to develop an extensive architecture, where state of the art machine learning and recommender algorithms are deployed to crawl and

classify these resources so that we can then determine how best to help people learn in a way most suited to them. From an HCI perspective, we are interested in how to ensure the learning experience, when using OERs, is informative, interactive, instructive, pedagogical, at the right level, enjoyable and even sociable. To this end, we are designing a range of novel online learning interfaces that are intended to support user reflection and engagement, while at the same time enabling users to keep track of their progress, their frustrations, their boredom and stress levels and their sense of accomplishment. Our plan is to test these out with real people in the wild for topics ranging from machine learning to UNESCO historical sites.

The ultimate goal is to enable anyone anywhere to have a learning experience that is scaffolded and structured to their needs and at the right level, and afterwards for them to want to keep discovering more – in a customized but also seemingly serendipitous way, akin to how so many viewers now enjoy the experience of seeing what is going to be recommended next when watching shows, programs, films, documentaries, etc. through Netflix and other entertainment companies. But only better because they will be learning new stuff.

Prof. Yvonne Rogers is a Co-I and Prof. John Shawe-Taylor from UCL Computer Science is the PI on the project.

HuMan After All

Building an airplane is not easy. It is the result of a very long and complex manufacturing process. Making just a single wing requires hours of highly skilled assembly work by people, often with the support of automated machinery. However, these automated systems are often insensitive to the individual needs of the human worker they are supposed to be supporting.

Human Manufacturing Workplace (HuMan) is developing future technologies to enhance and extend human automation integration. It is a major €3.9M project funded by the European Union's Horizon 2020 Research and Innovation programme.

UCL Researchers, Simon Julier, Duncan Brumby, Nadia Berthouze, Nicola Binetti, Riccardo Bovo, and Youngjun Cho, are collaborating with 12 project partners from six European countries, including three major manufacturing companies: Airbus **www.airbus.com**, Comau **www.comau.com/EN** and Royo **www.royogroup.com**

The project is investigating automated systems that adapt to the cognitive and physical needs of the human operator. Nicola Binetti and Riccardo Bovo have been developing a Microsoft HoloLens (**www.microsoft.com/en-gb/hololens**) augmented reality system that can adjust the level of support offered based on how well the user knows the task they are working on, offering guidance only when needed.

In a related project, Youngjun Cho, has been working on a system to automatically determine when a worker might need some extra help. The system uses a combination of thermal imaging, GSR, and electromyography sensors with a machine learning system to identify periods of high workload and stress.
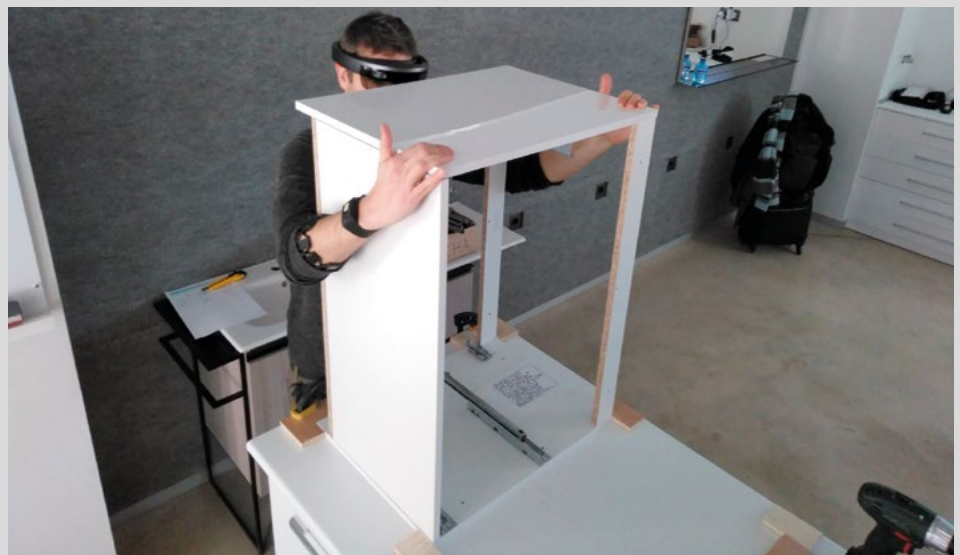
Working together, these systems create an optimal environment for human automation integration and cooperation that harnesses and supports the workers' capabilities – making it easier and more enjoyable for people to build aeroplanes.

See more information on the HuMan website: **www.humanmanufacturing.eu**

WeDraw project

The H2020 weDraw (**www.weDraw.eu**) project is a multidisciplinary project with the aim of investigating how different sensory modalities contribute and interact during the learning of mathematical concepts. Nadia Berthouze, Temi Olugbade, Joe Newbold and Rose Johnson from UCLIC together with Sara Price, Sam Duffy and Nikoleta Yiannoutsou (from the Institute of Education at UCL) are contributing to the project by investigating the pedagogical opportunities and the emotional needs that exist during the learning process. We are looking at how children's body movement together with aural and tactile experience enable an embodied exploration and understanding of different mathematical concepts that children typically struggle with. We are focusing on both typically developing children, children with various degrees of visual impairment and children with dyslexia.

Together with the weDraw consortium, the support of schools, and psychophysics studies by our partners, our work is informing the design of full-body game technology that makes use of multiple sensory modalities to explore mathematical concepts, such as cartesian co-ordinates, geometry and fractions, through games. UCLIC is investigating how technology can detect when children are engaged in reflection from their bodily behaviour as they move around in the game space to experience various angles, numbers and fractions, or when they are curious to know more about the concepts, or lack confidence in their ability to understand those concepts. The goal is to configure the technology to adapt this experiential learning to the pace and needs of the child. We have already collected a dataset of children's movement and we have started to build automatic recognition models. We are undertaking studies to examine ways in which bodily movement, haptic/tactile interaction and sound can be mapped to key mathematical concepts to inform the design of the digital games, and evaluating the role of embodied interaction in differently supporting children's interpretation and understanding of these mathematical concepts.

See our website **www.weDraw.eu** for new videos, news, and more…

From island to island: A collaborative partnership between UCLIC and M-ITI (Madeira Interactive Technologies Institute)

During 2016-2017, M-ITI funded a number of joint projects and visits between faculty and students at UCL and Madeira University. The aim was to forge stronger links between the respective HCI departments and to collaborate on developing a large-scale EU teaming grant proposal. A number of workshops were held in Madeira and London to achieve this; we also included other UCL faculty in environmental science, computer science, and the Slade School of Fine Art. In addition, a number of mini-projects were jointly conducted between researchers from both islands. These included monitoring the impacts on both native and invasive wildlife populations on the island of Madeira; engaging human communities in understanding how to live more sustainably within fragile island ecosystems; and designing and deploying a hybrid sensing system, that combined automated Wi-Fi data collected showing people flows on Madeira, with a novel physical public installation that collected answers voluntarily from tourists and locals about what they could see around them. In terms of human nature, we also conducted a joint investigation of the phenomenon of Netflix "binge watching", focusing on how it affects people's viewing experiences.

Empowering people through interactive technologies to support self-testing and self-management of HIV (iSense)

A collaboration with colleagues in the UCL Institute for Global Health, London Centre for Nanotechnology, and Africa Health Research Institute, funded by the i-sense IRC (EPSRC EP/K031953), the m-Africa Global Challenges Research Fund (MR/P024378), and the EU ITN *Privacy & Us.*

A team in UCLIC, led by Professor Ann Blandford, with Dr Aneesha Singh, Mark Warner and Anya Zeitlin, has been working with colleagues across UCL and at the Africa Health Research Institute in KwaZulu Natal to develop and deliver digital interventions to support the management of HIV.

In the UK, our focus has been on support for self-testing and engaging with care, enabled by novel digital tools. Innovations in testing techniques (based on advanced nanomaterials) have now reached a point where it is realistic to offer HIV tests that can – at least in principle – be self-administered. However, these tests raise questions such as: given the complexity of the condition and its management, how can people be supported in correctly interpreting data, and how can care pathways be reconfigured to accommodate new ways of testing? In parallel, developments in social media are creating new styles of social interaction and new ways to share information about themselves. Given the stigmatised nature of the condition, how can people be given appropriate emotional support, and have effective ways of managing their online identity, such that their online and offline lives are complementary?

Aneesha and Mark have been interviewing people in at-risk groups to better understand their perceptions around such issues, with Aneesha focusing on psychosocial requirements for self-testing and engaging with care and Mark focusing on when, how and why people choose to disclose information about their HIV status, and how this could be better supported. Aneesha, working with Dr Jo Gibbs, is designing a novel, digitally-enabled care pathway that will be tested with sexual health professionals as well as people in at-risk groups, based on the findings from ongoing studies. Mark is working towards a better understanding of how people manage their online identity and disclosure of sensitive information so as to identify design requirements for future social media supporting men who have sex with men.

In South Africa, Anya, who recently graduated from the MSc HCI programme, has been working with researchers at AHRI to develop and test two simple apps that empower people to make better informed choices about whether to be tested for HIV and (if the result is positive) whether and how to engage with care. In resource-limited settings where we cannot assume that people are literate or familiar with touch screen interfaces, and where many of the intended users live in remote communities, it has been necessary to devise pop-up prototype testing techniques that are fit for purpose. The resulting apps may not look highly innovative, but they will serve an important role in addressing an urgent health challenge in a contextually appropriate way.
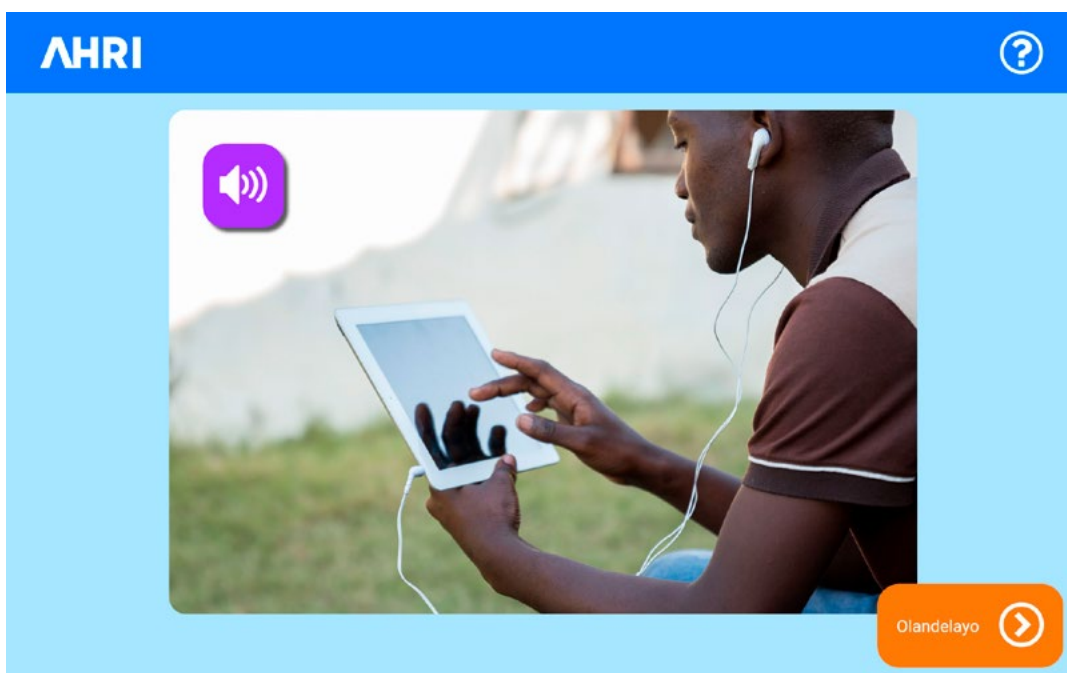
App image from Africa Health Research Institute

GetAMoveOn Network+ Update

In the last UCLIC newsletter we announced new funding from the EPSRC for the GetAMoveOn Network+ led by Anna Cox (UCL), Ann Blandford (UCL), Lucy Yardley (Southampton and Oxford), m.c. schraefel (Southampton) and Ian Craddock (Bristol). The network launched in December 2016 and a lot has happened since then!

Our aim is to transform health by getting people moving more with the help of digital technologies. To that end, we've established a multi-disciplinary network of researchers working in human computer interaction, sensor networks, data analytics, interactive visualisation, online citizen engagement, behaviour change and sports science, to collaborate in researching novel technical solutions to motivate and support behaviour change, reduce sedentarism and enable mobility.   We're also capacity-building through workshops, events and summer schools, and pump-priming research. We're focusing on three target groups: children, adults at work, and older people in care settings.

So far, we have:

- Established and grown a network of 183 academics and practitioners from 81 institutions, with interests ranging from HCI to health psychology, data science, wearable tech and exergames.

- Funded seven 'thinkpieces' to stimulate debate and help us set our research agenda.

- Held our first symposium in May 2017 to provide a forum to disseminate ongoing research, explore challenges, form new collaborations, and consider how we might shape future funding calls; attended by 40 researchers, including 13 PhD students/early-career researchers.

1st GetAMoveOn Symposium – London
May 24th and 25th 2017
Leveraging technology to enable mobility and transform health

- Held three workshops: the first, at CHI 2017 exploring how HCI can be improved by a better understanding of how the human body works; another in June 2017 looking at how we can use technology to support physical activity in older people; the third in February 2018 exploring approaches to behaviour change for reducing sedentarism in our target communities.

- Announced funding for two events to be run by Network+ members in the coming year. One will explore the intersection between physical (in)activity, digital technology and mental wellbeing; the other will be an interdisciplinary meeting to foster collaboration between researchers developing wearables and people working in NHS primary care, with a view to developing practical ideas and funding proposals to develop them. Dates to be announced on our website.

In the coming year, we will be announcing funding for summer/winter schools, and launching funding calls for feasibility projects to pilot new ideas and approaches.

If you'd like to find out more or stay in touch with GetAMoveOn, you can:

Join our network & receive our email newsletter about events, other activities and funding opportunities **https://getamoveon.ac.uk/join**

Anyone who is interested is welcome to join.

Visit our website **www.getamoveon.ac.uk**

Follow us on twitter **@GAMOnetwork**

ECLIPSE Update

In the ECLIPSE project (Exploring the Current Landscape of Intravenous Infusion Practices & Errors: funded by NIHR HS&DR – 12/209/27), we have been investigating the impact of interaction design for intravenous infusion devices on the ways they are used. Some infusion devices, which deliver controlled volumes of liquid medications and fluids to patients at a defined rate, incorporate Dose Error Reduction Software (DERS). Pumps with DERS are commonly referred to as smart pumps. One of our key questions was whether smart pumps improve patient safety.

We have worked with 16 hospital trusts, conducting observations, interviews and focus groups to identify factors that most shape practice. The study in England was based as closely as possible on one that had been conducted in the US.

Although the study identified a large number of deviations from documented procedures, only one observed error (out of 2008 observations) was judged as being likely to have resulted in temporary patient harm had it not been intercepted. Many of the deviations that were observed could be accounted for as workarounds that added resilience to the system, particularly doing things in a timely way or managing time as a finite resource to devote attention where it is most needed.

Local practices respond to local situations, but there was wide global variability (across both wards and sites). Although practices with smart pumps were subtly different from those with normal pumps or gravity feed, the technology did not deliver measurably greater safety for every-day errors. Smart pumps are designed to catch significant errors in drug doses, which were not observed in our study.

Although the initial aims of ECLIPSE focused on interaction design questions, in fact the key determinants of user behaviour and patient safety were found to be local and national policies and the practices that nurses had evolved to manage time and workload most effectively.

The ECLIPSE team are:

Ann Blandford, **Anna Cox**, **Dominic Furniss** & **Galal Galal** (UCLIC); **Bryony Dean Franklin** & **Li Wei** (School of Pharmacy); **Astrid Mayer** (Royal Free); and **Gill Chumbley** (Imperial NHS Trust).

This project is funded by the National Institute for Health Research Health Services and Delivery Research programme (project no. 12/209/27).

The ICRI Cities Journey Comes to an End (2012-2018)

The Intel Collaborative Research Institute (ICRI), a joint collaboration between UCL and Imperial finally came to an end in January 2018, after 5 years of working together on leading edge research on cities. Our remit was to conduct user-centered and technical exploratory research into sustainable and connected cities. Intel funded the centre to the order of $7.5M which was matched by other funding, including EPSRC, EU and considerable university in-kind. The last 18 months of the project ramped up to work on a capstone project where we focused on developing novel IoT technologies at scale and testing them in situ, in the harsh realities of the city. A core theme was how to explicitly bring citizens into the loop of Urban IoT; we employed citizen engagement to enable local communities to be more proactive in collecting and making sense of urban data for their own personal/ community gains while providing valuable new data in the form of citizen experiences and feedback.

Throughout the lifetime of the ICRI, our guiding principles were: design for humans; build for the long term and the imperfections of the real world; and be able to deliver social, economic and environmental value. As part of this large-scale research agenda, we created a Living Lab at London's Queen Elizabeth Olympic Park (QEOP) – itself undergoing regeneration since the end of the Olympic Games, held there in 2012. A number of prototypes and sensing infrastructure were deployed in the park, helping to transform it into a 'smart' park, delivering

services and experiences to local communities and businesses. For example, one project investigated how to leverage the latest advances in IoT and edge computing in order to design and develop smart sensors that could monitor bat activity in real-time across a large diverse urban environment. As part of this project, PlayBat was developed by one of our 2017 HCI Master's students Matej Kaninsky (pictured), where he built a physical public

display, that combined a novel multi-modal interface, an interactive narrative structure together with the real-time IoT environmentally sensed bat call data. The aim was to evoke curiosity, discovery and challenge the oft-held negative perception about bats. When placed in the QEOP park, PlayBat was found to draw all manner of people to explore the live bat data, and at the end, even change their minds to like bats more.

Another project called Roam-io, explored how to sense and make visible to the general public, data about how urban spaces are being used by people. Quantitative data was collected, using an urban IoT sensing infrastructure along with qualitative data, asking people to answer relevant questions in public, by using a walk-up, robot-like installation. The ensuing hybrid dataset helped us to build a better understanding of what happens in urban spaces, where it can be difficult to interpret the data streams arising from environmental sensors, by themselves.

During the five years of the ICRI, UCL hired 14 post docs, six PhD students, and various interns and visitors, who worked on an amazing array of projects. All the researchers have now moved onto new careers and pastures new. There is a legacy website (**www.cities.io**) comprising papers, project descriptions, a portrait gallery of 'who's who', videos capturing many of the projects and PhD students explaining their work and much more about what happened on our adventurous 5-year journey. We have come a long way since Yvonne Rogers (UCL PI) and Julie McCann (Imperial PI) entered Number 10 in the summer of 2012 (pictured below) to witness the signing of the agreement.

iWARDS Update: You can be a person and a doctor, actually

Let's think about our doctors, their work, and their lives. Doctors' well-being has been shown to affect patient care, adherence to treatment and interpersonal aspects of care. High levels of emotional exhaustion and burnout are significant amongst doctors.

A collaboration funded by UCL Grand Challenges brings together UCL researchers with expertise in medical education, psychology and human-computer interaction. Prof Anna Cox is joined by Dr Antonia Rich, Lecturer, UCL Medical School, to address this problem of societal importance.

A lack of work-life balance in postgraduate medical training has been shown to negatively impact trainees' learning and well-being. The expectation to prioritise work at the cost of their personal lives results in low morale and harmed well-being. As a group, female doctors have been found to be vulnerable to burnout, and lack of work-life balance has been highlighted as the single most important precipitant of burnout in female doctors. With her colleagues in the Research Department for Medical Education (RDME) at UCL Medical School, Dr Antonia Rich recently interviewed 96 trainees who told them the many challenges to work-life balance they face. The study, "You can't be a person, and a doctor" (Rich et al., 2016), was published in BMJ Open: **https://tinyurl.com/Richetal2016**

To further expand this research, Prof Anna Cox and Dr Antonia Rich are planning to develop interventions to improve junior doctors' well-being. In March and April 2018 we ran a series of interdisciplinary workshops with postgraduate medical trainees in three hospitals: the Royal Free, Whittington and University College Hospital. At the workshops, we explored how digital interventions could support work-life balance issues. Digital interventions

have the advantage of being accessible whenever and wherever they are needed. This is particularly important for this group who are time-poor, work shifts and change location regularly. These interventions are informed by Marta E. Cecchinato's PhD work on how people use technologies to shape boundaries between work and personal life https://digitalboundariesresearch.wordpress. com/ . Using "reflection cards" we will prompt discussions in which participants will reflect on and share their own experience of the practical issues they face.

We are hoping that the proposed activities will increase the participants' well-being and knowledge of the concept of 'resilience' and how it can be developed. Moreover, we are hoping that this cross-disciplinary collaboration will give the postgraduate trainees the opportunity to make use of digital technologies to support physical, emotional and social needs with the aim of improving their work-life balance and well-being.

iWARDs
INDIVIDUALISED WELLBEING AND RESILIENCE FOR DOCTORS

Human-Computer Interaction MSc

The Human-Computer Interaction MSc (**www.ucl.ac.uk/prospective-students/graduate/taught/degrees/human-computer-interaction-msc)** **is concerned with the design and use of computing technology, focusing on the interfaces between people and computers.**

This interdisciplinary degree programme sits at the intersection of engineering, behavioural sciences, and design. Students acquire the research skills necessary to understand how people interact with computers and the design skills for constructing the digital products and services of the future. The programme combines academic rigour with practical and professional skills that are highly valued by employers.

Each year we receive hundreds of applications from highly qualified candidates from around the globe. We strongly encourage potential applicants to apply as early as possible to avoid disappointment as the programme is permanently over-subscribed.

Our innovative approach to teaching combines the best of lectures, online materials, and practical activities. Activities are often structured around individual or group projects, such as the evaluation of a system or the creation of a prototype. The programme is assessed through varied coursework, exams, and an individual research project. To get an

idea of the breadth and depth of research work undertaken by our students take a look at Distinction MSc Projects published on our website at (**https://uclic.ucl.ac.uk/study/current-taught-course/distinction-projects)**.

The strength of the research conducted by our HCI MSc students has been recognised by external awards. Caroline Wilcock (HCI MSc 2017) received the 2018 Ulf Aberg Award for Best Postgraduate Project from the Chartered Institute of Ergonomics and Human Factors (**www.ergonomics.org.uk)**. Matej Kaninsky (HCI MSc 2017) won the Best Student Project award at the 2017 UK UX Awards (**http://uxukawards.com/2017winners)**. These two students, along with Elise Hein (HCI MSc 2017), were included in the UCL Faculty of Brain Sciences Postgraduate Dean's List, which recognises the top performing students in the faculty. Congratulations to Caroline, Matej, and Elise on their well-deserved achievements!

HCI MSc students are actively encouraged to present their work at prestigious international events. At the CHI 2017 conference in Denver USA, Team StreetHeart (**https://dl.acm.org/citation.cfm?doid=3027063.3049273)** made it to the final four in the CHI Student Design Competition (**https://chi2017.acm.org/designcompetition.html)**, against competition from 70 submissions.

Following in their footsteps, our current HCI MSc students will be presenting their work at the CHI 2018 (**https://chi2018.acm.org)** conference in Montreal, Canada and the HRI 2018 (**http://humanrobotinteraction.org/2018)** conference in Chicago, USA.

To help support our students attend these prestigious international meetings, we plan to establish a UCLIC MSc HCI Travel Bursary.

Our alumni have pursued careers with technology multinationals, start-ups, government agencies, consultancies and in academia. Many take up roles such as User Experience (UX) Researchers, Interaction Designers, Usability Specialists, and Information Architects. We have a large network of alumni working in London and across the world. Many of them are involved with our industry speaker series and careers events, and they regularly send opportunities to our jobs mailing list for recent graduates.

For more details about the Human-Computer Interaction MSc please see back of booklet for contact details:

Duncan Brumby, Programme Director

Chris Evans, Admissions Tutor

Jo Pearson, Teaching and Learning Administrator
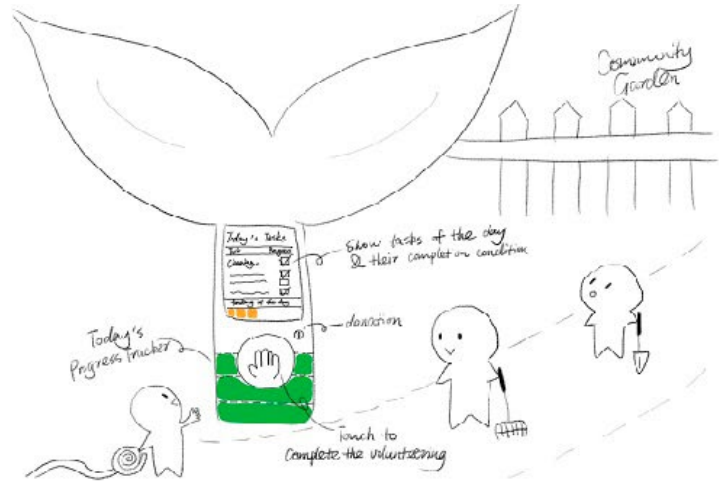
Examples of MSc module sketches and protoypes.
Top Row: Photo & Sketch by Ruyu Fu, of Interaction Design work by Fu, R; Liu, Y; Hua, Y; Mian, S; Peng, Z.
Bottom Row: Sketch by Anouk Harde and Photo by Jessica Andrich of Interaction Design work by Andrich, J; Beirl, D; Bouwman T; Harde, A; Serkes, T.

Highlighted UCLIC Profiles

Nicola Binetti

Nicola joined UCLIC as a Research Associate in April 2017, working with Duncan Brumby, Nadia Berthouze and Simon Julier, as part of the multidisciplinary EC-funded Human Manufacturing (HUMAN) project. He received an MSc degree in Experimental Psychology (2007) and a PhD in Cognitive Neuroscience (2011) from the University "La Sapienza" in Rome. Nicola joined UCL in 2012, first at the Institute of Cognitive Neuroscience as a self-funded Post Doc researcher with the Newton International Fellowship awarded by the British Academy & Royal Society, then as a Research Associate at the Department of Experimental psychology. Nicola's research interests span across vision sciences, time perception, motor control and social cognition. He is currently investigating how performance in routine procedural assembly tasks can be assisted through a combination of eyetracking and augmented reality technologies.

Jo Pearson

Jo joined UCLIC in June 2015 having previously worked as a Teaching Administrator in several other departments at UCL. Jo has previously worked in the NHS and arts administration. Jo has been instrumental in making the redesigned MSc programme a success on a practical, day to day, level. This has included advising on UCL regulations and paperwork for programme changes, reorganising the timetable, and streamlining MSc processes. She recently added to her responsibilities by taking on the day to day financial administration and budgeting for the programme. Outside of UCLIC, Jo is a member of the UCL's Teaching Administrator's Conference Committee. This yearly conference brings together Teaching Administrators from across UCL's many and varied departments to reflect on issues and share best practice. Jo has facilitated workshops on student feedback, collaboration and power in the workplace. In real life Jo is a composer and pianist.

Laura Lascau

Laura Lascau is a first-year PhD Student at UCLIC. Her background is in User Experience Design, Human-Computer Interaction and Computer Science. In her PhD she is looking at the impact of digital distractions on the work-life balance of crowdworkers. She is supervised by Prof Anna Cox, Dr Duncan Brumby and Dr Sandy Gould, University of Birmingham. She completed an MSc in Human-Computer Interaction Design in 2015 at City, University of London, where the focus of her thesis was on developing a collaborative tool for asynchronous and synchronous information seeking. Prior to that, she studied Computer Science. For the past two years, she worked as a User Experience Designer at IBM on the Watson IoT Platform, researching and designing for enterprises consumers.
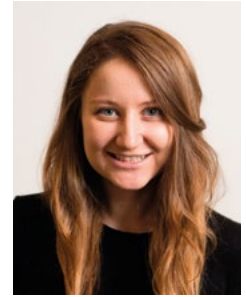
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