

# Dr. Ruth Jennifer Schulz

[ruth@ruthschulz.com](mailto:ruth@ruthschulz.com) [www.ruthschulz.com](http://www.ruthschulz.com) Boston, USA [linkedin.com/in/ruth-schulz](https://www.linkedin.com/in/ruth-schulz)

Note: Australian citizen eligible for E3 visa.

Cognitive scientist and robot enthusiast who believes that technology should work intuitively for people in the real world. Passionate about exploring the links between robotics, computer science, artificial intelligence, psychology, and neuroscience. Expertise in developing robot systems, and running interaction and navigation studies on real robots with the results published in international journals and conferences. Teaching roles have included robotics, artificial intelligence, and programming. Research interests include robot language, navigation, artificial intelligence, social robots, and human-robot interactions.

## Professional Experience

- **Research Fellow**, Stuttgart University, *December 2016 – August 2018*  
Explored human-robot interaction through the development of a robot system for performing collaborative table-top tasks and running a series of human-robot interaction studies. [video](#)  
Co-lectured the university course “*Practical Course Robotics*” (2017 and 2018), tutored the university course “*Introduction to Robotics*” (2017), and supervised 4 Master's students and 1 Bachelor's student.  
Presented papers at The 5th International Conference on Human-Agent Interaction (HAI 2017).
- **Research Fellow**, Queensland University of Technology, *January 2014 – June 2016*  
Post-doc on the Australian Research Council Discovery Project “*Human Cues for Robot Navigation*”.  
Coordinated with Chief Investigators and PhD students to develop a robot system for navigating through built environments using cues that humans use.  
Co-lectured the university course “*Microprocessors and Digital Systems*” (2015) and supervised 1 PhD and 3 final year engineering students.  
Presented papers at The International Conference on Robotics and Automation (ICRA 2015) and the 28th Australasian Joint Conference on Artificial Intelligence (AI 2015).
- **Lecturer**, Queensland University of Technology, *July 2013 – December 2013*  
Organised the QUT SEF Showcases for final year students completing capstone projects in Engineering, IT, and Games.  
Co-lectured the university course “*Introduction to Robotics*” (2013).
- **Research Scientist**, CSIRO, *January 2013 – June 2013*  
Produced quality research and technical input for the “*Mobile Telepresence for Museums*” project as evidenced by CSIRO ICT Centre Teamwork Award 2013.  
Presented a paper describing the mobile telepresence system at the HRI workshop at ICRA 2013.
- **Research Fellow**, The University of Queensland, *July 2008 – December 2012*  
Post-doc in the “*Lingodroids*” project, which has the big picture goal of developing robots that can understand human language. [video](#) (over 88,000 views) [video](#) (over 14,000 views)  
Lectured the university course “*Artificial Intelligence*” (2008-2012) and supervised 4 honours and 3 summer research students.  
Presented papers at ICRA 2011, ACRA 2010, and ALife 2010.
- **Robotics Tutor**, The University of Queensland, *February 2005 – December 2005*  
Tutored introductory robotics to school students (year 5 to year 12).
- **Design Engineer**, EDM Limited, *February 2004 – February 2005*  
Provided usability recommendations for metering software.  
Developed embedded software for a wireless metering device.

- **Research Assistant**, The University of Queensland, *December 2000 – January 2004*  
Assisted with cognitive science projects, including investigations into evolutionary algorithms and the Baldwin effect (the result of interactions between learning and evolution).  
Presented a paper at CogSci 2001.
- **Instructor**, Bai Rui Taekwon-Do, *February 2009 – July 2015*  
Achieved 4th Degree Black Belt.  
Awarded Black Belt of the Year in 2008 and Hajime Isomura Award for Self Control in 2011.

## Education

- **Doctor of Philosophy in Computer Science**, The University of Queensland, *Completed 27/11/2008*  
Thesis: *Spatial Language for Mobile Robots: The Formation and Generative Grounding of Toponyms*
- **Bachelor of Engineering (Electrical) with Honours Class I and Bachelor of Science (Computer Science)**, The University of Queensland, *Completed 8/12/2003*  
Thesis: *Interface for an Automated Cocktail Maker*

## Awards and Achievements

- Best Student Paper Award ACRA 2015: Talbot, B., Schulz, R., Upcroft, B., & Wyeth, G. (2015). Reasoning about natural language phrases for semantic goal driven exploration. *ACRA 2015, Australasian Conference on Robotics and Automation*, Australian National University, Canberra, A.C.T, 2-4 December 2015.
- CSIRO ICT Centre Teamwork Award 2013 as part of the Mobile Telepresence for Museums Project
- COSNet Overseas Travel Grant to attend Evolang, March 2008
- Valedictorian for the Faculty of Engineering, Physical Sciences and Architecture, School of Information Technology and Electrical Engineering, 2003

## Skills

- Platforms – Windows, Linux, embedded (Atmel)
- Coding Languages – C, MATLAB, C++, Java
- Artificial Intelligence – Neural Networks, Search, Bayesian Networks, Decision Trees
- Interaction Design – Usability evaluation
- Middleware – Robot Operating System (ROS), GLUT
- Robots – Pioneer 3 DX, Guiabot, PR2, Baxter
- Languages – English (Native), Norwegian (conversational), German (conversational)
- Techniques – Computer vision, localisation, SLAM

## Selected Publications

According to [Google Scholar](#) on 9/9/18: 33 publications, 227 citations, h-index = 8, i10-index = 7

Schulz, R., Kratzer, P., & Toussaint, M. (2018). Preferred interaction styles for human-robot collaboration vary over tasks with different action types. *Frontiers in neurorobotics*, 12, 36.

Talbot, B., Lam, O., Schulz, R., Dayoub, F., Upcroft, B., & Wyeth, G. (2016) Find my office: Navigating real space from semantic descriptions. *ICRA 2016, International Conference on Robotics and Automation*, Stockholm, Sweden, May 2016.

Schulz, R., Wyeth, G., and Wiles, J., (2012). Beyond here-and-now: Extending shared physical experiences to shared conceptual experiences, *Adaptive Behavior*. 20(5), 360-387.

Schulz, R., Wyeth, G., and Wiles, J. (2011). Lingodroids: Socially grounding place names in privately grounded cognitive maps. *Adaptive Behavior*, 19 6: 409-424.

Schulz, R., Wyeth, G., & Wiles, J. (2011). Are We There Yet? Grounding Temporal Concepts in Shared Journeys. *IEEE Transactions on Autonomous Mental Development*, 3(2), 163-175.