Jessica R. Cauchard

Interdisciplinary Center (IDC) Herzliya

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RESEARCH INTERESTS

Human-Computer Interaction, Mobile and Ubiquitous Computing, Human-Drone Interaction, Augmented Reality.

EDUCATION

Postdoc, Human-Computer Interaction **2014-2016**
Stanford University, Department of Computer Science, Stanford, CA, USA
Advised by Prof. James Landay

Ph.D., Human-Computer Interaction **2009-2013**
Bristol University, Department of Computer Science, Bristol, UK
Title: Towards Mobile Multi-Display Environments: A Design Exploration Using Projection-Screen Devices
Advised by Prof. Sriram Subramanian and Prof. Mike Fraser

Masters of Science, Advanced Computer Science **2005-2006**
Sheffield University, Department of Computer Science, Sheffield, UK
Thesis advisor Dr. Daniela Romano

Bachelor of Engineering, Robotics and Artificial Intelligence **2002-2005**
Université Paul Sabatier Toulouse III, Toulouse, France

ACADEMIC POSITION

Assistant Professor **Since March 2017**
INTERDISCIPLINARY CENTER (IDC) HERZLIYA, ISRAEL
Shared position in the departments of Computer Science and Communication.
Director of the Ubiquitous Computing Lab.
Leading a multi-disciplinary undergraduate research program in the fields of Human-Computer and Human-Drone Interactions.

RESEARCH EXPERIENCE

Post-doctoral Research Fellow **2014-2016**
Stanford University, Stanford, CA, USA
Collocated Human-Drone Interaction (gestural input and various feedback strategies). Discreet Interactions with wearable devices (gestural input and vibration output).

Post-doctoral Research Fellow **2014**
Cornell Tech, New York City, NY, USA
Started post-doctoral research on vibro-tactile displays before moving to Stanford.

Research Intern **2012**
Microsoft Research Asia, Beijing, China
Worked with Dr. Xiang Cao on the design and development of interaction techniques for mobile handheld 3D projectors.

Graduate Researcher **2009-2013**
Bristol University, Bristol, UK
Worked on understanding the usability and designing interaction techniques for mobile devices with multiple displays. In particular, my work focused on mobile devices containing both a screen and a projector.

Researcher **2007-2009**
Think Lab, Salford University, Greater Manchester, UK
Designed web-based interface tools to support remote workers collaboration for design and engineering in the fields of construction, automotive, and aerospace as part of the CoSpaces EU-funded research project.

Research Associate (Knowledge Transfer Partnership Program) **2006-2007**
Tribal Group and University of Sheffield, Sheffield, UK
Virtual Reality and Cultural Heritage: Designed large-scale virtual environment to be exhibited at the UK Royal Armories museum in Leeds for a hundred years' war exhibition.

CONSULTING EXPERIENCE

External Consultant **August-October 2016**
Eonite, Palo Alto, CA, USA
User Experience and User Interface design development on head-mounted displays for augmented and virtual reality applications.

PUBLICATIONS

JOURNAL ARTICLES

J.1. **Cauchard J.R.**, Fraser M., Han T. and Subramanian S. Steerable Projection: Exploring Alignment in Interactive Mobile Displays. In *Proceedings of Personal and Ubiquitous Computing*, 16 (1). 2012

J.2. **Cauchard J.R.**, Ainsworth, P.F., Romano, D.M., Banks, B. Virtual Manuscripts for an Enhanced Museum and Web Experience 'Living Manuscripts'. In *Proceedings of Interactive Technologies and Sociotechnical Systems, Lecture Notes in Computer Science*, 4270. 2006

CONFERENCE PAPERS

C.1. Brock A., Chatain J., Hachet M., Landay J.A. and **Cauchard J.R.** ProjMap: Interacting with Projected Maps. In *Proceedings of the the 7th ACM International Symposium on Pervasive Displays (PerDis'18). Munich, Germany.*

C.2. Frey J., Grabli M., Slyper R. and **Cauchard J.R.** Breeze: Sharing Biofeedback Through Wearable Technologies. In *Proceedings of the the 2018 ACM Annual Conference on Human Factors in Computing Systems (CHI'18). Montreal, Canada.*
26% ACCEPTANCE RATE

C.3. Strasnick E., **Cauchard J.R.** and Landay J.A. BrushTouch: Exploring an Alternative Tactile Method for Wearable Haptics. In *Proceedings of the 2017 ACM Annual Conference on Human Factors in Computing Systems (CHI'17).* Boulder, CO, USA.
25% ACCEPTANCE RATE

C.4. E J., E I., Landay J.A. and **Cauchard J.R.** Drone & 我: Cultural Influences on Human-Drone Interaction Techniques. In *Proceedings of the 2017 ACM Annual Conference on Human Factors in Computing Systems (CHI'17).* Boulder, CO, USA.
25% ACCEPTANCE RATE

C.5. **Cauchard J.R**. Cheng J., Pietrzak T. and Landay J.A. ActiVibe: Design and Evaluation of Vibrations for Progress Monitoring. In *Proceedings of the 2016 ACM Annual Conference on Human Factors in Computing Systems (CHI'16).* San Jose, CA, USA.
23% ACCEPTANCE RATE

C.6. **Cauchard J.R**., Zhai K.L., Spadafora M. and Landay J.A. Emotion Encoding in Human-Drone Interaction. Accepted for publication at *the 2016 ACM/IEEE International Conference on Human-Robot Interaction (HRI '16)*. Christchurch, New Zealand.
25% ACCEPTANCE RATE

C.7. **Cauchard J.R.**, E J.L., Zhai K.Y. and Landay J.A. Drone & Me: An Exploration Into Natural Human-Drone Interaction. In *Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing (Ubicomp'15)*. Osaka, Japan. *30% ACCEPTANCE RATE*

C.8. **Cauchard J.R**., Löchtefeld M., Krüger A., Fraser M. and Subramanian S. m+pSpaces: Virtual workspaces in the spatially-aware mobile environment. In *Proceedings of the 2012 ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'12)*. San Francisco, CA, USA. 2012 *25% ACCEPTANCE RATE*

C.9. **Cauchard J.R.**, Löchtefeld M., Irani P., Schoening J., Krüger A., Fraser M. and Subramanian S. Visual Separation in Mobile Multi-Display Environments. In *Proceedings of the 2012 ACM Symposium on User interface Software and Technology (UIST'11).* Santa Barbara, CA, USA. 2011 *25% ACCEPTANCE RATE*

C.10. **Cauchard J.R.**, Ainsworth P.F., Romano D.M. and Banks B. Virtual Manuscripts for an Enhanced Museum and Web Experience - "Living Manuscripts". In *Proceedings of the 12th International Conference on Virtual Systems and Multimedia* (VSMM'06), Xi'an, China. 2006

DISSERTATIONS

T.1. **Cauchard J.R.** Towards Mobile Multi-Display Environments: A Design Exploration Using Projection-Screen Devices, Ph.D., Bristol University, Bristol, UK. 2013

T.2. **Cauchard J.R.** Design and Development of a Viewing Software for a Synchronised experience in virtual and real museums, MSc, Sheffield University, UK. 2006

DOCTORAL CONSORTIUM

DC.1. **Cauchard J.R.** 2011. Mobile multi-display environments. In *Adjunct Proceedings of the 24th annual ACM symposium adjunct on User interface software and technology (UIST'11)*. Santa Barbara, CA, USA. 2011

WORKSHOP PEER-REVIEWED PAPERS

W.1. Frey J. and **Cauchard J.R.** Remote Biofeedback Sharing, Opportunities and Challenges. In *Proceedings of the Ubicomp'18 Workshop International Workshop on Computing for Well-Being*. 2018

W.2. Blum J., Cooperstock J. and **Cauchard J.R.** Pseudo-Ambience: Filling the Gap Between Notifications and Continuous Information Displays. In *Proceedings of the Ubicomp'18 Workshop UbiTtention: 3rd International Workshop on Smart & Ambient Notification and Attention Management*. 2018

W.3. **Cauchard J.R.** Towards Designing Collocated User Interfaces for Autonomous Vehicles. In *Proceedings of the CHI'18 Workshop Interacting with Autonomous Vehicles: Learning from other Domains*. 2018

W.4. **Cauchard J.R.** Managing Online Availability from an Individual to a Societal Perspective. In *Proceedings of the CHI'15 Workshop Between the Lines: Reevaluating the Online/Offline Binary*. 2015

W.5. **Cauchard J.R.** ProDive: Projecting and Interacting Underwater. In *Proceedings of the CHI'13 Workshop Displays Take New Shape: An Agenda for Interactive Surfaces*. 2013

W.6. **Cauchard J.R.**, Fraser M. and Subramanian S. Designing mobile projectors to support interactivity. In *Proceedings of the CHI'11 Workshop on Mobile and Personal Projection*. 2011

W.7. **Cauchard J.R.**, Fraser M., Alexander J. and Subramanian S. Offsetting Displays on Mobile Projector Phones. In *Proceedings of the Pervasive Ubiprojection workshop on Personal Projection.* 2010

SELECTED INVITED TALKS

- **Congreso Internacional de Inteligencia Artificial. Alicante, Spain** **November 2018**
  Panelist: La inteligencia artificial en la sociedad
- **ENAC: Ecole Nationale de l'Aviation Civile. Toulouse, France** **September 2018**
  Collocated Human-Drone Interaction
- **Reaktor Breakpoint Conference. Helsinki, Finland** **May 2018**
  Games of Drones
- **Drone Conference. Herzliya, Israel** **May 2018**
  Towards Human-Drone Interaction
- **Research seminar and guest lecture. University of Primorska, Slovenia** **April 2018**
  On-body and Out-of-body Interactions
- **Ben Gurion University of the Negev. Be'er Sheva, Israel** **February 2018**
  On-body and Out-of-body Interactions
- **Haifa University. Haifa, Israel** **January 2018**
  On-body and Out-of-body Interactions
- **Carleton University. Ottawa, Canada** **December 2017**
  On-body and Out-of-body Interactions
- **Café Scientifique. French Embassy in Tel Aviv, Israel** **November 2017**
  Human-Drone Interaction
- **Tel Aviv University. Guest Lecture, Israel** **November 2017**
  Aerial Human-Robot Interaction
- **Interdisciplinary Center Herzliya Gala. Israel** **June 2017**
  Drones: The Upcoming Revolution

- **DIGIT 2017. Herzliya, Israel** **March 2017**
  Innovative drone applications for journalism
- **Namibia University of Science and Technology. Windhoek, Namibia** **November 2016**
  On-body and Out-of-body Interactions
- **AUI 2016 Keynote: 1st Asian Workshop on User Interface. Tokyo, Japan** **October 2016**
  Out-of-body Interactions
- **Brown Institute for Media Innovation. Stanford, CA, USA** **September 2016**
  g:drone presentation and live demo
- **Interdisciplinary Center (IDC) Herzliya. Herzliya, Israel** **April 2016**
  On-body and Out-of-body Interactions
- **Haifa University. Haifa, Israel** **April 2016**
  On-body and Out-of-body Interactions
- **IBM. Haifa, Israel** **April 2016**
  On-body and Out-of-body Interactions
- **Tel Aviv University. Tel Aviv, Israel** **April 2016**
  On-body and Out-of-body Interactions
- **Hebrew University of Jerusalem. Jerusalem, Israel** **March 2016**
  On-body and Out-of-body Interactions
- **Technion - Israel Institute of Technology. Haifa, Israel** **March 2016**
  On-body and Out-of-body Interactions
- **George Mason University. Fairfax, VA, USA** **March 2016**
  On-body and Out-of-body Interactions
- **Rochester University. Rochester, NY, USA** **March 2016**
  On-body and Out-of-body Interactions
- **Drexel University. Philadelphia, PA, USA** **March 2016**
  On-body and Out-of-body Interactions
- **UNC Charlotte. Charlotte, NC, USA** **February 2016**
  On-body and Out-of-body Interactions
- **Concordia University. Montreal, Quebec, Canada** **February 2016**
  On-body and Out-of-body Interactions
- **Technicolor. Los Altos, CA, USA** **November 2015**
  On-body and Out-of-body Interactions

- **INRIA Bordeaux. Bordeaux, France** **September 2015**
  An Exploration Into Natural Human-Drone Interaction
- **ACM womENcourage 2015. Uppsala, Sweden** **September 2015**
  Panel Moderator: Out of the ordinary jobs after a CS degree
- **Waterloo University. Waterloo, ON, Canada** **June 2015**
  Projections.Vibrations.Interactions
- **Berkeley University. BID Seminar. Berkeley, CA, USA** **April 2015**
  Projections.Vibrations.Interactions
- **Cornell Tech. dTech Seminar. New York City, NY, USA** **January 2014**
  Mobile.Projector.Interaction
- **Samsung SISA User Experience Center. San Jose, CA, USA** **September 2012**
  Mobile Multi-Display Environments

ACADEMIC EXPERIENCE

GRANTS

- **Amazon Web Services (AWS) Research Grant ($20K)** **2018**
- **SAIL-Toyota Center for AI Research at Stanford University ($25M)** **2015-2018**
  Contributed to the writing of the proposal (User Experience in the car)
- **Magic Grant Awards. The Brown Institute for Media Innovation ($125K)** **2015-2016**
  G:Drone - An Interactive Personal Drone Tour Guide - Primary author of the proposal.
- **N2 Women** Young Researcher Fellowship **2015**
- **Anita Borg Grace Hopper Conference** travel grant **2014**
- **ACM-W Scholarship** for Attendance at a research conference **2013**
- Bristol University, Computer Science, **Roberts Fund for Skills Training** **2010 and 2011**
- **Royal Academy of Engineering** travel grant **2010**

TEACHING

Senior Lecturer. IDC Herzliya, Israel **Since 2017**
Systems Programming Unix / C for first year BS Computer Science students (2017)
Human-Computer Interaction introduction courses for CS and Communication students.
Research method seminar on Human-Computer and Human-Drone Interaction.

Instructor. Stanford University, CA, USA **2016**
Human-Computer Interaction introductory course to visiting students.

Instructor. CESI-EXIA, Pau, France **2012-2013**
Scientific Project (1st year undergraduates) Teaching by project: *My computer makes coffee*. Students were given weekly assignments to code an Arduino board to program a coffee machine. Students learned Arduino programming as well as key mathematical and physics concept in the process.

Instructor. CESI-EXIA, Pau, France **2012-2013**
Mobile Development (1st year Masters) Students learned how to program Android devices and developed an Augmented Reality mobile game.

Instructor. CESI-EXIA, Pau, France **2012-2013**
Research Methodologies (1st and 2nd year Masters). Taught the research process and methodologies for writing a state of the art and conducting research for a professional masters thesis.

Teaching Assistant. University of Bristol, Bristol, UK **2009-2010**
AutoCAD / Helped shape the curriculum and provided coursework material for learning professional software *(AutoCAD/ Matlab / Excel)* to all first year undergraduate Civil Engineering students.

Student Advising and Mentoring

Gilad Ostrin (CS Undergraduate) **Since 2018**
Development of a platform for interactive storytelling and biofeedback processing.

Jeff Blum (Visiting PhD Student) **Summer 2018**
Haptic interface for remote implicit communication.

Adam Ben Hanania, Joshua Goldberg (COM Undergraduates) **Since 2017**
Feedback for natural interactions with multi-user IoT devices.

Jacqueline Eichenblatt (Business Administration) & Chloe Benmussa (CS) **Since 2017**
Interactive space suit project.

Anna Wojciechowska and Esther Mandelblum (COM Undergraduate) **Since 2017**
Drone approach for collocated interaction, facial features and personality.

Ilan Ziv (CS Masters) **Since 2017**
Master's thesis on combining a smart-watch with everyday input devices.

Jeremy Frey (Postdoctoral Researcher) **2017-2018**
Use of Physiological signals as input for wearable and mobile computing.
Led to publication and demonstration at ACM CHI 2018.

Sarit Sass, Roy Shafir (CS Undergraduates) **2017-2018**
Drone search and rescue project and Drone approach. Research work in submission.

Rafael Ben Ari, Alon Rabinovich (CS Undergraduates) **2017-2018**
Autonomous flight path for search and rescue drone.

May Grabli and Kohava Altose (COM Undergraduate) **2017-2018**
User study design for interactive storytelling and biofeedback projects.

Yotam Avraham (CS Undergraduates) **Fall 2017**
Development of a platform for biofeedback processing.

Stav Shimko (CS Research Assistant) **Summer 2017**
Autonomous Drone programming.

Roi Kimche, Boaz Shalom, Alon Slutsky, Etai Zajonts (CS Undergraduates) **Spring 2017**
Implemented and performed interactive drone demonstration for IDC Gala 2017.

Jane E (PhD Student) **2014-2016**
Co-advised with James Landay. Natural human-drone interaction and Guide Drones. Led to publication at Ubicomp '15 and CHI '17, and to Magic Grant Award.

Kevin Zhai (Undergraduate Student) **2015-2016**
Co-advised with James Landay. Implemented feedback system for human-drone interaction. Led to publication at HRI '16.

Michelle Park, Amy Chen and Tommy Fang (Undergraduate Students) **Summer 2016**
Co-advised with James Landay. Implemented the automated drone tour guide.

Krister Johnson (Masters Student) **Summer 2016**
Co-advised with James Landay. Implemented iOS and Pebble software code for a step counter study with various feedback modalities.

Evan Strasnick (PhD Student) **2015**
Co-advised with James Landay. Implemented hardware for haptics feedback. Study on spatial resolution of perception for haptic sensations. Led to publication at CHI '17.

Kat Gregory, Jessica Zhao and Edwin Park (Undergraduate Students) **2015**
Co-advised with James Landay. Implemented first version of iOS and Pebble smartwatch software for ActiVibe user study, published at CHI 2016.

Janette Cheng (Undergraduate Student) **Summer 2015**
Co-advised with James Landay. Implemented iOS software and helped run longitudinal study on feedback on wearable devices. Led to paper publication at CHI 2016.

Alex Tamkin (Undergraduate Student) **Summer 2015**
Co-advised with James Landay. Implemented input and output system embedded on a drone for human-drone interaction.

Eric Wang (Masters Student) **Summer 2015**
Co-advised with James Landay. Implemented input and output system embedded on a drone for human-drone interaction.

Kesler Tanner (PhD Student) **Spring 2015**
Co-advised with James Landay. Implemented muscle interface on a Myo armband.

Teng Han (Masters Student) **2009-2012**
Co-advised with Sriram Subramanian. Worked on image processing with OpenCV for gestural interaction with mobile devices. Led to publication in PUC journal in 2012.

HONORS AND AWARDS

- Invited to attend the Heidelberg Laureate Forum, Heidelberg, Germany 2015
- Google Anita Borg Memorial Scholar (Europe, Middle East and Africa) 2012
- Marjorie Shaw Scholarship: Awarded for academic excellence by the British Federation of Women Graduates 2012
- Awarded fully funded PhD Studentship (Tuition waiver + $60K) 2009-2012
  EPSRC: UK Engineering and Physical Sciences Research Council

ACADEMIC SERVICES

Organizing Committees

- ACM MobileHCI Doctoral Consortium Chair 2019
- ACM CHI Demonstrations Co-Chair 2018
- ACM MobileHCI Workshop Co-Chair 2018
- ACM UIST Registration Co-Chair 2015-2016
- ACM womENcourage Panel Co-Chair 2015
- ACM MobileHCI Student Volunteer Co-Chair 2012

Program Committees

- Associate Editor: Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) 2018-2020
- Guest Editor: Springer Personal and Ubiquitous Computing journal Special edition on Pervasive Computing 2019
- Paper co-chair: ACM International Symposium on Pervasive Displays (PerDis) 2019
- ACM CHI Workshops 2019
- Paper co-chair: Israeli Human-Computer Interaction Research Conference (IsraHCI) 2018
- ACM Conference on Human Factors in Computing Systems (CHI) 2016 & 2018
- Grace Hopper Conference, Human-Computer Interaction Track 2017-1018
- ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI) 2016
- ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS) 2015
- ACM Conference on Human Factors in Computing Systems Work-in-Progress (CHI WiP) 2013-2015

Conference and Workshop Organizer

- **Cauchard J.**, and Wojciechowska A. Multi-Cultural Human-Robot Interaction. At ACM AfriCHI 2018: 2nd African conference for Human-Computer Interaction, Windhoek, Namibia.
- Kuflik T., Zamansky A., **Cauchard J.** ACM Summer School on Intelligent User Interfaces in the Era of IoT and Smart Environments. Haifa, Israel. 2018.
- **Cauchard J.R.**, Landay J.A. and Li Y. Future Mobile User Interfaces. At MobiSys 2015: 13th International Conference on Mobile Systems, Applications, and Services. Florence, Italy.
- **Cauchard J.R.**, Kivran-Swaine F., Esper S. and Kliper Y. It doesn't have to be pink! Designing for women. Birds of a Feather. Grace Hopper Conference. Phoenix, AZ, USA. 2014.

Reviewer

ACM Conference on Human Factors in Computing Systems (CHI)	2012-2016, 2019
IEEE Robotics and Automation Letters (RA-L)	2018
ACM User Interface Software and Technology (UIST)	2014-2018
ACM Transactions on Human-Robot Interaction (THRI)	2018
IEEE International Conference on Robotics and Automation (ICRA)	2018
Conference on Human-Agent Interaction (HAI)	2017
IEEE/RSJ International Conference on Intelligent Robots and Systems	2017
ACM/IEEE Conference on Human-Robot Interaction (HRI)	2017
IEEE Pervasive Computing	2016
IEEE Symposium on Robot and Human Interactive Communication (RO-MAN)	2016
ACM Conference on Designing Interactive Systems (DIS)	2016
ACM International Symposium on Wearable Computers (ISWC)	2015
ACM Conference on Intelligent User Interfaces (IUI)	2015
ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)	2012-2014-2018
ACM Symposium on Spatial User Interactions (SUI)	2013
IEEE Symposium on 3D User Interfaces (3DUI)	2013
ACM Conference on Interactive Tabletops and Surfaces (ITS)	2012
ACM Conference on Multimodal Interaction (ICMI)	2012
ACM Conference on Tangible, embedded, and embodied interaction (TEI)	2012
ACM Ubiquitous Computing (UbiComp)	2011

OUTREACH

- Career Panelist at the Broadening Participation Workshop event at Ubicomp '18 2018
- Panelist for N2Women Diversity event at Ubicomp '17 2017
- ACM womENcourage Panel Chair 2015
- Networking Networking Women (N^2 Women) lunch organizer at MobiSys '15 2015
- Grace Hopper Conference: Birds of a Feather organizer on designing for women 2014
- Founder & main organizer Girl Geek Dinners, Bristol 2010-2012

REFERENCES

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Stanford University,
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