

Rolf Black, Researcher Co-Investigator
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Biography

Rolf Black Dipl.-Ing. MSc is a member of the Augmentative and Alternative Communication (AAC) Research Group (aac.dundee.ac.uk) at Dundee University and holds an honorary contract with NHS Tayside as a researcher.

Current Projects:

ACE-LP: Enhancing Augmentative Communication. The ACE-LP Project (Augmenting Communication using Environmental Data to drive Language Prediction) brings together research expertise in Augmentative and Alternative Communication (AAC) (University of Dundee), Intelligent Interactive Systems (University of Cambridge), and Computer Vision and Image Processing (University of Dundee) to develop a predictive AAC system that will address these prohibitively slow communication rates by introducing the use of multimodal sensor data to inform state of the art language prediction (for more details please visit the project page).

Tap and Talk. The Tap and Talk project supports adults with aphasia through group sessions with the use of iPads. iPads can help when communicating by giving access to images, speech output of written text and communication programs such email and web browsers (for more details please visit the project page).

Outer Space | Inner Space (OSIS). This award winning public engagement project brings together an interdisciplinary group of researchers with one of Dundee's iconic landmarks, The Mills Observatory - Britain's first purpose-built public observatory on the summit of Balgay Hill in the heart of Dundee. In this project we have developed an adaptable space and activities under the theme "Ways of Seeing" the invisible universe (for more details please visit the project page). Rolf is a Mechanical Engineer (University of Hanover, Germany, 1996) and Bioengineer (MSc, Strathclyde University, Glasgow, 1995, with a grant of the German Academic Exchange Service). For his undergraduate thesis he developed the mechanism for a bi-axial orthotic hip joint which has been patented and is being successfully marketed by a leading provider of Orthotics and Prosthetics, Otto Bock Healthcare GmbH. He has a professional background as a rehabilitation engineer and extensive experience with children with complex communication needs (CCN).

He co-founded EO-Funktion GmbH in Germany in 1999 (now "Made for Movement"), a leading company in supplying dynamic walking frames for children with complex motor disabilities. After his move from Germany to Scotland he joined Prof Annalu Waller and her team in 2005, now researching in augmentative and alternative communication (AAC). He is has been leading the evaluation phases of research projects under Prof Waller such as

"How was School today...?" - Supporting narrative for non-speaking children (as Researcher Co-Investigator),

"STANDUP" - System To Augment Non-speakers' Dialogue Using Puns, and

"The PhonicStick" - Providing Children with CCN with access to Phonemic Speech Output.

The first two projects were funded by the Engineering and Physical Sciences Research Council; all evaluations incorporated extensive interaction with children with CCN and were partially based at Capability Scotland sites.

"How was School today...?" is an award winning cutting-edge project aimed to help children with CCN to share their experiences from school with parents. It won the 2010 TES Schools Award for Outstanding ICT Learning Initiative of the Year for project partner Capability Scotland (Corseford School) and was shortlisted for the BCS UK IT Industry Awards 2010.

The PhonicStick pilot project (funded by Capability Scotland), which Rolf co-initiated, led to a patent application in 2006 (granted for the US in 2012) and to an international travel grant by the Royal Academy of Engineering in 2008 to present at the international conference of the International Society of Alternative and Augmentative Communications.

Research output

Presentation Matters: A Design Study of Different Keyboard Layouts to Investigate the Use of Prediction for AAC

Black, R., Waller, A. & McKillop, C., 27 Aug 2019, *AAATE 2019 Conference: Global Challenges in Assistive Technology: Research, Policy & Practice*. Desideri, L., de Witte, L., Chattat, R. & Hoogerwerf, E.-J. (eds.). Supplement 1 ed. Holland: IOS Press, Vol. 31. p. 141-142 2 p.

I have Aphasia: An app designed by people with aphasia for people with aphasia

Black, R. & Kelly, C., 23 Jul 2018.

Gathering egocentric video and other sensor data with AAC users to inform narrative prediction

Black, R., Rashid, Z. & Waller, A., 21 Jul 2018.

User Centred Design with Disabled Participants: A New SGD Interface Supporting Narrative Prediction

Black, R., Rashid, Z. & Waller, A., 21 Jul 2018.

Exploring new designs of predictive AAC with disabled participants

Waller, A., Black, R. & Rashid, Z., 15 Sep 2017.

Involving people with severe speech and physical impairments in the early design of a context-aware AAC system

Waller, A., Black, R. & Rashid, Z., 10 Sep 2017, p. 34. 1 p.

A Science Saturday for All Ages: Presenting AAC at the National Museum of Scotland

Black, R. & Waller, A., Apr 2017, Communication Support World Network Newsletter, April 2018, p. 21-26 6 p.

ACE-LP: Augmenting Communication using Environmental Data to drive Language Prediction

Black, R., Kristensson, P. O., Zhang, J., Waller, A., Bano, S., Rashid, Z. & Norrie, C., 11 Sep 2016. 1 p.

Personal storytelling: Using Natural Language Generation for children with complex communication needs, in the wild...

Tintarev, N., Reiter, E., Black, R., Waller, A. & Reddington, J., 1 Aug 2016, In : International Journal of Human Computer Studies. 92-93, p. 1-16 16 p.

The Video Interaction Guidance approach applied to teaching communication skills in dentistry

Quinn, S., Herron, D., Menzies, R., Scott, L., Black, R., Zhou, Y., Waller, A., Humphris, G. & Freeman, R., May 2016, In : European Journal of Dental Education. 20, 2, p. 94-101 8 p.

The establishment of an iPad user group for adults with aphasia

Black, R., Waller, A., Hunter, L., Hanschell, A., Gasowski, E. & Gowland, H., Sep 2015.

Applying the Verona coding definitions of emotional sequences (VR-CoDES) in the dental context involving patients with complex communication needs: an exploratory study

Zhou, Y., Black, R., Freeman, R., Herron, D., Humphris, G., Menzies, R., Quinn, S., Scott, L. & Waller, A., Nov 2014, In : Patient Education and Counseling. 97, 2, p. 180-187 8 p.

Valuing the user voice in the design of communication technologies

Black, R., Herron, D., Waller, A., Scott, L., Menzies, R., Freeman, R., Quinn, S., Humphris, G. M. & Zhou, Y., 30 Sep 2014

Applying the VR-CoDES in the dental context involving patients with complex communication needs

Zhou, Y., Black, R., Freeman, R., Herron, D., Humphris, G., Quinn, S., Scott, L. & Waller, A., 29 Sep 2014.

A new tool to support communication between dentist and patients with intellectual and communication disabilities

Herron, D., Menzies, R., Waller, A., Black, R., Quinn, S., Freeman, R., Zhou, Y., Humphris, G. M., Scott, L. & Elliot, G., 22 Jul 2014.

Natural language generation for augmented and assistive technologies

Tintarev, N., Reiter, E., Black, R. & Waller, A., May 2014, *Natural language generation in interactive systems*. Stent, A. & Bangalore, S. (eds.). Cambridge: Cambridge University Press, p. 252-278

Chronicles: supporting conversational narrative in alternative and augmentative communication

Waller, A., Menzies, R., Herron, D., Prior, S., Black, R. & Kroll, T., 2013, *Human-Computer Interaction INTERACT 2013 : 14th IFIP TC 13 International Conference, Cape Town, South Africa, September 2-6, 2013, Proceedings, Part II*. Kotzé, P., Marsden, G., Lindgaard, G., Wesson, J. & Winckler, M. (eds.). Berlin: Springer , p. 364-371 8 p. (Lecture notes in computer science; vol. 8118).

Use of an agile bridge in the development of assistive technology

Prior, S., Waller, A., Black, R. & Kroll, T., 2013, *Conference on Human Factors in Computing Systems - Proceedings: changing Perspectives*. New York: Association for Computing Machinery, p. 1579-1588 10 p.

Supporting personal narrative for children with complex communication needs

Black, R., Waller, A., Turner, R. & Reiter, E., Jul 2012, In : *ACM Transactions on Computer-Human Interaction*. 19, 2, p. - 35 p., 15.

Personal storytelling for children who use augmentative and alternative communication

Waller, A. & Black, R., 2012, *Using Storytelling to Support Children and Adults with Special Needs*. Grove, N. (ed.). Routledge, p. 111-119 9 p.

A mobile phone based personal narrative system

Black, R., Waller, A., Tintarev, N., Reiter, E. & Reddington, J., 2011, *ASSETS'11: proceedings of the 13th International ACM SIGACCESS Conference on Computers and Accessibility. 24-26 October 2011, Dundee, United Kingdom*. New York: Association for Computing Machinery, p. 171-178 8 p.

The PhonicStick: a joystick to generate novel words using phonics

Black, R., 2011, *ASSETS'11: Proceedings of the 13th International ACM SIGACCESS Conference on Computers and Accessibility*. New York: Association for Computing Machinery, p. 325-326 2 p.

Further Development of the PhonicStick: the application of phonic-based acceleration methods to the speaking joystick

Trinh, H., Waller, A., Black, R. & Reiter, E., Jul 2010. 4 p.

Using NLG and sensors to support personal narrative for children with complex communication needs

Black, R., Reddington, J., Reiter, E., Tintarev, N. & Waller, A., 2010, *Workshop on Speech and Language Processing for Assistive Technologies (SLPAT): Proceedings of the Workshop*. Association for Computational Linguistics, p. 1-9 9 p.

Evaluating the STANDUP pun generating software with children with cerebral palsy

Waller, A., Black, R., O'Mara, D. A., Pain, H., Ritchie, G. & Manurung, R., Feb 2009, In : *ACM Transactions on Accessible Computing*. 1, 3, 16.

Using NLG to help language-impaired users tell stories and participate in social dialogues

Reiter, E., Turner, R., Alm, N., Black, R., Dempster, M. & Waller, A., 2009, *ENLG 2009 12th European Workshop on Natural Language Generation: proceedings of the workshop*. Stroudsburg, PA: Association for Computational Linguistics, p. 1-8 8 p.

The construction of a pun generator for language skills development

Manurung, R., Ritchie, G., Pain, H., Waller, A., O'Mara, D. & Black, R., Oct 2008, In : *Applied Artificial Intelligence*. 22, 9, p. 841-869 29 p.

Adding phonetic similarity data to a lexical database

Manurung, R., Ritchie, G., Pain, H., Waller, A., Black, R. & O'Mara, D., Sep 2008, In : *Language Resources and Evaluation*. 42, 3, p. 319-324 6 p.

Activities

Women Making Waves in STEM - Dundee Women's Festival 2020

Amy Cameron (Organiser), Amy Rogers (Organiser), Rolf Black (Organiser), Annalu Waller (Speaker), Elizabeth Mills (Speaker), Irene Hallyburton (Speaker), Amy Learmonth (Speaker), Senga Robertson-Albertyn (Speaker), Maggie Bartlett (Speaker)

10 Mar 2020

Can you hack a shoeprint?

Christian Cole (Organiser), Rolf Black (Organiser)

7 Mar 2020

Family Fun with Women in STEM - Dundee Women's Festival 2020

Amy Cameron (Organiser), Amy Rogers (Organiser), Rolf Black (Organiser), Elizabeth Mills (Presenter), Melissa D'Ascenzio (Presenter), Aurora Sicilia Aguilar (Presenter), Suzanne Duce (Presenter), Carmen Escudero-Martinez (Presenter), Simone Altmann (Presenter), Daniella Cavellini (Presenter), Evelien Rooke (Presenter), Giorgia De Paoli (Presenter), Seaneen McDougall (Presenter), Katie Larner (Presenter), Julieta Gomez Garcia-Donas (Presenter), Anne Keitel (Presenter)

1 Mar 2020

Dundee Women's Festival 2020 - STEM events

Amy Cameron (Organiser), Amy Rogers (Organiser), Rolf Black (Organiser)

29 Feb 2020 → 14 Mar 2020

Science Saturday: Guardians of the Genome

Amy Cameron (Organiser), Rolf Black (Organiser), Bettina Meier (Contributor), Jane Wright (Contributor), Julian Blow (Presenter), John Eykelenboom (Presenter), Harinath Doodhi (Presenter), Constance Alabert (Presenter), Elisa Garcia-Wilson (Presenter), Vanesa Alvarez (Contributor), Veronica Pravata (Presenter), Susanne Bandau (Presenter), Amanda Baizan Edge (Contributor), Fiona Haward (Presenter), Diana Rios Szwed (Presenter), Carolina Gomez Moreira (Presenter)

22 Feb 2020

Wednesday Wonders: Stars, planets, our solar system and beyond...

Alexander Russell (Organiser), Aurora Sicilia Aguilar (Organiser), Soko Matsumura (Presenter), Rolf Black (Host), Christine Millar (Host), Justyn Campbell White (Member)

17 Jul 2019

8th Workshop on Speech and Language Processing for Assistive Technologies (Event)

Rolf Black (Advisor)

7 Jun 2019

Lego Mindstorms Robot Challenges

Keith Johnston (Organiser), Rolf Black (Organiser), Sara Nobel (Host)

7 Jun 2019

Science Saturday: Physics at Mills

Aurora Sicilia Aguilar (Organiser), Rolf Black (Organiser), Amy Cameron (Host), Christine Millar (Host)

30 Mar 2019

Science Saturday: Forensic Science Family Day

Heather Doran (Organiser), Rolf Black (Organiser), Christine Millar (Host), Lysbeth Antonides (Contributor), Craig McKenzie (Contributor), Catarina Sobreira (Contributor), Virginia Maria Donadeo (Contributor), Emma Comrie (Contributor), Magda Pereira De Barros (Contributor), Joyce Klu (Speaker), Roy Mudie (Speaker), Oluwasesan Adegoke (Speaker), Aga Kuffel (Contributor)

23 Mar 2019

Science Saturday: Family Fun Day with Women in STEM Women's Festival Dundee

Christine Millar (Host), Heather Doran (Organiser), Rolf Black (Organiser), Amy Rogers (Organiser), Amy Cameron (Organiser), Catarina Sobreira (Contributor), Bethany Coull (Contributor), Daniella Cavellini (Contributor), Shobna Vasishta (Contributor), Amy Learmonth (Contributor), Simone Altmann (Contributor), Ruth Hamilton (Contributor),

Carmen Escudero-Martinez (Contributor), Julie Kovarova (Contributor), Anna Trenaman (Contributor), Alice Dawson (Contributor), Nicola Morrice (Contributor)
2 Mar 2019

Science Saturdays: Guardians of the Genome

Rolf Black (Organiser), Christine Millar (Host), Nicola Wiechens (Presenter), Thomas Owen-Hughes (Contributor), Abigail Corsie (Contributor), Matthias Toman (Contributor), Meng-Ying Wu (Contributor), Seraina Blümlí (Contributor), Mahamadou-Lamine Niakate (Contributor), Jason Sharpe (Contributor)
1 Dec 2018

Science Saturday: The Biology of the Universe

David Booth (Presenter), Rolf Black (Organiser), Christine Millar (Host)
27 Oct 2018

Wednesday Wonders: Planets in the Making

Aurora Sicilia Aguilar (Organiser), Rolf Black (Organiser), Christine Millar (Host)
8 Aug 2018

Assistive Technology - Exploring Potential

Annalu Waller (Consultant), Rolf Black (Consultant), Conor McKillop (Consultant)
28 May 2018

Lee Ridley, aka Lost Voice Guy

Lee Ridley (Presenter), Rolf Black (Organiser), Annalu Waller (Contributor)
12 Apr 2018

Aphasia iPad Partners

Rolf Black (Contributor), Laorag Hunter (Organiser), Amy Hanschell (Organiser)
22 Feb 2018

Science Saturday at the National Museum Scotland - Communicating Differently

Rolf Black (Organiser), Annalu Waller (Contributor)
10 Feb 2018

"Tap and Talk" – An iPad User Group for Adults with Aphasia

Rolf Black (Speaker)
15 Sep 2017

Visit to School

Annalu Waller (Consultant), Rolf Black (Consultant)
30 Aug 2017

Evening at the Museum: Showcasing AAC at the National Museum in Edinburgh

Rolf Black (Organiser), Annalu Waller (Contributor)
11 Aug 2017

Wednesday Wonders: The Wonders Above Us

Alexander Russell (Organiser), Rolf Black (Organiser), Amy Cameron (Organiser)
9 Aug 2017

Wednesday Wonders: Microscope Marvels

Rolf Black (Organiser), Amy Cameron (Organiser), Christine Millar (Host)
26 Jul 2017

Wednesday Wonders: Discover the Biomedical Research in Dundee

Rolf Black (Organiser), Amy Cameron (Organiser), Christine Millar (Host)
12 Jul 2017

Outer Space | Inner Space

Rolf Black (Organiser), Amy Cameron (Organiser)
1 Oct 2016 → 31 Aug 2017

Mills Observatory Advisory Group (External organisation)

Rolf Black (Chair)
18 May 2016 → ...

Anster Mindstorms Club

Rolf Black (Member)
7 Jan 2016 → ...

Alien Surfaces

Rolf Black (Presenter)
4 Nov 2015

Storytelling Filmsymposium

Rolf Black (Presenter)
14 Oct 2015

A New Way of Viewing the Universe

Rolf Black (Presenter)
7 Oct 2015

Outer Space | Inner Space

Rolf Black (Organiser)
1 Apr 2015 → 31 Oct 2016

TalkingMats Training

Rolf Black (Participant)
1 Sep 2014

16th Biennial Conference of the International Society for Augmentative and Alternative Communication

Rolf Black (Participant)
22 Jul 2014

Symbolisation towards Literacy (Communication Matters study day)

Rolf Black (Participant)
13 Mar 2014

Tap & Talk Aphasia iPad Group

Rolf Black (Member), Laorag Hunter (Contributor)
1 Jan 2013 → ...

Press clippings**Aphasia group launches app to explain the condition**

Rolf Black
30/06/17 → 3/07/17
3 items of Media coverage

Celebrating 80 years of stargazing at Mills Observatory

Rolf Black & Sarah Hussain

26/10/15

1 item of Media coverage

Context Aware Text Prediction for Enhancing Augmentative Communication

Rolf Black, Annalu Waller, Hasith Nandadasa, Tamas Suveges, Stephen McKenna, Per Ola Kristensson, Jianguo Zhang,

Conor McKillop & Conor Mckillop

19/11/19

2 items of Media coverage

New app relieves patients' fear of the dentist

Rolf Black, Annalu Waller, Rachel Menzies, Daniel Herron & Daniel Herron

17/06/14

1 item of Media coverage

New app relieves patients' fear of the dentist

Rolf Black, Annalu Waller, Rachel Menzies & Daniel Herron

17/06/14

1 item of Media coverage

Regaining a voice with technology

Rolf Black

1/11/14

1 item of Media coverage

Speech App Helps Disabled People to Communicate at the Dentist

Rolf Black, Annalu Waller, Rachel Menzies, Daniel Herron & Daniel Herron

16/06/14 → 17/06/14

3 items of Media coverage

Prizes**1st Place, Student Research Competition Graduate Award**

Rolf Black (Recipient), 24 Oct 2011

Brian Cox Prize - Public Engagement Project of the Year

Rolf Black (Recipient) & Amy Cameron (Recipient), 2016

Commendation: Stephen Fry Awards for Excellence in Public Engagement with Research

Rolf Black (Recipient), 11 Jan 2019

Commendation: Stephen Fry Awards for Excellence in Public Engagement with Research

Rolf Black (Recipient), Amy Cameron (Recipient) & Christine Millar (Recipient), 13 Jan 2017