

# Katie Winkle

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**Mission:** *Ethically developing autonomous socially assistive robots for the real world.*

**Research Interests:** Human Robot Interaction; Artificial Intelligence; Robots in Society; Robot Ethics

## Employment

- Jan 2022- **Heriot-Watt University**, *Assistant Professor*, Department of Computer Science, Edinburgh, UK.
- 2020-2021 **KTH Royal Institute of Technology**, *Postdoctoral Research Fellow*, Division of Robotics, Perception and Learning, Stockholm, Sweden.  
Digital Futures Fellow, supervised by Iolanda Leite and Donald McMillan (Stockholm University). Leading projects on feminist social robots and designing robots *for* young people *with* young people.
- 2019-2020 **University Of the West of England**, *Research Associate*, Bristol, UK.  
Responsible robotics for the digital economy: working on black box recorders and accident investigation processes for social robots in close collaboration with partners from the University of Oxford.

## Education

- 2015-2020 **PhD Robotics**, *Bristol Robotics Laboratory*, Bristol UK,  
Thesis Title: Expert-Informed Design and Automation of Persuasive, Socially Assistive Robots  
Supervisors: Paul Bremner, Ute Leonards, Praminda Caleb-Solly, Ailie Turton, Severin Lemaignan.  
Interdisciplinary work covering the technical development of autonomous human robot interactions informed by qualitative, participatory and co-design studies with experts. Undertook HRI studies on persuasive robotics, robot ethics and human-in-the-loop interactive machine learning. Culminated in development, long-term deployment and expert-in-the-loop automation of a robot fitness coach in a university gym.
- 2011-2015 **MEng Mechanical Engineering**, *First Class Honours*, University Of Bristol.

## Teaching Experience

- 2020- **Lecturer**, *KTH Royal Institute of Technology*.  
Delivered 'Introduction to (Practical) AI Ethics' on the DD2380 Artificial Intelligence course, and '(Human Robot) Interaction Design' on the DH2632 Human-Computer Interaction, Research Seminars course.
- 2017-2018 **University Teaching Associate**, *University of Bristol*.  
Lecturer, course responsible and examiner for the 20 credit Robotic Systems computer science at undergraduate and postgraduate level. Received positive student feedback:  
"Lecturing quality of PHD students was excellent especially considering their relative newness to running the course. Katie was particularly good and is perhaps one of the best lecturers in the university at the moment"  
"The lecture Katie prepared herself about social robotics was excellent"
- 2016-2018 **University Teaching Assistant**, *University of Bristol*.  
Ran and assessed the Robotics MSc reading groups, provided lab support, solution preparation and marking across engineering and computer science units including: Introduction to Computer Programming Robotic Systems and Bio-Inspired Artificial Intelligence

2013-2015 **Teaching Assistant**, *Bristol Children's Hospital*, University of Bristol.  
Part of the 'Students in Schools' outreach programme run by the Widening Participation department.  
Worked predominantly one-to-one with children of all ages teaching maths, science, DT and IT. Also provided mentoring and pastoral support to adolescent patients.

## PhD Student Supervision

I am co-supervisor for the following student(s):

from 03/2021 **Gaspar Melsión**, *Explainable AI for Social Justice in Human Robot Interaction*, PhD in Computer Science and Engineering, KTH.

## MSc Student Supervision

- 2020 **Paul Gorgis**, *Understanding Gaze Behaviour and Gender in Human Robot Interaction*, Degree Project in Computer Science and Engineering, KTH.
- 2020 **Ravi Bir**, *Implementing Machine Learning Techniques to Improve the Performance of Socially Assistive Robots*, Degree Project in Computer Science and Engineering, KTH.
- 2019 **Shiming Zhang**, *Interactive Machine Learning for Social Robots in Public Spaces*, MSc Robotics Dissertation, Bristol Robotics Laboratory.
- 2019 **Ranvir Bhogal**, *Defining a Social Robot in a Public Environment*, MSc Robotics Dissertation, Bristol Robotics Laboratory.

## Invited Talks

- Dec 2020 **Digital Futures Seminar (KTH Royal Institute of Technology)**, *Digital Event*  
Working with [humans/robots] to make better [robots/humans]
- Jun 2020 **Heriot-Watt University**, *Digital Event*  
Creating Autonomous, Socially Assistive Robots for the Real World
- Jan 2020 **Colorado School of Mines**, *Colorado, USA*  
Designing Persuasive Robots (Ethically)
- Oct 2018 **South West of England Robotics Network**, *Bristol, UK*  
Designing Persuasive Robots (Ethically)
- Apr 2018 **Association of Chartered Physiotherapists Interested in Neurology AGM**, *Bristol, UK*  
Social Robotics for Rehabilitation
- Feb 2018 **EPSRC Science for a Successful Nation Showcase**, *London, UK*  
Socially Assistive Robots for a Healthy Nation
- Aug 2017 **Langbuisson Long Term Care Conference**, *Bristol, UK*  
Robots for Assisted Living
- May 2017 **Associated Retirement Community Operators Conference**, *London, UK*  
Robots for Assisted Living
- May 2017 **Softbank Robotics**, *Paris, France*  
Social Robots in Therapy

## Honours and Awards

- 2020 Best Paper Award  
*International Conference on Robot Ethics and Standards*
- 2019 HRI Pioneer  
*Selected to participate in the Human-Robot Interaction (HRI) Pioneers, a highly selective workshop to foster creativity, communication and collaboration between young researchers*
- 2018 Best Paper Award: Theory and Methods  
*ACM/IEEE International Conference on Human-Robot Interaction, Chicago, USA*

2018 M H Joseph Prize for Academic Excellence (£2000)  
British Federation of Women Graduates

## Funding, Grants & Scholarships

2020 Digital Futures Postdoctoral Fellowship 1M SEK/year  
2020 Jean Golding Institute Seed Corn Funding £2000  
2019 University of Bristol Alumni Travel Grant £550  
2014-2019 PhD Robotics EPSRC Doctoral Studentship  
2011-2015 Undergraduate Scholarship *Institution of Mechanical Engineers*  
2011-2015 Women in Engineering Scholarship *Jaguar Land Rover*

## Academic Service

### Workshop and Special Session Organisation

Social Robotics Panel Co-Chair at the 2021 WASP-HS AI and Healthcare Meeting  
Co-Organiser of the 2020 Future Digileaders Career Workshop  
Co-Organiser of the Workshop on Enriching HRI Research with Qualitative Methods at ICSR 2020  
General Chair of the 2020 HRI Pioneers Workshop  
Co-Organiser of the Workshop on What Could Go Wrong at HRI 2019  
Co-Organiser of the Workshop on What Could Go Wrong at HRI 2018

### Senior Program Committee/Area Chair

International Conference on Affective Computing Intelligent Interaction (ACII) 2021

### Reviewer for Journal Articles

Frontiers in Neurorobotics  
Transactions on Human-Robot Interaction  
International Journal of Social Robotics

### Reviewer for Conference Proceedings

ACM Designing Interactive Systems (DIS)  
Robotics: Science and Systems (RSS)  
ACM/IEEE International Conference on Human-Robot Interaction (HRI)  
IEEE International Conference on Robot Human Interactive Communication (RO-MAN)  
ACM International Conference on Multimodal Interaction (ICMI)

## Selected Media, Outreach and Public Engagement Highlights

Nov 2019 Ran media day with invited journalists to share PhD 'gym robot' study resulting in significant international coverage including televised coverage on *BBC, ITV and Sky News*.  
Jun 2019 Co-ran robotics family activities open day *Old Library Community Centre, Bristol*  
Jul 2018 Spoke on robot attachment at "Telling Stories About Robots" event, *We the Curious Science Museum, Bristol*  
May 2017 Robot demonstration at "Robot Takeover" edition of the Lates Series, *London Science Museum*  
April 2017 Designed, organised and led programming day with house in-built robots for outreach, *Abbeywood Community School, Bristol*  
Nov 2017 Interviewed in *The Guardian* on behalf of the Institute of Mechanical Engineers

## Publications

### Journal Articles

- K. Winkle, P. Caleb-Solly, A. Turton and P. Bremner, "Mutual Shaping in the Design of Socially Assistive Robots: A Case Study on Social Robots for Therapy." *International Journal of Social Robotics* (2019)

### Book Chapters

- A. Winfield, **K. Winkle**, H. Webb, U. Lyngs, M. Jirotko, C. Macrae "Robot Accident Investigation: A Case Study in Responsible Robotics" (2021) A. Cavalcanti, B. Dongol, R. Hierons, J. Timmis, J. Woodcock (Eds.) Software Engineering for Robotics, Springer

#### Refereed Conference Publications

- **K. Winkle**, G. Melsión, D. McMillan and I. Leite, "Boosting Robot Credibility and Challenging Gender Norms in Responding to Abusive Behaviour: A Case for Feminist Robots" in Companion Proceedings (alt.HRI) of the 2021 ACM/IEEE International Conference on Human-Robot Interaction, Colorado, USA **Acceptance rate: 22%**
- **K. Winkle**, P. Caleb-Solly, U. Leonards, A. Turton and P. Bremner, "Assessing and Addressing Ethical Risk from Anthropomorphism and Deception in Socially Assistive Robots" in Proceedings of the 2021 ACM/IEEE International Conference on Human-Robot Interaction, Colorado, US. **Acceptance rate: 23%**
- A. Winfield and **K. Winkle**, "RoboTed: a case study in Ethical Risk Assessment" in Proceedings of the 2020 International Conference on Robot Ethics and Standards **Awarded Best Paper**
- **K. Winkle**, S. Lemaignan, P. Caleb-Solly, U. Leonards, A. Turton and P. Bremner, "In-Situ Learning from a Domain Expert for Real World Socially Assistive Robot Deployment" in Proceedings of the 2020 Robotics: Science and Systems Conference
- H. Webb, M. Jirotko, A. Winfield and **K. Winkle**, "Human-robot relationships and the development of responsible social robots" in Proceedings of the Halfway to the Future Symposium 2019, Nottingham, UK 2019
- **K. Winkle**, A. vanMaris, "Social Influence and Deception in Socially Assistive Robotics" in Proceedings of the 2019 International Conference on Robot Ethics and Standards, London, UK
- **K. Winkle**, S. Lemaignan, P. Caleb-Solly, U. Leonards, A. Turton and P. Bremner, "Effective Persuasion Strategies for Socially Assistive Robots" in Proceedings of the 2019 ACM/IEEE International Conference on Human-Robot Interaction, Daegu, South Korea. **Acceptance rate: 24%**
- **K. Winkle**, P. Caleb-Solly, A. Turton and P. Bremner, "Social Robots for Engagement in Rehabilitative Therapies: Design Implications from a Study with Therapists" in Proceedings of the 2018 ACM/IEEE International Conference on Human-Robot Interaction, Chicago, USA **Acceptance rate: 24%. Awarded Best Paper in Theory and Methods in HRI**
- **K. Winkle** and P. Bremner, "Investigating the real world impact of emotion portrayal through robot voice and motion," in 26th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), Lisbon, Portugal 2017

#### Refereed Workshop and Poster Publications

- **K. Winkle**, S. Lemaignan, P. Caleb-Solly, U. Leonards, A. Turton and P. Bremner, "Couch to 5km Robot Coach: An Autonomous, Human-Trained Socially Assistive Robot" in Companion Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction
- **K. Winkle**, M. Jirotko, U. Lyngs, C. Macrae, H. Webb and A. Winfield "“What Could Possibly Go Wrong?” Logging HRI Data for Robot Accident Investigations" in Companion Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction
- Y. Sallami, **K. Winkle**, N. Webb, S. Lemaignan and R. Alami "The Unexpected Daily Situations (UDS) Dataset: A New Benchmark for Socially-Aware Assistive Robots" in Companion Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction
- **K. Winkle** "Social Influence in HRI with Application to Social Robots for Rehabilitation" HRI Pioneers Workshop, Daegu, South Korea 2019
- **K. Winkle**, P. Caleb-Solly, A. Turton and P. Bremner, "Patient engagement with rehabilitative therapy programmes: Therapist strategies and affecting influences" Society of Research in Rehabilitation Winter Conference, Bristol 2018
- **K. Winkle**, "Social Robots for Motivation and Engagement in Therapy," Doctoral Consortium at the 19th ACM International Conference on Multimodal Interaction, Glasgow, UK, 2017