

UNIVERSITY OF  
**Southampton**

**LEADING  
THE WAY WITH  
WEB SCIENCE**

**CENTRE FOR DOCTORAL TRAINING  
IN WEB SCIENCE INNOVATION**

FOUNDING MEMBER  
OF THE  
**RUSSELL  
GROUP**



## **Welcome to Southampton's Centre for Doctoral Training (CDT) in Web Science Innovation.**

Southampton has had a significant role in the creation and development of the Web and the foundation of the discipline of Web Science, and we are committed to ensuring that we pass on our expertise to the digital leaders of the future through our CDT in Web Science Innovation.

The importance of the Web is continually growing in society and everyday life, and our innovative iPhD programme is preparing our students to be at the forefront of this development. Many of our alumni already hold prestigious positions around the world.

In this publication we are showcasing some of our exciting work that is already having an impact and how the CDT could help your organisation.

You can find out more about the many collaborations and partnerships that we have, as well as discover some of the ways in which are students are working with industry during their internships.

We are also pleased to share with you the stories of many of our students about why they chose the CDT at Southampton and the wide range of research areas they are involved in.

We hope you enjoy reading about our success and would welcome hearing from you if you feel there are ways we can work with you.

### **Professor Dame Wendy Hall**

Executive Director,  
CDT in Web Science Innovation



**EPSRC**

Engineering and Physical Sciences  
Research Council



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**Find out more**

[www.southampton.ac.uk/websciencecdt](http://www.southampton.ac.uk/websciencecdt)

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# AT THE INTERSECTION OF TECHNOLOGY AND SOCIETY

## Web Science

**The World Wide Web is the largest human information system in existence, transforming the world and affecting the lives of billions of people every day.**

A powerful combination of technical innovation and social participation, it is continuously evolving and shaping the future of humanity.

At the University of Southampton, our world-leading academics have played a pivotal role in both the creation and on-going development of the Web. We have been instrumental in the foundation of the new discipline of Web Science that sits at the intersection of technology and society.

Web Science explores both how the Web is changing the world and how the world is changing the Web. Integrating research across disciplines, we work with external partners in industry, government and the third sector to shape the future of the Web and digital society.

Southampton remains at the forefront of Web innovation through its highly-regarded Web Science Institute (WSI) and its Centre for Doctoral Training (CDT) in Web Science Innovation.



Training a total of

**167**

students



Students have taken part in

**161**

events in

**18 countries**



**Interdisciplinary**

training opportunities

We have over

**80**

supervisors

Our PhD research  
projects span

**20**

academic disciplines

**CDT in Web Science Innovation** – an EPSRC-funded centre that will train up to 170 PhD students on its innovative interdisciplinary four-year doctoral programme, preparing graduates to become agents of change in the digital economy. The Centre has academic and industrial connections worldwide with research laboratories, external partner organisations and other Digital Economy CDTs. Its alumni are already helping shape the future of the Web and society in a range of prestigious roles across the globe.

**Web Science Institute** – a world leader in Web Science research, training and enterprise. The WSI brings together researchers from across the University to engage in interdisciplinary research challenges that span social and computational sciences, humanities, medicine, health sciences, business, law and natural sciences.

**Web Science Trust** – a registered charity hosted by the University of Southampton that supports the global development of Web Science through an international network of world-class research laboratories (WSTNet), of which the WSI is a founding member.



**Find out more**

[www.southampton.ac.uk/websciencectd](http://www.southampton.ac.uk/websciencectd)

# OUR EXPERTISE

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## **Professor Dame Wendy Hall**

### **Executive Director**

Dame Wendy is Regius Professor of Computer Science, Pro Vice-Chancellor (International Engagement), and is the Executive Director of the Web Science Institute. With Sir Tim Berners-Lee and Sir Nigel Shadbolt she co-founded the Web Science Research Initiative and is the Executive Director of the Web Science Trust. Dame Wendy was Co-Chair of the UK government's AI Review, which was published in October 2017, and has recently been announced by the UK government as the first Skills Champion for AI in the UK.



## **Dr Mark Weal**

### **Director**

Mark is an Associate Professor in the Web and Internet Science Group. He is the technical lead for the LifeGuide programme of research, a multimillion pound, multidisciplinary initiative to research and develop online digital public health interventions such as weight management, stroke rehabilitation and cochlear implant home care. His research interests also include new methodological approaches for emerging forms of data, and their application in areas as diverse as disaster management and food provenance.



## **Professor Susan Halford**

### **Co-Director**

Susan's research focuses on the interplay between the Web and society, with particular attention to how digital devices, data and computational methods are changing the world and our knowledge of it. She combines critical perspectives with constructive engagement - for example in the development of new tools, methods and theoretical approaches to the digital age - and has a strong interest in looking forwards, towards building fair and prosperous digital futures for all.

## Advisory Board

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### **Bill Thompson** Chair of the Advisory Board

Bill is a journalist, writer and commentator. He is a Principal Research Engineer in BBC Research and Development, exploring how the BBC can use

the internet to deliver its mission. He also works with a range of arts and cultural organisations to help them think about the impact of digital technology on their practice.



### **Dr Catarina Fernandes** Academic Engagement Manager, Digital Catapult

Catarina is responsible for managing and creating new relationships between Digital

Catapult and UK academic partners as part of the company's strategy to create links between academia and industry. She has a PhD and has previously worked at several universities in roles such as senior teaching fellow and researcher skills development, and has also started her own technical consultancy business.



### **Professor Yike Guo** Professor of Computing Science at Imperial College, London

Yike is the founding Director of the Data Science Institute at

Imperial College, a Fellow of the Royal Academy of Engineering, and a Member of Academia Europaea. He is a world-renowned researcher in big data analysis with the broad experiences of applying data mining and machine learning technology for scientific applications, especially in the areas of engineering, finance and medicine.



### **John Baird** Head of the EPSRC-led Digital Economy Theme

John heads the Digital Economy Theme, a multidisciplinary socio-technical challenge research activity that aims to realise the

transformational impact of digital technologies on aspects of community life, cultural experiences, future society, and the economy. This includes aspects of Cyber Security, working with the Cabinet Office, DCMS and National Cyber Security Centre, among others.



### **Glen Hart** Principal Scientist, Dstl

Glen Hart is a computer scientist and accidental geographer. He is a Principal Scientist at Dstl where he focuses on GEOINT (geospatial intelligence).

He leads Dstl's relationship with the Alan Turing Institute and actively promotes the application of data science within the MOD. He is co-author of the book *Linked Data: A Geographic Perspective*.



### **Jeremy Morley** Chief Geospatial Scientist, Ordnance Survey

Jeremy leads the research team at Ordnance Survey that carries out research and standards development in collaboration with universities

and other research organisations. The team promotes spatial literacy, geospatial education and the use of Ordnance Survey's geospatial data in higher education.

# INTERDISCIPLINARY TRAINING

**Our Centre for Doctoral Training (CDT) in Web Science Innovation provides a rigorous four-year iPhD programme combining academic and training opportunities that enhance our students' socio-technical skills, facilitate their collaboration with industry and external partners, and help raise the profile of their individual research activities. Our students take part in an annual series of events locally, nationally and internationally.**

“One of the main benefits of being part of the CDT is all the opportunities that are available. Research trips are great ways to learn how people in different parts of the world address similar issues.”

**Gert Jan van Hardeveld**  
Graduate 2018

## Some of the exciting activities our students have been involved in:

### Putting on a show

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CDT students spoke to thousands of visitors at the Farnborough Air Show and BBC Countryfile Roadshow in the summer. Two hands-on activities helped show-goers visualise the process of creating, sharing and processing Big Data. They were encouraged to consider how they had shared or given away their data online in the previous 24 hours.

### Taking to the stage

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Award-winning playwright Rory Mullarkey looked to the CDT for inspiration when he was tasked with writing a play about the Internet. He joined CDT Executive Director Professor Dame Wendy Hall in a round table discussion with students and staff to help inform his initial research into topical issues with the Web.

### Debating new data protection regulations

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The launch of new GDPR regulations has been hitting the headlines recently, stimulating a conference organised by a Southampton CDT student in collaboration with the University's interdisciplinary Core on Law, Internet and Culture (iCLIC) group. To discuss whether the new guidelines are going far enough. The keynote speech was given by Member of the European Parliament Julia Reda.

## Connecting Digital Economy researchers

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Southampton CDT students regularly join doctoral researchers from other Digital Economy CDTs across the UK. Recent events have included the Annual Meeting in London and the Summer School in Bournemouth.

### Web Science Trust (WST) Summer School

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A CDT student based in Medicine, attended the 2018 WST Summer School in Hannover, Germany. The programme covered a wide range of topics including Big Data, human computation, Web mining, social Web, online learning, Web-scale crowdsourcing, and Web semantics.

### ACM WebSci'18 Conference

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The annual event attracts delegates from a multitude of disciplines in a creative and critical dialogue with the aim of understanding the Web and its impacts. At the 2018 conference in Amsterdam, three Southampton students were selected for the PhD Symposium, which was co-ordinated by Professor Les Carr and Dr Mark Weal, CDT Director.

### Shanghai Datathon

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Students participated in a research trip to Shanghai to attend a joint datathon working with the School of Computer Science and Engineering at Shanghai University, and the Data Science Institute, Imperial College, London. The theme of the datathon was to design solutions around the areas of health and transport using visualisations and other data analysis methodologies.

## Singapore Wellness Symposium

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Three iPhD students spent five days in Singapore to bring an interdisciplinary CDT perspective to the Wellness Seminar 2018. The team reviewed an app developed at the National University of Singapore (NUS) that uses photo recognition technology to identify food and its nutritional content. The app provides users with easy-to-use breakdowns of what they are eating, and areas where they might like to consider supplementing their diets. Collaborating with NExT++ (a joint research centre established with the National University of Singapore and Tsinghua University, China), the Web Science Institute aims to investigate adapting the app for use with a typical UK diet.

## Perspectives from Hong Kong and Taiwan

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Two CDT students, specialising in Music, presented their research at a regional Asian conference in Hong Kong and toured cutting-edge digital laboratories at key partner institutions in Hong Kong and Taiwan.

## International Workshop on Digital Research Designs

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This collaborative workshop brought CDT students together with those from the University of Naples Federico II, to develop ways of researching the technological aspects of social enquiry in the digital age. Students presented their work to a panel of UK and Italian academics and took part in a lively discussion on epistemology, methods and ethics.

## Guest lectures

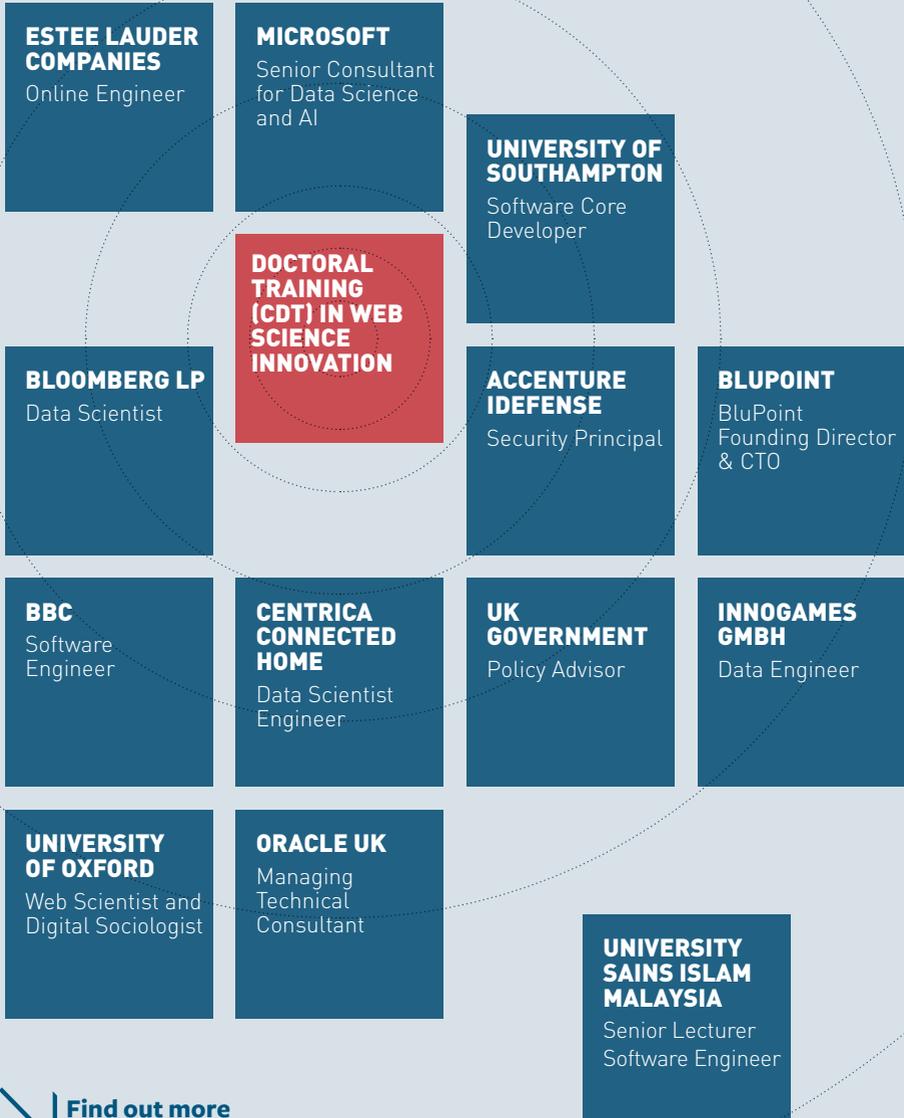
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A series of guest lectures and seminars from leading experts offer opportunities for staff and students to benefit from wide-ranging academic and industry expertise.

### Recent speakers have included:

- Mireille Hildebrandt  
Vrije Universiteit, Brussels/Radboud University, Netherlands
- Professor Jeanette Hoffman,  
Berlin Social Science Centre
- Professor Chris Lintott  
University of Oxford/Zooniverse
- Paul Maltby  
Department of Communities  
and Local Government
- Liam Maxwell  
HM Government, National Technology Advisor
- JP Rangaswami  
Deutsche Bank
- Richard Rogers  
University of Amsterdam
- Tom Steinberg  
mySociety
- Professor Barry Wellman  
NetLab, University of Toronto

Many of our CDT alumni are pursuing prestigious careers including academia, government, corporate organisations and industry. Here are some of the companies and roles our alumni have secured:



 **Find out more**  
[www.southampton.ac.uk/websciencecdt](http://www.southampton.ac.uk/websciencecdt)

# POWERFUL COLLABORATIONS

**Our partnerships and collaborations with external organisations are a vital part of the CDT's commitment to training doctoral researchers. We work closely with industry, government and other organisations on a wide range of activities including skills development, sponsorship, and strategic input.**

Here are some of the ways you can get involved:

**Studentships** – individual PhD projects can be proposed and funded by partner organisations. These students will be supervised jointly by the University and the partner organisation.

**Internships** – students may undertake full or part-time industry placements at external organisations at any point during their studies.

**Co-designed training activities** – partners may identify skills gaps in the employment market and work with us to devise appropriate development opportunities for current students or employees.

**Pilot projects** – organisations may wish to run small scale pilot projects related to their core business. We can identify students with relevant experience and interests to carry out research or implement activities.

**Strategic input** – we benefit from strategic input from our Advisory Board that comprises the CDT Management Team, representatives from partner organisations, the EPSRC and the student body.

**Research sandpits** – groups of students and academics engage with industry-relevant problems raised by partners to deliver insights against the initial brief.

**Sponsorship opportunities** – we welcome support in the form of sponsored events and operational activities such as sponsored prizes, training packages, or co-funding a one-day event, mini-conference or research visit.

**Guest lectures** – we invite a wide range of guest speakers to offer specialist keynote sessions, seminars or workshops featuring a topic relevant to Web Science.

## Our partners have included:

- BBC
- BuildPeace
- Business South
- Cabinet Office
- CleanWeb
- Comic Relief
- Ctrl-Shift
- Deutsche Bank
- Digital Catapult
- Department for Business
- Enterprise & Industrial Strategy
- Department for Communities & Local Government
- DSTL
- Facebook
- FutureLearn
- Hampshire Constabulary
- Haymarket Publishing
- Health Foundation
- Home Office
- Government Digital Service
- IBM UK
- Instagram
- INTERPOL
- The National Archive
- National Crime Agency
- Nuffield Southampton Theatres
- Office for National Statistics (ONS)
- Open Data Institute (ODI)
- Open Society
- Ordnance Survey
- Parliamentary Data Service
- PLMR
- Privitar
- Southampton City Council
- South East Regional Organised Crime Unit
- Spotify
- Switch Concepts
- Takeout
- Tech City UK
- Tesco
- Universal UK
- WEDINOS
- Wessex Academic Health Science Network (AHSN)



### Get in touch:

Are you interested in working with our staff and students?

[websciencecdt@southampton.ac.uk](mailto:websciencecdt@southampton.ac.uk)

# REWARDING PARTNERSHIPS

## Dstl

**The Defence Science and Technology Laboratory (Dstl) - the Ministry of Defence's research arm - is continually looking for high-performing scientists who can rapidly become integrated into its team to deliver world-class research.**

**Glen Hart, Principal Scientist from Dstl, said:**

"We were fortunate enough to invite Southampton Web Science PhD student Maire Byrne to interview for the position of Data Scientist and ultimately to recruit her. At interview we were immediately impressed by the roundedness that she presented, having a technical knowledge, which is common to many other applicants, but also an awareness of the social, economic and political issues that can relate to our work. Put simply she demonstrated true multidisciplinary awareness that is invaluable in teams of data scientists."

**Maire said:** "My time in the CDT in Web Science Innovation helped me to develop fledgling intuitions from my early thesis drafts, into real frameworks to try to address very complex and sometimes frightening areas, including modern slavery, decision support, and understanding cultures and places.

"At Dstl, Web Science comes up all the time, such as work on information operations and using graph theory in the right places and the right amounts; discussing how to apply more socio-technical thinking; understanding about the dangers of creating intelligence constructs from misunderstood data; and discussing how best to capture ground-truth with machine learning.

"Working at Dstl and with the military is an amazing opportunity for me, as it is basically Web Science in practice. While I'm climbing over armoured fighting vehicles and Type-23 frigates and red-teaming with the army, I'm constantly applying Web Science lessons.

"I'm currently working on Artificial Intelligence (AI), particularly ethics, which is a current topic of interest to many. My first degree was in Philosophy and Linguistics; before I went on to do Computer Science and then Web Science, and I find it somewhat mind-boggling that I can discuss philosophy with the military using all of these disciplines.

"I'm also working on exploring future threats, and science and tech communication. I'm working hard at trying to demystify and de-hype some of the stories about AI, with many others at Dstl and across the MOD and government. I would never have had the courage to explore some of the ideas I now work on, without my time in the CDT in Web Science Innovation."

**"The interdisciplinarity of the CDT is one of its major strengths. It brings knowledge from a range of subjects together to produce really unique research."**

**Briony Gray**  
Current student

## Cabinet Office

The Cabinet Office partnered with the CDT in Web Science Innovation to harness the growing expertise of its doctoral researchers by offering internships within one of its key focus areas: digital.

**Stuart Barclay, Senior Policy Advisor at the Cabinet Office, said:** “Southampton’s CDT in Web Science Innovation provided us with high quality resources, with links to academia, a fresh perspective and sometimes expert advice. We were able to offer the PhD students the opportunity to gain an insight into policy-making and how to have an impact in government.

“Most of the secondees work as generalists in the team, providing policy advice, and are involved in setting up collaborations with experienced academics.”

Their roles have included:

- helping arrange for a Southampton academic to develop a distributed ledger technology proof of concept for the Department for International Trade and UK Export Finance
- setting up communities of interest in artificial intelligence and distributed ledger technology
- working with the Office for AI to advance thinking on data trust

CDT student Robert Thorburn has spent three months on a placement in the Cabinet Office’s Open Innovation Team (OIT).

**Robert said:** “The OIT represents a novel and connected approach to an increasingly relevant problem – how does the Government apply the highest level of expertise to ongoing policy formulation. The OIT is a small team of civil servants, supported by PhD students, who are tasked with identifying relevant needs within Whitehall, connecting with leading academics in the related fields and bringing both parties together.

“As a placement student you get the opportunity to gain an unprecedented level of access to the policy-making process, and directly interact with leading academics from across the UK and abroad.”

## Ordnance Survey

Great Britain’s national mapping agency, Ordnance Survey, was so impressed with the international reputation of academics at the CDT that they decided to sponsor a PhD student to help explore the future of digital mapping.

**Jeremy Morley, Ordnance Survey’s Chief Geospatial Scientist, said:** “At Ordnance Survey our present and our future is very much in digital geographic information. We have been impressed with the pedigree of the academic group at Southampton, with their expertise and interdisciplinarity. We are fortunate to have a group with an international reputation right on our doorstep.

“Our collaboration is very much two-fold; we gain as much from the relationship as the CDT does. We were very interactive with our PhD student Nick Bennett in terms of supervision, work placement and a knowledge transfer scheme at the end of the project. We also invited him to come to Ordnance Survey to find out how his research was relevant to the people developing new products and technologies.”

Nick’s PhD research identifies thematic narratives of space, such as ‘real-time economic indicators’ and has worked closely with the Treasury and Cabinet Office to develop a programme that allows this information to be extracted and represented in digital mapping.

**Nick said:** “Understanding social contexts at local levels has been a task for researchers for decades. My research will create a programme capable of understanding activity spaces and their associated overlapping narratives in real time and at scale.”



**Find out more**

[www.southampton.ac.uk/websciencedcdt](http://www.southampton.ac.uk/websciencedcdt)

# CULTIVATING EXPERTISE



## Universal Music

Jack Webster

**Jack initially studied a degree in Music that cultivated an interest in academic research into music making and consumption online. His PhD in Web Science examines how music streaming services such as Spotify are disrupting the social dynamics of consumption.**

**He said:** “More specifically, I was concerned with how these platforms are shaping the role that music taste and consumption play in the reproduction of class.”

As part of his PhD, he spent approximately five months working as a data analyst for large record label Universal Music, embedded in the team responsible for managing Universal’s relationship with key digital partners such as Spotify, Apple and YouTube.

**He said:** “I conducted research into patterns in audience behaviour online that helped to inform release campaigns and the types of editorial support such as playlist placement that Universal sought from streaming companies.”

## UK Web Archive, British Library

Jessica Ogden

**Jessica has a broad range of interdisciplinary scholarly and professional experience that spans the areas of Web Science, Digital Humanities, Archaeology and the intersection of data politics, web archiving and digital data scholarship.**

Her PhD in Web Science is a socio-technical study of the institutional and community efforts to 'archive the Web', and the critical ways this is changing the nature of the Web architecture, as well as our understanding of how web archives are becoming central to the study and politics of information circulation online.

During her PhD she undertook a three-month placement fellowship at the British Library, examining what social science researchers require from the UK Web Archive to enable effective scholarly research.

As part of the ESRC National Centre for Research Methods-funded placement, she was embedded within the British Library's UK Web Archive team that has been regularly archiving and curating the UK web domain since 2004.

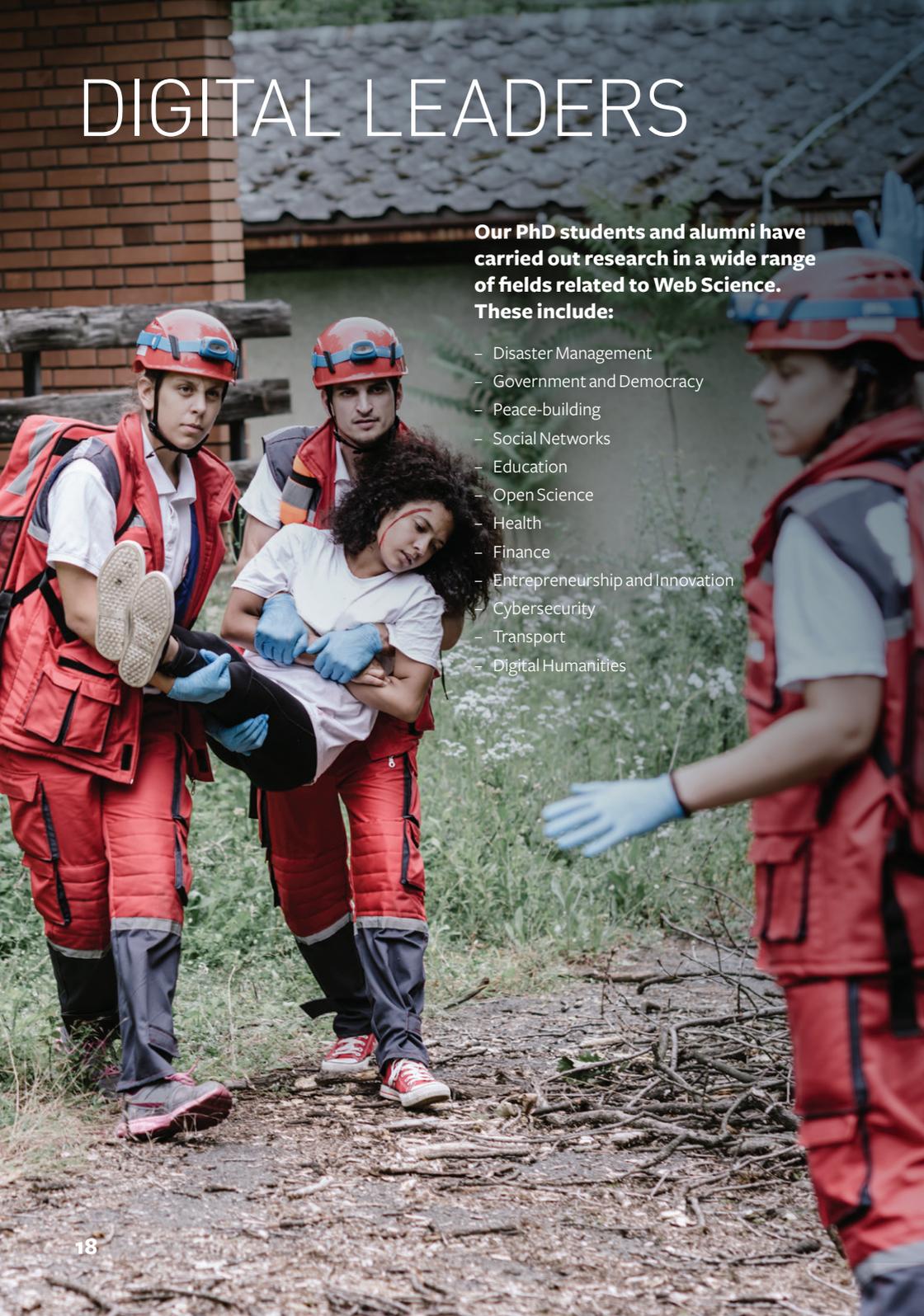
She said: "By being able to directly observe the web archiving practices of the British Library, I was able to research, consult and make recommendations about the direct connections between collection activities and researcher use. This work has directly informed the direction of my PhD research and getting the opportunity to work with the British Library has been invaluable."



**Find out more**

[www.southampton.ac.uk/websciencedct](http://www.southampton.ac.uk/websciencedct)

# DIGITAL LEADERS

A group of emergency responders in red gear and helmets are carrying an injured person on a stretcher. The scene is outdoors, possibly in a rural or disaster-stricken area, with a brick building and a tiled roof visible in the background. The responders are wearing red helmets with blue accents and red vests over white shirts. The injured person is lying on a stretcher, appearing to be in pain or unconscious. The responders are focused on their task, with one person holding the stretcher steady while others assist. The overall atmosphere is one of urgency and professional care.

**Our PhD students and alumni have carried out research in a wide range of fields related to Web Science.**

**These include:**

- Disaster Management
- Government and Democracy
- Peace-building
- Social Networks
- Education
- Open Science
- Health
- Finance
- Entrepreneurship and Innovation
- Cybersecurity
- Transport
- Digital Humanities

## Disaster Management

Briony Gray, current student

Trained geographer Briony focused her research on how the use of digital technologies and social media can be improved during natural disasters.

**She said:** “I look at the factors of Web accessibility and information reliability throughout the pre-disaster, during disaster and post-disaster phases. In many disaster cases it’s often the individuals who lack information who are exposed to the most risk, and so the more reliably and timely information can be spread, the better.

“My research explores who is using social media and digital technologies during disasters, why they are doing so, and what kinds of resources/social media platforms they use most often and aims to suggest ways in which things can be improved in future disaster events.”

Briony has already been involved in a real-life scenario looking at disaster management in the Caribbean. As part of a Southampton Marine and Maritime Institute research collaboration with Oceanography, she researched how the Atlantic hurricane season affected the islands of Antigua, Barbuda and Barbados. The project scoped methods of hurricane management and fed back suggestions to improve this during future seasons.

## Government and Democracy

Gefion Thuermer, current student

Gefion has been using the skills developed in her PhD to explore the effect of online participation behaviour in members of political parties. She has been working with the Green Party, in Germany, to understand more about the tools they introduce to engage their members – how they are adopted, who adopts them, and more importantly who doesn’t use them.

**She said:** “What is great about my work with the party is that I have a direct feedback channel for my results. I can see the impact my research is having. This is extremely rewarding and a great validation of the importance of the work I am doing.

“My results will not only be important to the Green Party, but the themes and problems I identify will be relevant to any party or organisation that aims to use online participation tools in a democratic context.”

After she finishes her PhD, Gefion hopes to continue her research into online participation, expanding to other parties, countries and organisations.

## Peace-building

Jennifer Gaskell, current student

Jennifer has developed innovative research using networked technologies to help rebuild societies broken down by violent conflict and war.

Her work explores the role of the Web and new technologies in peacebuilding processes and the transformative potential of information and communication technologies (ICTs).

She was the co-organiser of Build Peace, an international conference launched in 2014 at the Massachusetts Institute of Technology, in Boston, which has since been held annually in Cyprus, Switzerland, Colombia and Northern Ireland. She was also part of the team that launched the social enterprise organisation Build Up to work with a wide range of organisations at the intersection of technology, civic engagement and peace.

**She said:** “I collaborate with organisations on how to use ICTs in peacebuilding processes. I use the skills I acquired at the CDT to make a case for interdisciplinarity and a socio-technical approach to researching the Web, ICTs and their impacts on the social, political and cultural processes involved in peacebuilding practice.”



## Social Networks

Nada Al Bunni, current student

Nada's PhD research expanded on her strong interest in studying the role the Web and social media is playing in the contemporary conflict in the Middle East.

She was already active in promoting the use of technology in the Syrian communities, particularly in addressing the difficulties ambitious women face in Syria, and was also a founding member of Wikilogia – a collaborative community of Syrian engineering students that aims to proactively empower undergraduate students with technical and practical skills that increase their employment opportunities inside and outside Syria, as well as their ability to start their own businesses.

**She said:** “As online social networks have allowed individuals the facility to organise collective action, and to transmit information from the local to the international level, it was anticipated that new voices, such as women's voices, would be able to debate their own political identities and strategies through online social networks such as Facebook.

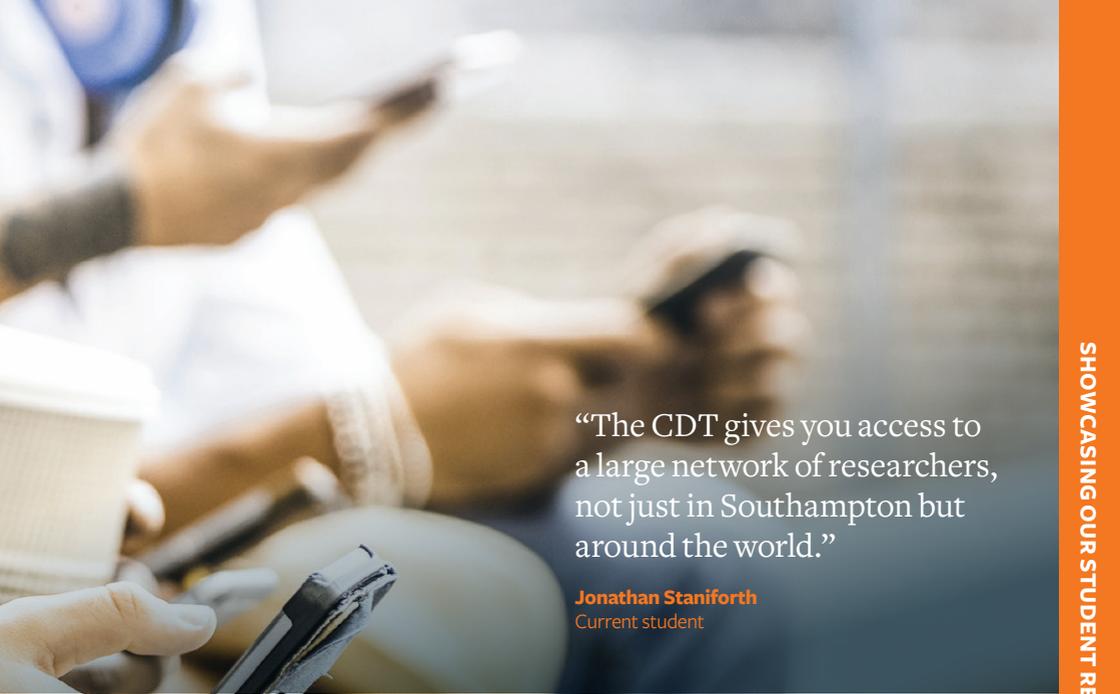
“My PhD research explores how the digitisation of the public sphere has the power to enable political change in any non-democratic country by enabling new voices. It addresses the potential role of the new media in shaping politics and opening up a new public sphere, especially in societies where a real public sphere is absent.”

## Education

Nicholas Fair, current student

Nicholas says the CDT has helped his research into transforming teaching and learning in the Network Age. His PhD has developed an innovative framework for the analysis of Personal Learning Networks. He has written, produced and mentored one of the Web Science MOOCs - 'Learning in the Network Age' - which was also used to collect his PhD data - a global first. He completed the University's Web Science Massive Open Online Course (MOOC) and then a Masters year, before embarking on his PhD research.

**He said:** “The Web has had a profound effect on the way we teach and learn. Learning is not just something you do in a lecture theatre or classroom, but involves accessing a network of different people, technologies, services and information sources, where and when you choose.



“The CDT gives you access to a large network of researchers, not just in Southampton but around the world.”

**Jonathan Staniforth**  
Current student

“My PhD at the CDT is enabling me to research this new landscape in order to better inform HE learning design so that it reflects the reality of today’s networked student, who is living, working and learning in a Network Age. I hope my long-term research can have a widespread influence on our understanding of the future way we teach and learn.”

### Open Science

**Samantha Kanza, graduated 2018**

Samantha has recently been appointed Enterprise Fellow Network+ Coordinator of the Artificial Intelligence and Augmented Intelligence for Automated Investigations for Scientific Discovery Network (AI3SD) – an EPSRC-funded network that brings together researchers to show how cutting-edge artificial and augmented intelligence technologies can be used to push the boundaries of scientific discovery.

She is also part of a team of early career researchers from Chemistry and Computer Science at Southampton –Talk2Lab - that are using automated echo technology to make laboratories more efficient and safe for staff and students.

Talk2Lab, led by Chemistry’s Professor Jeremy Frey, incorporated Amazon’s Alexa into smart technology, allowing it to access critical information about the lab and its equipment and freeing up scientists to carry out impactful research. The project attracted international praise from US research and development company Pistoria and led to an article in Scientific Computing World.

Samantha’s PhD combined Computer Science and Chemistry.

**She said:** “I had an amazing time doing my Web Science PhD as I had the privilege of working with some amazing people. It really showed me the value of interdisciplinary projects and taught me how to appreciate the skills and approaches of disciplines outside my own. I knew I wanted to find a discipline to apply my technical skills to, and I’ve found that I really enjoy applying modern technologies to the scientific domain. I’ve been lucky enough to get a job and be involved in research projects that do exactly that.”

## Health

Lisa Sugiura, graduated 2016  
Principal Lecturer in Criminology and  
Cybercrime/ Postgraduate Programme Area  
Leader - Distance Learning Programmes,  
University of Portsmouth

Lisa's PhD research focusing on the purchase of pharmaceuticals online, has led to her obtaining her ideal job. Her PhD crossed the disciplines of health sciences, social science and computer science, exploring how consumers respond to and manage the risks associated with procuring medicines via the Web.

After completing her PhD, she began work as a Teaching Fellow at the University of Southampton, before moving to the University of Portsmouth, initially as a Lecturer in Criminology and Cybercrime.

**She said:** "I am using all of the skills and research I gained in my PhD. Working as part of the Web Science cohort gave me experience working with people from a range of backgrounds and taught me to approach things from different angles to produce a more holistic view of real world web-related issues."

## Finance

Paul Gaskell, graduated 2016  
Data Scientist (Manager),  
Bloomberg LP, London

During his time at Southampton Paul benefited from the CDT's networking opportunities and credits this and the skills he developed during his PhD with helping him achieve his current job as a data scientist for Bloomberg – the world's largest provider of financial information services.

**He said:** "When I started my PhD, services were springing up online for sharing information to help people make investment decisions in financial markets. My PhD focused on developing methods for studying the relationship between this content and the price of stocks to understand the relationship between what people say about stock prices and stock price movements.

"I met the CEO of a local ad-tech company that I ended up consulting for during my PhD. This gave me invaluable experience using big data technologies and I think played a big role in getting me my current job.

"I use a lot of ideas from my PhD in my day-to-day work. My PhD was about extracting financial information from online content, so the work I do at Bloomberg is very similar to what I did in my PhD, just in a commercial setting."

## Entrepreneurship and Innovation

Johanna Walker, current student

Johanna was taking a break from her career in e-commerce and entrepreneurship and looking for a new challenge when she came across an opening at the CDT in Web Science Innovation. She says one of the main skills she has developed from the programme is the ethos of interdisciplinary working.

**She said:** "I have an applied degree in management, so I tend towards research practices that are highly structured and often model-based. Interdisciplinarity has broadened that thinking for me. I've also participated in developing a public engagement project and a secondment to the Cabinet Office taught me how best to present my research for policy impact."

Johanna also says that being part of a CDT cohort has been a good support to her while studying her PhD. She said: "Doing a PhD can be lonely and being part of the CDT cohort means there are people around you who are having similar experiences and who are a superb source of advice and ideas."

## Cybersecurity

**Gert Jan van Hardeveld, graduated 2018**

The novel knowledge and skills Gert gained in the field of cybercrime research during his PhD made him a good fit for his current role as a Tactical Cyber Investigation Specialist at the Fiscal Information and Investigation Service.

**He said:** “I chose to study Web Science because it was a new field, with an exciting opportunity to study an important topic in an interdisciplinary manner at a top university. The programme was also led by inspiring academics and had many impressive partners.

“My PhD was studying the behaviour of online criminals, specifically focusing on those trading in stolen payment card details. I also did an internship at INTERPOL’s Global Complex for Innovation, in Singapore, in the Research and Innovation Team. I contributed to several reports, training development, operational work and research, mainly looking at new issues relating to the Dark Web and cryptocurrencies.”

## Transport

**Jonathan Staniforth, current student**

Jonathan is exploring the challenges associated with maintaining the balance of vehicles in a car-sharing system to make it more cost-effective and more viable.

**He said:** “Transport is becoming a growing issue and the use of autonomous vehicles is a growing area of research, with lots of organisations looking at implementing such vehicles in the future.

“My PhD research investigates how the non-uniformity of trips taken by car-share users causes certain stations to collect vehicles, meaning the service becomes unavailable to users at stations that are empty. This requires a costly redistribution process.”

Jonathan has developed a model to incentivise users to alter their trip to maintain the balance, by offering a monetary discount to use an optimal station. He added: “My research can be used by car-sharing platforms to reduce costs and make such a system a more viable option. My future research will explore the use of shared autonomous vehicles, focusing on incentivising users to participate in dynamic ride-sharing.”

## Digital Humanities

**Terhi Nurmikko-Fuller, graduated 2015**  
Lecturer in Digital Humanities, Australian National University

Terhi credits the CDT with enabling her to bring together all the different topics she had studied for her BA, MPhil and MSc – Archaeology and Ancient History, Cuneiform and Near Eastern Studies, Museum Studies - into one research agenda, along with her professional knowledge and expertise from working at the British Museum, in London, and the National Museum, in Cairo.

**She said:** “It was truly unique at the time, for the discipline of Assyriology (the study of the ancient Near East). They were hands-down the best years of my life. There was money to go to conferences that really changed the course of my career. I made contacts in the wider Web Science Labs network, particularly one colleague with whom I’ve published nine papers in four years, including a paper that won Best Paper at the WEBIST 2015 conference.

“There is a strong overlap and relevance to my studies in Web Science. I use a lot of material in my own undergraduate teaching.”



### Get in touch:

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