

# Joanna J. Bryson

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Department of Computer Science  
University of Bath  
Bath BA2 7AY  
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## Education

PH.D. IN COMPUTER SCIENCE June 2001  
THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

**Dissertation Title:** Intelligence by Design: Principles of Modularity and Coordination  
for Engineering Complex Adaptive Agents.

**Courses Include:** Principles of Computing Systems, Embodiment and Cognition,  
Computer Architecture, Artificial Intelligence, Theory of Computation.

M.PHIL. IN PSYCHOLOGY January 2000  
THE UNIVERSITY OF EDINBURGH

**Dissertation Title:** The Study of Sequential and Hierarchical Organization of Behavior via Arti-  
ficial Mechanisms of Action Selection.

Research conducted 1996–1998; viva postponed for convenience; passed on first attempt.  
Tony Prescott, external.

M.SC. IN ARTIFICIAL INTELLIGENCE November 1992  
THE UNIVERSITY OF EDINBURGH

**Dissertation Title:** The Subsumption Strategy Development of a Music Modelling System

**Courses Include:** Knowledge Representation and Inference, Intelligent Sensing and  
Control, Neural Networks, Software for Parallel Architectures, Expert Systems

B.A. IN BEHAVIORAL SCIENCE June 1986  
THE COLLEGE OF THE UNIVERSITY OF CHICAGO

**Courses Include:** Human Information Processing, Perception, Human Interaction,  
Developmental Neuropsychology, Ethology

## Employment

DEPARTMENT OF COMPUTER SCIENCE University of Bath, England  
Bath is a small, research-oriented university. Founded in 1966, now consistently ranked in the top ten British Universities by British newspapers *The Guardian* and *The Times*. Founding research group leader for Intelligent Systems, one of four groups in the department. Organiser for mailing list and seminar series: Artificial Models of Natural Intelligence (amoni), Bath Evolutionary Social Sciences, Bath AI; also active participant in neuroscience, and robotics lists. Member of the current Centres for Networks and Collective Behaviour; Mathematical Biology; and Media Technology; and former Centres for Biomimetic Engineering; and Complex Systems. Teaching and administration duties listed below.

READER (*US: Assoc. Prof. with tenure*) September 2010 – *present*;  
LECTURER B (*US: Asst. Prof.*) October 2002 – August 2010.

PRIMATE COGNITIVE NEUROSCIENCE LABORATORY Harvard University, Cambridge USA  
Postdoctoral Fellow with Prof. Marc D. Hauser, working on modeling specialized learning in primates and its applications to safe learning in software agents.  
October 2001 – Sept 2002

HUMAN COMMUNICATION RESEARCH CENTER University of Edinburgh, Scotland  
Research Assistant to Profs. Johanna Moore and Mark Steedman, facilitating migration of their NLP research to Edinburgh. Investigated dynamic planning for dialog-based tutoring systems.  
Jan 1999 – March 2000

LEGO Boston, MA and Billund, Denmark  
Consultation and research for the toy company. With LEGO Futura–Boston (1995), developed technologically-oriented play concepts, focussing on programability of the robot kit that became Mindstorms. With Special Project Unit Darwin at LEGO corporate headquarters (1998), developed a proprietary intelligent character architecture for real-time virtual reality applications.  
April 1995 – December 1995, February 1998 – December 1998

MARBLE ASSOCIATES, INC. Waltham, MA, USA  
Senior Associate (1993) / Intern (1994) for technology consultancy. Initially positioned in the “Core Object Support” team for large-scale reengineering of a technology manufacturer with 30,000 employees worldwide; responsible for the corporate software library, integrating other teams (order entry, tracking, product config.) and interfacing with corporate databases and other legacy systems. Made Technical Project Lead after three months. Also AI expert; business development.  
January 1993 – August 1993, Summer 1994

A M INVESTORS Chicago, IL, USA  
Project Leader for automating the exchange-floor staff. Delivered a real-time trading support system (based around Sybase RDB) with a 20-minute maximum downtime.  
September 1988 – July 1991

LAWRENCE I. SCHULMAN & CO. / FIRST OPTIONS OF CHICAGO Chicago, IL, USA  
Sole technical employee; provided custom trading and bookkeeping tools for the company that became the proprietary trading unit of the world’s largest options clearing firm.  
July 1986 – September 1988

### Visiting and Sabbatical Positions

CENTER FOR INFORMATION TECHNOLOGY POLICY (CITP) Princeton University  
Visiting Fellow (sabbatical from Bath: “Public Goods and Artificial Intelligence”); then affiliate.  
August 2015 – July 2017

MANNHEIMER ZENTRUM FÜR EUROPÄISCHE SOZIALFORSCHUNG University Mannheim  
Visiting Research Fellow at Mannheim’s Centre for Social Science Research.  
January 2011 – December 2013

DEPARTMENT OF ANTHROPOLOGY Oxford University  
Visiting Research Fellow. Assisted Harvey Whitehouse on EU FW7 project *Explaining Religion*.  
February 2010 – December 2010

THE KONRAD LORENZ INSTITUTE FOR EVOLUTION AND COGNITION RESEARCH Vienna  
Resident Faculty and Hans Przibram Fellow. Funded by the institute, with partial sabbatical support from Bath. Topic: “Factors Limiting the Biological Evolution of Cultural Evolution”.  
August 2007 – August 2009

METHODS AND DATA INSTITUTE University of Nottingham  
Visiting Research Fellow. Attended courses on quantitative research methods in the social sciences, gave lectures on agent-based modelling.  
September 2007 – July 2009

COMPUTERS AND COGNITION GROUP Franklin W. Olin College of Engineering, USA  
Visiting Postdoctoral Fellow with Prof. Lynn Andrea Stein, working on the interaction between autonomous agents and semantic web services in the context of DAML-S.  
June 2001 – September 2001

## Research Visits

Multi-day visits for the purpose of collaboration and/or knowledge exchange not otherwise covered under conference papers, working or visiting positions.

The Human Dynamics Laboratory, Media Laboratory, MIT, Cambridge MA. Visiting Sandy Pentland's group 17–19 May 2011.

Equipe d'Ethologie des Primates, Louis Pasteur University Strasbourg, France. Visiting (with Hagen Lehmann) Bernard Thierry (CNRS), discussing models of macaque social behaviour. Visit funded by the British Council. 1 week, July 2005.

Electronics and Telecommunications Research Institute (ETRI), South Korea, with visits to local universities (see **Invited Talks**, above). Invited to discuss intelligent robotics. 1 week, August 2004.

Stanford AI Laboratory and Stanford Research Institute (SRI). Work funded by DAML on the semantic web with Jerry Hobbs and Sheila McIlraith. 2 weeks, July 2001.

Vrije Universiteit Brussel (VUB) AI Laboratory. Visiting (with Will Lowe) Luc Steels and his students, discussing behavior-based AI, statistical NLP and the evolution of language. 2 weeks, January 1998.

## Teaching

THE DEPARTMENT OF COMPUTER SCIENCE University of Bath  
Postgraduate teaching: Intelligent Control and Cognitive Systems (Spring 2011–2015, 2017), Research Project Preparation (Spring 2003–7), Database Systems (Fall 2003–6). Undergraduate teaching: Intelligent Control and Cognitive Systems (Spring 2011–2015, 2017), Programming 1b (Spring 2010–2015), Systems Engineering (Fall 2009, Spring 2010), Programming II (Spring 2004–7), Database Systems (Fall 2003–6). Research supervision: see research students, below. Passed Bath's mandatory ILT-certified lecturer training course in 2004; made Fellow of the Higher Education Academy 2014 (recognition reference number: PR079700).  
February 2003 – *present*

THE DEPARTMENT OF PSYCHOLOGY University of Edinburgh  
Part-time undergraduate lecturer for the Department of Psychology. Courses: The Biological Basis of Behavior (1<sup>st</sup> year students, 3 terms); Cognitive Psychology (3<sup>rd</sup> year students, 1 term); 1<sup>st</sup>–4<sup>th</sup> year honours tutorials.  
Jan 1996 – Dec 1997

THE DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE MIT  
Teaching Assistant for 3 terms. Teaching assistants work 30 hours a week at MIT with considerable responsibility. Courses: The Structure and Interpretation of Computer Programs (6.001) (1<sup>st</sup> year students, 2 terms); Artificial Intelligence (6.034) (3<sup>rd</sup> year students, 1 term).  
Sept 1994 – Dec 1995

THE DEPARTMENT OF COMPUTER SCIENCE University of Chicago  
Course Tutor for both undergraduate and postgraduate computer science courses.  
Sept 1983 – June 1987

## Administration

THE DEPARTMENT OF COMPUTER SCIENCE University of Bath  
*Note: primary residence Princeton since August 2015.* Department Research Team / AI Group Leader 2011–2015; University Council (elected representative of the Academic Assembly) 2013–2015; University Senate (elected representative of the Academic Assembly for the maximum two consecutive 3-year terms) 2010–2015; University Court (elected representative of the Academic Assembly) 2012–2015; AI Seminar Series 2003–*present*; Computer Science Department Convener for the Natural Sciences Degree Programme 2004–2007, 2013–2015; Industrial Placements Tutor 2009–2011; Faculty of Science Board of Studies 2006–2007; Department Teaching Committee 2005–2007; Staff-Student Liaison Committee 2005–2007; Library Committee 2003–2007;

## Major Research Grants

- 2010–2011 *United States Air Force Office of Scientific Research* Air Force Material Command, USAF grant number FA8655-10-1-3050, “Understanding Cultural Variation in Antisocial Punishment”, with Benedikt Herrmann, co-author and co-PI. Two postdocs, two investigators, one part-time programmer, \$289,265.65.
- 2008 *euCognition* “Cognitive Systems Outreach through Book and Webpage” euCognition Network Action 044–3 (€46,220), and 2008 *euCognition* “Cognitive Systems Outreach through HE Curriculum” euCognition Network Action 0044–4 (€25,518). Two postdocs (one part time) for nine months, €71,738.
- 2005–2008, *The Engineering and Physical Sciences Research Council (EPSRC)*, Grant GR/S79299/01 (AIBACS), “The Impact of Durative Variable state on the Design and Control of Action Selection”. Emmanuel Tanguy, co-author and named researcher. One PhD student, one research assistant £127,328.
- 2001–2002, *US National Science Foundation* Grant EIA-0132707, “Primate-Inspired Specialized Learning in an Agent Architecture: Safe, Robust, Adaptive Action Selection”, with Marc D. Hauser co-author and PI. One research assistant (self), \$79,215.

## Other Funding

- 2016–2017 *Princeton University Center for Human Values*, “Game Technology as an Intervention for Public Understanding of Sociality”, CI and principle author, with Alin Coman (Princeton) **PI**, and Mark Riedl (Georgia Tech) also CI. (US\$32,000).
- 2010–2015 *Czech Science Foundation* “PlanEx: Bridging Planning and Execution”, Roman Barták **PI**, Cyril Brom and Pavel Surynek co-PIs, Bryson named as an “International Co-operator”, (Kč4,355,000).
- 2010 *EPSRC* Vacation Bursary, “Dynamic planning for teachable robotics”, Kingsely Jarrett, named researcher (One undergraduate student for ten weeks, £2500).
- 2006 *euCognition* “Action Selection for Cognitive Systems”, (a network action travel grant that brought Cyril Brom to Bath from Charles University, Prague, €1,300).
- 2005–2006 *Boeing Aerospace*, “Development of Graphical IDE for pyPOSH”, (contract for programming and six months support, \$15,000).
- 2005 *The Nuffield Foundation* Undergraduate Research Bursary, “Understanding the Adaptive Advantage to Costly Communication”. Avri Bilovich, named researcher. (One undergraduate student for six weeks, £940).
- 2005 *Biotechnology and Biological Sciences Research Council (BBSRC)*, Conference funding for “Modeling Natural Action Selection”. Workshop coorganized with Tony Prescott, Anil Seth (£2500).
- 2005–2006, *British Council Alliance: Franco-British Partnership Programme*, “Origins of Egalitarianism: Improving our understanding primate society through modelling two organizational norms for various species of Macaque”, with Bernard Thierry, Centre d’Ecologie et Physiologie Energétiques) (Travel only, £800).

## Research Assistants and Fellows

- Dr. Simon T. Powers, Research Officer (modelling) May–September 2011, Cultural Variation in Antisocial Punishment.
- Dr. Karolina Sylwester, Research Officer (human subjects) 2010–2011, Cultural Variation in Antisocial Punishment.
- James Mitchell, Research Programmer 2010–2011, Cultural Variation in Antisocial Punishment.
- Dr. Pablo Lucas, Research Officer (modelling) October 2010–March 2011, Cultural Variation in Antisocial Punishment.
- Dr. Etienne Roesch, Visiting Research Fellow 2010–2011.

Dr. Dylan Evans, Outreach Officer 2008, European Cognitive Systems Outreach through website and higher education curriculum.

Dr. Veronica Sundstedt, Outreach Officer 2008, European Cognitive Systems Outreach through website and higher education curriculum.

Philipp Rohlfshagen, Research Officer 2007, Integrating durative state (emotions and drives) with dynamic planning and modular AI control.

Dr. Emmanuel Tanguy, Research Officer 2005–2006. Emotions, action selection and facial animation systems.

Tristan Caulfield, Research Officer 2005. Integrating POSH dynamic planning with conventional agent-based modelling systems.

Ivana Čače, Visiting Research Student 2004 (6 months, Utrecht). Evolution of communication.

Dr. Will Lowe, Visiting Research Fellow 2002–*present* (visiting from Harvard (2002–2006), Nottingham (2006–2009), Maastricht (2009–2010), Mannheim (2010–2015), Princeton (2015–*present*)). Computational linguistics, machine learning, research methods in the social sciences, modelling social and political identity of parties, nations and individuals.

## Research Students

### PHD STUDENTS

Andreas Theodorou, topic: Computer games and public goods investment (Bath, starting September 2015).

Robert H. Wortham, topic: Usability and Ethics of Domestic Robots (Bath, part time, started June 2014).

Yifei Wang, *Evolutionary Innovations and Dynamics in Wagners Model of Genetic Regulatory Networks*, (Bath, with Nick Priest, October 2012–May 2016).

Paul Rauwolf *Understanding the Ubiquity of Self-Deception: The Evolutionary Utility of Incorrect Information* (Bath, with Marina De Vos, started October 2012–July 2016).

Jekaterina Novikova, *Designing Emotionally Expressive Behaviour: Intelligibility and Predictability in Human-Robot Interaction*, (Bath, with Leon Watts, October 2012–January 2016).

Swen Gaudl, *Building Robust Real-Time Game AI: Simplifying and Automating Integral Process Steps in Multi-Platform Design* (Bath, April 2012–May 2016).

Bidan Huang, *The Use of Modular Approaches For Robots to Learn Grasping and Manipulation*, (Bath, with Aude Billard, October 2010 – June 2015)

Gideon Gluckman, topic: The Impact of Primate Social Structure on Biological Evolution (Bath, part-time, started October 2010, suspended 2011 then withdrew 2013 for an industrial opportunity).

Dominic Mitchell, topic: Public Language as an Adaptive Trait (Bath, part-time, started October 2010, switched to another supervisor February 2016).

Daniel Taylor, *Evolution of the Social Contract*, (Bath, October 2010–October 2014).

Marios Richards, topic: Impact of ontogenetic learning on phylogenetic evolution (Bath, part-time, started October 2008, withdrew June 2012).

Hagen Lehmann, *On the Applicability of Agent Based Modelling in Behavioural Ecology* (Bath, January 2005 – September 2009).

Mark Wood, *An Agent-Independent Task Learning Framework* (Bath, October 2003 – July 2008).

Emmanuel Tanguy, *Emotions: The Art of Communication Applied to Virtual Actors* (Bath, second supervisor with Prof. Phil Willis first supervisor, October 2002 – June 2006).

PhD Committee for Jan Drugowitsch (Bath, 2007), Joost Broekens (Leiden, 2007), Andrew Carnell (Bath 2008), Carl O’Dwyer (Bath, withdrew), Jeehang Lee (Bath, 2015), Miles Brundage (Arizona, *present*), April Grow (UCSC, *present*).

PhD External Examiner for Nottingham, Elizabeth Gordon (Computer Science, 2004); Hertsfordshire, David Jacobs (Computer Science, 2005); University of London, Goldsmiths College, Tak-Shing Thomas Chan (Computer Science, 2007), Oisín Mac Fhearai (Computer Science, Dublin City University 2014), Justin E. Lane (Anthropology, Oxford University, *forthcoming*). Internal examiner for Bath: Gina Raihani (Psychology, 2007); Andrew Carnell (Computer Science, 2008); Florian Schanda (Computer Science, 2010). *Note: UK PhDs are awarded after protracted viva voce examinations conducted by one external and one internal examiner.*

#### MSc DISSERTATION STUDENTS

2015: Laura Deeley (MComp), Hongwei Tong, Yang Hong.  
2010: John Grey†, Jason Leake†, *Bath Mathematics*: Daniel Taylor.  
2008: *Bath Mathematics*: Marios Richards.  
2007: Jonathan Baillie Strong.  
2006: Alastair Fletcher†, Yifan Jiang. *Utrecht Philosophy*: Ivana Čače†.  
2005: Yasushi Ando†, Andrew Beggs†, Steven Couzens, Matthew Thomas†, Bouri Zhang.  
2004: Paula Ellis†, Liu Wenxin, Chia-Hua (Annette) Tsou, Wang Jinxu.  
2003: Andy Kwong†, Nur Haifa Muhd Fathil, Jing Jing (Andrea) Wang†, Peter Duncan Wright.

#### FINAL YEAR UNDERGRADUATE HONOURS STUDENTS:

2015: Kyle Bignell, Wil Eager, Alex Kershaw†\*, Tom Murray, Aaron Rickard†.  
2014: Alex Aiton†, Sam Eaton-Rosen, Tom Ellis, Ryan Murdock, Stephen Pearson, Allan Taylor†, Michael Wyllie.  
2013: Michael Brooks†, Alex Fedorec†, Thom Highman, George Lungley, Tim MacFarlane†, Alice Stuart-Lee†\*.  
2012: Eugene Bann†, Simon Davies†, Tom Hyde†, Richard Scott-Holt†.  
2011: David Greenhill, Jack Kenyon, Matthew Robinson, Michael Tremante†.  
2010: James Bickerton†, Thomas Fletcher†\*.  
2009: Robert Jenks†\*.  
2007: Ayesha Begum, Mary Estall†, Thomas Peach†, Bowen Sun.  
2006: Christos Bechlivanidis†, Avri Bilovich†\*, Steve Butler†, Steve Gray, David Jennings.  
2005: Abeer Almoawdah, Chris Knight, Sam Partington†\*, Meri Williams†\*.  
2004: Tristan Caulfield†, Joanna Julie Church, Robert Holbrook, Emily K. F. Korvin, Philip J. Richards, Stephen M. Richards.  
2003: Natalia Boutoureira Bello†, Jia Lin, John Edward Mann†, David Robert Pratt, Ping Wong.

†indicates first-class honours for undergraduate dissertations, distinctions for MScs. \* indicates a department prize (aprox. 3 available for aprox. 70–100 undergraduates per year.)

## Journal Articles and Reviewed Commentary

- Joanna J. Bryson “The Meaning of the EPSRC Principles of Robotics”, *Connection Science*, in press.
- Dominic Mitchell, Joanna J. Bryson, Paul Rauwolf, and Gordon P. D. Ingram, “On the reliability of unreliable information: Gossip as cultural memory”, *Interaction Studies*, in press.
- Bidan Huang, Miao Li, Ravin Luis De Souza, Joanna J. Bryson, and Aude Billard, “A modular approach to learning manipulation strategies from human demonstration”, *Autonomous Robots*, **40**(5):903–927 June 2016.
- Paul Rauwolf, Dominic Mitchell and Joanna J. Bryson, “Value Homophily Benefits Cooperation but Motivates Employing Incorrect Social Information”, *Journal of Theoretical Biology*, **367**:246–261, February 2015.
- Swen E. Gaudl and Joanna J. Bryson, “A Biomimetic Model of Behaviour Arbitration for Lightweight Cognitive Architectures”, *Philosophy and Computers*, a newsletter of the American Philosophical Association (Peter Boltuc, ed.), to appear.
- Daniel J. Taylor and Joanna J. Bryson, “Replicators, Lineages and Interactors”, *Behavioural and Brain Sciences*, **37**(03):276–277, 2014. Commentary on Smaldino, “The Cultural Evolution of Emergent Group-Level Traits”.
- Jekaterina Novikova, Leonn Watts and Joanna J. Bryson, “The Role of Emotions in Inter-Action Selection”, commentary on Faragó et al. “Social behaviours in dog-owner interactions can serve as a model for designing social robots”, *Interaction Studies*, **15**(2):216–223.
- Karolina Sylwester, Benedikt Herrmann and Joanna J. Bryson, “*Homo homini lupus?* Anti-social punishment revisited”, *Journal of Neuroscience, Psychology, and Economics*, **6**(3):167–188, 2013.
- Simon T. Powers, Daniel J. Taylor and Joanna J. Bryson, “Punishment can promote defection in group-structured populations”, *The Journal of Theoretical Biology*, **311**:107–116, 2012.
- Harvey Whitehouse, Ken Kahn, Michael E. Hochberg and Joanna J. Bryson, “The role for simulations in theory construction for the social sciences: Case studies concerning Divergent Modes of Religiosity”, *Religion, Brain & Behavior*, **2**(3):182–201, 2012.
- Harvey Whitehouse, Ken Kahn, Michael E. Hochberg and Joanna J. Bryson, “From the imaginary to the real: The back and forth between reality and simulation”, *Religion, Brain & Behavior*, **2**(3):219–224, 2012, response to commentaries.
- Joanna J. Bryson “A role for consciousness in action selection”, *International Journal of Machine Consciousness* **4** (2):471–482, 2012.
- Philipp Rohlfshagen and Joanna J. Bryson, “Flexible Latching: A Biologically-Inspired Mechanism for Improving the Management of Homeostatic Goals”, *Cognitive Computation*, **2**(3):230–241, 2010.
- Joanna J. Bryson “Why Robot Nannies Probably Won’t Do Much Psychological Damage”, reviewed commentary on Sharkey and Sharkey, “The crying shame of robot nannies: an ethical appraisal”, *Interaction Studies*, **11**(2):196–200, June 2010.
- Joanna J. Bryson and Emmanuel A. R. Tanguy “Simplifying the Design of Human-Like Behaviour: Emotions as Durative Dynamic State for Action Selection”, *International Journal of Synthetic Emotions*, **1**(1):30–50, January 2010.
- Joanna J. Bryson “Building Persons is a Choice”, invited and reviewed commentary on Foerst, “Robots and Theology”, *Erwägen Wissen Ethik*, **20**(2):195–197, November 2009.
- Joanna J. Bryson “Representations Underlying Social Learning and Cultural Evolution” *Interaction Studies*, **10**(1):77–100, March 2009.
- Joanna J. Bryson “Embodiment versus Memetics”, *Mind & Society*, **7**(1):77–94, June 2008.
- Joanna J. Bryson, Yasushi Ando and Hagen Lehmann, “Agent-based modelling as scientific method: a case study analysing primate social behaviour”, *Philosophical Transactions of the Royal Society, B — Biology*, **362**(1485):1685–1698, September 2007.

- Mark A. Wood and Joanna J. Bryson, “Skill Acquisition Through Program-Level Imitation in a Real-Time Domain”, *IEEE Transactions on Systems, Man and Cybernetics Part B—Cybernetics*, **37**(2):272–285, April 2007.
- Joanna J. Bryson and Jonathan C. S. Leong “Primate Errors in Transitive ‘Inference’” *Animal Cognition*, **10**(1):1–15, January 2007.
- Emmanuel Tanguy, Philip Willis and Joanna J. Bryson “A Dynamic Emotion Representation Model Within a Facial Animation System”, *The International Journal of Humanoid Robotics*, **3**(3):293–300, 2006.
- Joanna J. Bryson, “The Attentional Spotlight”, *Minds and Machines*, **16**(1):21–28, September 2006.
- Joanna J. Bryson, “Language Isn’t Quite *That* Special”, commentary on Carruthers, “The cognitive functions of language”, *Behavioral and Brain Sciences* **25** (6): 679–680, 2002.
- Joanna J. Bryson, David Martin, Sheila I. McIlraith and Lynn Andrea Stein “Toward Behavioral Intelligence in the Semantic Web” in *IEEE Computer* **35**(11): 48–54, 2002.
- Joanna J. Bryson, “Intelligent Control Requires More Structure than the Theory of Event Coding Provides”, commentary on Hommel et al. “The Theory of Event Coding: A Framework for Perception and Action Planning”, *Behavioral and Brain Sciences*, **24**(5): 878–879, 2001.
- Joanna J. Bryson and Kristinn R. Thórisson, “Dragons, Bats & Evil Knights: A Three-Layer Design Approach to Character-Based Creative Play”, *Virtual Reality*, **5**(2): 57–71, 2000.
- Joanna J. Bryson, “Cross-Paradigm Analysis of Autonomous Agent Architecture”, *Journal of Experimental and Theoretical Artificial Intelligence* **12**(2):165–190, 2000.
- Joanna J. Bryson and Will Lowe, “Cognition without Representational Redescription”, commentary on Ballard, Hayhoe, Pook and Rao, “Deictic Codes for the Embodiment of Cognition”, *Behavioral and Brain Sciences*, **20**(4):743–744, 1997.

#### **Edited Books, Proceedings and Special Issues**

- David Gunkel and Joanna J. Bryson (eds.) “Introduction to the Special Issue on Machine Morality: The Machine as Moral Agent and Patient, *Philosophy & Technology*, **27**(1):5–8, March 2014.
- David Gunkel, Steve Torrance and Joanna J. Bryson (eds.) *The Machine Question: AI, Ethics and Moral Responsibility*, AISB, Birmingham, UK, 2012.
- Anil K. Seth, Tony J. Prescott, and Joanna J. Bryson (eds.), *Modelling Natural Action Selection*, Cambridge University Press, November, 2011.
- Tony J. Prescott, Joanna J. Bryson, and Anil K. Seth (eds.), “Introduction. Modelling Natural Action Selection”, *Philosophical Transactions of the Royal Society B* **362**(1485):1521–1529, Sept 2007.
- Ivana Čače and Joanna J. Bryson (eds.), *Interdisciplinary Description of Complex Systems* **5**(2), “Theme Issue on Poverty and Human Development”, October 2007.
- Joanna J. Bryson (ed.), “Mechanisms of Action Selection: Introduction to the Special Issue,”, *Adaptive Behavior* **10**(1):5–8, January 2007.
- Joanna J. Bryson, Tony J. Prescott and Anil K. Seth (eds.), *Modelling Natural Action Selection: Proceedings of an International Workshop*, AISB, Edinburgh UK, 2005.

#### **Reviewed Archival Conference Papers and Book Chapters**

- Joanna J. Bryson and Paul Rauwolf, “Trust, Communication, and Inequality”, *Proceedings of the Thirty-Eighth Annual Conference of the Cognitive Science Society (CogSci)*, Philadelphia, PA, 10–13 August, 2016.
- Rob H. Wortham, Andreas Theodorou, Joanna J. Bryson, “What Does the Robot Think? Transparency as a Fundamental Design Requirement for Intelligent Systems” *IJCAI-2016 Ethics for Artificial Intelligence Workshop*, New York, NY, 6 July, 2016.



- Robert Wortham, Swen Gaudl and Joanna J. Bryson, “Instinct: A Biologically Inspired Reactive Planner for Embedded Environments”, *ICAPS Workshop on Planning and Robotics (PlanRob 2016)*, London, UK, June 13–14, 2016.
- “Patience Is Not a Virtue: AI and the Design of Ethical Systems”, *Ethical and Moral Considerations in Nonhuman Agents*, AAAI Spring Symposium; Indurkha & Stojanov (eds), Stanford, 21–23 March 2016.
- Joanna J. Bryson, “Artificial Intelligence and Pro-Social Behaviour”, *Collective Agency and Cooperation in Natural and Artificial Systems*, Catrin Misselhorn (ed.), pp. 281–306, Springer, 2015.
- Swen Gaudl, Joseph Osborn, and Joanna J. Bryson, “Learning from Play: Facilitating character design through genetic programming and human mimicry”, *17th Portuguese Conference on Artificial Intelligence (EPIA-2015)*, Coimbra, September 2015.
- Yifei Wang, Yinghong Lan, Daniel M. Weinreich, Nicholas K. Priest and Joanna J. Bryson, “Recombination Facilitates Fitness Optimisation Despite Substantial Fitness Costs in the Evolution of Artificial Gene Regulatory Network”, *European Conference on Artificial Life*, York, July 2015.
- Joanna J. Bryson, James Mitchell, Simon T. Powers and Karolina Sylwester, “Explaining Cultural Variation in Public Goods Games”, *Applied Evolutionary Anthropology: Darwinian Approaches to Contemporary World Issues*, M. A. Gibson and D. W. Lawson, (eds.), pp. 201–223, Springer, 2014.
- Mark Currie, Joanna Bryson, Rob Stevens, Jessica Bland and Adam Roberts, “The Future of Memory”, in *Memory in the Twenty-First Century: Critical Perspectives from the Sciences, Arts and Humanities*, Sebastian Groes (ed.), Palgrave Macmillan, *in press*.
- Joanna Bryson, Claire Colebrook, Patricia Waugh, Alison Waller, Holly Pester, Heather Yeung and Karen Brandt, Roberts, “True Lies: Memory, Forgetting and the Selves”, in *Memory in the Twenty-First Century: Critical Perspectives from the Sciences, Arts and Humanities*, Sebastian Groes (ed.), Palgrave Macmillan, *in press*.
- Yifei Wang, Stephen G. Matthews and Joanna J. Bryson, “Evolving Evolvability in the Context of Environmental Change: A Gene Regulatory Network (GRN) Approach”, *Artificial Life*, New York City, August 2014.
- Swen E. Gaudl and Joanna J. Bryson, “The Extended Ramp Goal Module : Low-Cost Behaviour Arbitration for Real-Time Controllers based on Biological Models of Dopamine Cells”, *The IEEE Conference on Computational Intelligence and Games (CIG)*, Dortmund, August 2014.
- Jekaterina Novikova , Swen Gaudl, and Joanna Bryson, “Emotionally Driven Robot Control Architecture for Human-Robot Interaction”, in *Towards Autonomous Robotic Systems 2013*, Ashutosh Natraj, Stephen Cameron, Chris Melhuish, Mark Witkowski (eds), Springer Lecture Notes in Computer Science, pp 261–263, June 2014.
- Joanna J. Bryson “The Role of Stability in Cultural Evolution: Innovation and Conformity in Implicit Knowledge Discovery”, in *Perspectives on Culture and Agent-Based Simulations*, Virginia Dignum and Frank Dignum, (eds), pp. 169–187, Springer, Berlin, 2014.
- Bidan Huang, Joanna J. Bryson and Tetsunari Inaura, “Learning Motion Primitives of Object Manipulation Using Mimesis Model”, *Robotics and Bioimetics (IEEE-ROBIO)*, pp. 1114–1119, December 2013.
- Eugene Y. Bann and Joanna J. Bryson “Measuring Cultural Relativity of Emotional Valence and Arousal using Semantic Clustering and Twitter”, *Proceedings of the Thirty-Fifth Annual Conference of the Cognitive Science Society (CogSci)*, Berlin, August 2013, pp. 1809–1815.
- Swen Gaudl, Simon Davies and Joanna J. Bryson “Behaviour Oriented Design for Real-Time-Strategy Games: An Approach on Iterative Development for STARCRAFT AI”, *Foundations of Digital Games (FDG)*, Chania, Crete 14–17 May 2013.
- Bidan Huang, Sahar El-Khoury, Miao Li, Joanna J. Bryson and Aude Billard, “Learning a Real Time Grasping Strategy”, *IEEE International Conference on Robotics and Automation (ICRA)*, Karlsruhe, Germany 6–10 May 2013.

- Eugene Y. Bann and Joanna J. Bryson “The Conceptualisation of Emotion Qualia: Semantic Clustering of Emotional Tweets”, *Computational Models of Cognitive Processes: Proceedings of the 13<sup>th</sup> Neural Computation and Psychology Workshop (NCPW)*, J. Mayor and P. Gomez (eds), 2014, pp. 249–263.
- Joanna J. Bryson “Patience Is Not a Virtue: Suggestions for Co-Constructing an Ethical Framework Including Intelligent Artefacts”, in *The Machine Question: AI, Ethics and Moral Responsibility*, D. Gunkel, S. Torrance and J. J. Bryson (eds.), AISB, Birmingham, UK, 2012.
- Joanna J. Bryson “Structuring Intelligence: The Role of Hierarchy, Modularity and Learning in Generating Intelligent Behaviour”, in *The Complex Mind*, David McFarland, Keith Stenning and Margaret McGonigle (eds.), pp. 126–143, Palgrave MacMillan, 2012.
- Joanna J. Bryson and Philip P. Kime, “Just an Artifact: Why Machines are Perceived as Moral Agents”, *The Twenty-Second International Joint Conference on Artificial Intelligence (IJCAI)*, Barcelona, Spain, pp. 1641–1646, Morgan Kaufmann, 2011.
- Joanna J. Bryson, Yasushi Ando and Hagen Lehmann, “Agent-based models as scientific methodology: A case study analysing the DomWorld theory of primate social structure and female dominance,” in *Modelling Natural Action Selection*, Anil K. Seth, Tony J. Prescott, Joanna J. Bryson (eds.), pp. 427–453, Cambridge University Press, 2012.
- Gideon M. Gluckman and Joanna J. Bryson, “An Agent-Based Model of the Effects of a Primate Social Structure on the Speed of Natural Selection”, in *Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS)*, Bill Rand and Forrest Stonedahl (eds.), Dublin 2011.
- Joanna J. Bryson “A Role for Consciousness in Action Selection”, in *Proceedings of the AISB 2011 Symposium: Machine Consciousness*, Ron Chrisley, Rob Clowes and Steve Torrance (eds.), York, April 2011.
- John Grey and Joanna J. Bryson “Procedural Quests: A Focus for Agent Interaction in Role-Playing-Games”, in *Proceedings of the AISB 2011 Symposium: AI & Games*, Daniela Romano and David Moffat, (eds.), York, April 2011.
- Jakub Gemrot, Cyril Brom, Joanna Bryson and Michal Bída, “How to compare usability of techniques for the specification of virtual agents behavior? An experimental pilot study with human subjects”, in *Proceedings of the AAMAS 2011 Workshop on the uses of Agents for Education, Games and Simulations*, Taipei, M. Beer, C. Brom, V-W Soo and F. Dignum (eds.) May 2011.
- Joanna J. Bryson “Crude, Cheesy, Second-Rate Consciousness”, in *From Brains to Systems: 2010 Conference on Brain-Inspired Cognitive Systems (BICS)*, 14pp, Madrid, 14–16 July 2010.
- Joanna J. Bryson, “Cultural Ratcheting Results Primarily from Semantic Compression”, in *Proceedings of the Evolution of Language 2010*, A. D. M. Smith, M. Schouwstra, B. de Boer and K. Smith (eds.), World Scientific, pp. 50–57, Utrecht, April 2010.
- Joanna J. Bryson, “Robots Should Be Slaves”, in *Close Engagements with Artificial Companions: Key social, psychological, ethical and design issues*, Yorick Wilks (ed.), pp. 63–74, John Benjamins, Amsterdam, 2010.
- Joanna J. Bryson and Petra Kaczensky, “Exploring Knowledge Dissemination as a Selective Force for Aggregation: Preliminary Results from Modelling Wild Asiatic Asses”, Simon Powers (ed.), *Levels of Selection and Individuality in Evolution: Conceptual Issues and the Role of Artificial Life Models*, a workshop at The Tenth European Conference on Artificial Life (ECAL ’09), Budapest, 14 September 2009.
- Joanna J. Bryson, “Age-Related Inhibition and Learning Effects: Evidence from Transitive Performance”, in *Proceedings of the 31<sup>st</sup> Annual Meeting of the Cognitive Science Society (CogSci 2009)* pp. 3040–3045, July 2009.
- Joanna J. Bryson, “Crude, Cheesy, Second-Rate Consciousness”, *The Second AISB Symposium Computing and Philosophy*, Mark Bishop (ed), pp. 10–15, Edinburgh UK, April 2009.
- Avri Bilovich and Joanna J. Bryson, “Detecting the Evolution of Semantics and Individual Beliefs Through Statistical Analysis of Language Use”, *Proceedings of the Fall AAAI Symposium on Naturally-Inspired Artificial Intelligence*, J. Beal, P. Bello, N. Cassimatis, M. Coen and P. Winston (eds), pp. 21–26, Washington DC, October 2008.

- Joanna J. Bryson, “The Role of Modularity in Stabilizing Cultural Evolution: Conformity and Innovation in an Agent-Based Model”, *Proceedings of the Fall AAAI Symposium on Adaptive Agents in Cultural Contexts (AACC '08)*, A. Davis and J. Ludwig (eds), pp. 8–17, Arlington VA, October 2008.
- Philipp Rohlfshagen and Joanna J. Bryson, “Improved Animal-Like Maintenance of Homeostatic Goals via Flexible Latching”, *Proceedings of the AAAI Fall Symposium on Biologically Inspired Cognitive Architectures*, A. Samsonovich (ed), pp. 153–160, Arlington VA, October 2008.
- Joanna J. Bryson, “The Impact of Durative State on Action Selection”, *Proceedings of the AAAI Spring Symposium on Emotion, Personality, and Social Behavior*, I. Horswill, E. Hudlicka, C. Lisetti and J. Velasquez (eds), pp. 2–9 March 2008.
- Steven Butler and Joanna J. Bryson “Effects of Mass Media and Opinion Exchange on Extremist Group Formation”, in *The Proceedings of the Fourth Conference of the European Social Simulation Society (ESSA '07)*, Toulouse, France, pp. 455–465 2007.
- Joanna J. Bryson, “Representational Requirements for Evolving Cultural Evolution”, invited and reviewed target article (and responses) in *interdisciplines' Web conference, Adaptation and Representation* 28 May 2007.
- Emmanuel Tanguy, Philip Willis and Joanna J. Bryson, “Emotions as Durative Dynamic State for Action Selection”, in *The Twentieth International Joint Conference on Artificial Intelligence (IJCAI)*, Hyderabad, India, pp. 1537–1542, Morgan Kaufmann 2007.
- Mark A. Wood and Joanna J. Bryson, “Representations for Learning Action Selection from Real-Time Observation of Task Experts”, in *The Twentieth International Joint Conference on Artificial Intelligence (IJCAI)*, Hyderabad, India, pp. 641–646, Morgan Kaufmann 2007.
- Cyril Brom, Jakub Gemrot, Michal Bída, Ondrej Burkert, Sam J. Partington and Joanna J. Bryson, “POSH Tools for Game Agent Development by Students and Non-Programmers”, in *The Ninth International Computer Games Conference: AI, Mobile, Educational and Serious Games*, Dublin, Ireland, pp. 126–133, University of Wolverhampton 2006.
- Ivana Čače and Joanna J. Bryson, “Agent Based Modelling of Communication Costs: Why Information can be Free”, in *Emergence and Evolution of Linguistic Communication* C. Lyon, C. L. Nehaniv and A. Cangelosi, eds., pp. 305–322, Springer 2007.
- Joanna J. Bryson, Tristan J. Caulfield and Jan Drugowitsch, “Integrating Life-Like Action Selection into Cycle-Based Agent Simulation Environments”, in *Proceedings of Agent 2005: Generative Social Processes, Models, and Mechanisms*, Michael North, David L. Sallach and Charles Macal eds., pp. 67–81, Argonne National Laboratory 2006.
- Samuel J. Partington and Joanna J. Bryson, “The Behavior Oriented Design of an Unreal Tournament Character”, *The Fifth International Working Conference on Intelligent Virtual Agents*, T. Panayiotopoulos, J. Gratch, R. Aylett, D. Ballin, P. Olivier and T. Rist, eds., pp. 466–477, Springer, 2005.
- Paula M. Ellis and Joanna J. Bryson, “The Significance of Textures for Affective Interfaces”, *The Fifth International Working Conference on Intelligent Virtual Agents*, T. Panayiotopoulos, J. Gratch, R. Aylett, D. Ballin, P. Olivier and T. Rist, eds., pp. 394–404, Springer, 2005.
- Hagen Lehmann, JingJing Wang and Joanna J. Bryson, “Tolerance and Sexual Attraction in Despotism: A Replication and Analysis of Hemelrijk (2002)”, in *Modelling Natural Action Selection: Proceedings of an International Workshop*, J. J. Bryson, T. J. Prescott and A. K. Seth, eds., pp. 135–142, AISB, Sussex UK, 2005.
- Joanna J. Bryson and Mark A. Wood, “Learning Discretely: Behaviour and Organisation in Social Learning”, in *Third International Symposium on Imitation in Animals and Artifacts*, Y. Demiris ed., pp. 30–37, AISB, 2005.
- Ivana Čače and Joanna J. Bryson, “Why Information can be Free”, in *Second International Symposium on the Emergence and Evolution of Linguistic Communication (EELC'05)*, A. Cangelosi and C. L. Nehaniv eds. pp. 17–22, AISB, 2005.

- Joanna J. Bryson, “Modularity and Specialized Learning: Reexamining Behavior-Based Artificial Intelligence”, in *The Proceedings of The Third International Conference on Development and Learning (ICDL’04): Developing Social Brains*, J. Triesch and T. Jebara, eds., pp. 309–316, UCSD Institute for Neural Computation, 2004.
- Joanna J. Bryson, “Evidence of Modularity from Primate Errors during Task Learning”, in *The Ninth Neural Computation and Psychology Workshop (NCPW9)*, A. Cangelosi, G. Bugmann and R. Borisjuk eds., pp. 301–310, World Scientific, 2005.
- Joanna J. Bryson, “Action Selection and Individuation in Agent Based Modelling”, in *Proceedings of Agent 2003: Challenges of Social Simulation*, David L. Sallach and Charles Macal eds., pp. 317–330, Argonne National Laboratory, 2003.
- Joanna J. Bryson, “Modular Representations of Cognitive Phenomena in AI, Psychology and Neuroscience”, in *Visions of Mind*, Darryl Davis ed., pp. 66–89, Idea Group, London, 2005.
- Bruce Edmonds and Joanna J. Bryson, “The Insufficiency of Formal Design Methods — The Necessity of an Experimental Approach for the Understanding and Control of Complex MAS.”, *The Third International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS 2004)*, pp. 936–943.
- Mark Wood, Jonathan C. S. Leong and Joanna J. Bryson, “ACT-R is *almost* a Model of Primate Task Learning: Experiments in Modelling Transitive Inference”, in *Proceedings of the 26<sup>th</sup> Annual Meeting of the Cognitive Science Society (CogSci 2004)*, pp. 1470–1475.
- Emmanuel Tanguy, Philip Willis and Joanna J. Bryson, “A Layered Dynamic Emotion Representation for the Creation of Complex Facial Expressions”, *Intelligent Virtual Agents 2003*, pp. 101–105. Springer, 2003.
- Joanna J. Bryson “The Behavior-Oriented Design of Modular Agent Intelligence”, *Agent Technologies, Infrastructures, Tools, and Applications for e-Services*, R. Kowalszyk, J. P. Müller, H. Tianfield and R. Unland, eds., pp. 61–76, Springer, 2003.
- Joanna J. Bryson, David Martin, Sheila I. McIlraith and Lynn Andrea Stein, “Agent-Based Composite Services in DAML-S: The Behavior-Oriented Design of an Intelligent Semantic Web”, in *Web Intelligence*, N. Zhong, J. Liu and Y. Yao, eds., pp. 37–58, Springer, 2003.
- Joanna J. Bryson, “Where Should Complexity Go? Cooperation in Complex Agents with Minimal Communication”, *Innovative Concepts for Agent-Based Systems*, W. Truszkowski, C. Rouff and M. Hinchey, eds., pp. 298–313, Springer, 2003.
- Joanna J. Bryson and Jessica C. Flack, “Action Selection for an Artificial-Life Model of Social Behavior in Non-Human Primates”, *Proceedings of the International Workshop on Self-Organization and Evolution of Social Behaviour*, C. Hemelrijk ed., pp. 42–45, 2002.
- Joanna J. Bryson and Marc D. Hauser, “What Monkeys See and Don’t Do: Agent Models of Safe Learning in Primates”, *Proceedings of the AAI Symposium on Safe Learning Agents*, M. Barley and H. W. Guesgen, eds., AAI Press March 2002.
- Joanna J. Bryson, “Embodiment vs. Memetics: Does Language Need a Physical Plant?” in *Developmental Embodied Cognition (DECO-2001)*, R. Pfeifer and G. Westermann, eds.; Edinburgh, July 2001.
- Joanna J. Bryson and Lynn Andrea Stein, “Modularity and Design in Reactive Intelligence”, in *The Seventeenth International Joint Conference on Artificial Intelligence (IJCAI)*, Seattle WA, pp. 1115–1120, Morgan Kaufmann, 2001.
- Joanna J. Bryson and Lynn Andrea Stein, “Modularity and Specialized Learning: Mapping Between Agent Architectures and Brain Organization”, in *The Second International Workshop on Emergent Neural Computational Architectures Based on Neuroscience*, S. Wermter, J. Austin and D. Willshaw, eds.; Springer, Berlin, pp. 98–113, 2001.
- Joanna J. Bryson, “Hierarchy and Sequence vs. Full Parallelism in Action Selection”, *Simulation of Adaptive Behavior 6*, Paris, 2000 pp. 147–156 (originally in *Intelligent Virtual Agents 2*, ed. Daniel Ballin, 1999.)
- Joanna J. Bryson and Lynn Andrea Stein, “Modularity and Specialized Learning in the Organization of Behaviour”, in *Connectionist Models of Learning, Development and Evolution: The Sixth Neural Computation and Psychology Workshop (NCPW6)*, Robert French and Jacques Sougné (eds.), pp. 53–62, Springer, 2001.

- Joanna J. Bryson, Will Lowe and Lynn Andrea Stein, “Hypothesis Testing for Complex Agents”, *NIST Workshop on Performance Metrics for Intelligent Systems*, Washington, DC; Alex M. Meystel and Elena R. Messina (eds.), pp. 233–240, 2000.
- Joanna J. Bryson and Lynn Andrea Stein, “Architectures and Idioms: Making Progress in Agent Design”, *The Seventh International Workshop on Agent Theories, Architectures and Languages (ATAL)*, Boston, C. Castelfranchi and Y. Lespérance (eds.), pp. 73–88, Springer 2000.
- Joanna Bryson, “Making Modularity Work: Combining Memory Systems and Intelligent Processes in a Dialog Agent”, *AISB’00 Symposium on Designing a Functioning Mind*, Aaron Sloman (ed.), pp. 21–30; Birmingham UK, 2000.
- Joanna Bryson, “A Proposal for the Humanoid Agent-builders League (HAL)”, *AISB’00 Symposium on Artificial Intelligence, Ethics and (Quasi-)Human Rights*, John Barnden (ed.), pp. 1–6; Birmingham UK, 2000. (Abstract also appeared in the AISB Quarterly No. 104, Summer/Autumn 2000, ed. Blay Whitby)
- Joanna Bryson, “Creativity by Design: A Behaviour-Based Approach to Creating Creative Play”, *AISB’99 Symposium on Creativity in Entertainment and Visual Art*, ed. Frank Nack, Edinburgh, 1999.
- Joanna Bryson and Phil Kime, “Just Another Artifact: Ethics and the Empirical Experience of AI”, *Fifteenth International Congress on Cybernetics*, pp. 385–390, Namur, 1998.
- Joanna Bryson and Brendan McGonigle, “Agent Architecture as Object Oriented Design”, *The Fourth International Workshop on Agent Theories, Architectures and Languages (ATAL97)*, pp. 15–30, ed. Munindar P. Singh, Springer-Verlag, Providence, 1998.
- Joanna Bryson, “The Design of Learning for an Artifact”, *The AISB Workshop on Learning in Robots and Animals*, ed. Noel Sharkey et. al., Brighton UK, 1996.
- Joanna Bryson, “The Reactive Accompanist: Adaptation and Behavior Decomposition in a Music System”, *The Biology and Technology of Intelligent Autonomous Agents*, pp. 365–376, ed. Luc Steels. Springer, Trento, 1995.
- Joanna Bryson, Alan Smaill, Geraint Wiggins, “The Reactive Accompanist: Applying Subsumption Architecture To Software Design”, University of Edinburgh Department of Artificial Intelligence Research Paper 606, 1992.

### Other Reviewed Presentations

- Joanna J. Bryson, Aylin Caliskan Islam, and Joanna J. Bryson, “Semantics derived automatically from language corpora necessarily contain human biases”, *Text As Data*, Northeastern University, Boston, 14–15 October 2016.
- Joanna J. Bryson and Nolan McCarty, “Polarization and Inequality: Towards a Mechanistic Account”. E-poster presented at the *American Political Science Association (APSA)*, Philadelphia, PA. 1–4 September 2016
- Aylin Caliskan Islam and Joanna J. Bryson, “Discovering individual and collective bias via automated language model analysis”, reviewed poster, *Emergent Meaning*, Lehigh University, PA (in association with *Cognitive Science*, August 10, 2016.
- Aylin Caliskan Islam, Joanna J. Bryson, and Arvind Narayanan “A Story of Discrimination and Unfairness”, reviewed talk, **Best HotPETs talk prize**, *Privacy Enhancing Technologies Symposium*, Darmstadt, Germany, July 22, 2016.
- “Patience Is Not a Virtue: AI and the Design of Ethical Systems”, *AI, Ethics, and Society, the Second International Workshop*, AAAI, Phoenix, Arizona USA, 13th February 2016,
- “Costly punishment as a strategy for optimising public goods investment”, reviewed talk and participant, *Evolution and Warfare: a NIMBioS Investigative Workshop*, Knoxville, Tennessee, 16–18 September 2015.
- Paul Rauwolf and Joanna J. Bryson, “Fairness Evolves Because of Partial Information,” reviewed talk and abstract, *Sixteenth International Conference of Social Dilemmas*, Hong Kong, June 2015.

- Paul Rauwolf, Dominic Mitchell, and Joanna J. Bryson, “Value Homophily Benefits Cooperation but Motivates Employing Incorrect Social Information”, reviewed talk and abstract, *Sixteenth International Conference of Social Dilemmas*, Hong Kong, June 2015.
- Paul Rauwolf and Joanna J. Bryson, “The Evolution of the Impact Bias,” reviewed talk and abstract, *European Human Behaviour and Evolution Association* Helsinki, April 2015.
- “Stories as public goods: The behavioural ecology of our narrative compulsion”, *The Story of Memory Conference: New Perspectives on the Relationship between Storytelling and Memory in the Twenty-First Century*, Roehampton University, London, September 2014.
- Joanna J. Bryson, Karolina Sylwester, James Mitchell and Simon T. Powers, “Personality, Social Strategy, and the Regulation of Public Goods Investment: A Behavioural Ecological Perspective on Variation in Human Economic Behaviour”, four-page extended abstract and poster, in *Collective Intelligence*, June 2014, MIT.
- Paul Rauwolf and Joanna J. Bryson, “Selective Pressure for the Divergence in Decision and Experienced Utility”, four-page extended abstract and poster, in *Collective Intelligence*, June 2014, MIT.
- Yifei Wang, Joanna J. Bryson and Nicholas K. Priest, “Robustness as A Property of Networks Supporting Change: An Example from Artificial Gene Networks”, four-page extended abstract and poster, *Collective Intelligence*, June 2014, MIT.
- Paul Rauwolf, Dominic Mitchell, and Joanna J. Bryson, “Cooperation benefits when homophily motivates dishonesty in gossip.” reviewed talk and abstract, *European Human Behaviour and Evolution Association*, Bristol, April 2014.
- Daniel J. Taylor and Joanna J. Bryson, “Testing the Bond”, reviewed talk and abstract, *European Human Behaviour and Evolution Association*, Bristol, April 2014.
- “Dominance, Fitness, Social Structure and Ecology: Reconciling Several Popular Models” reviewed talk and abstract, *Primate Society of Great Britain Winter Meeting 2013: Modelling primate social organisation*, Linnean Society, London, 11 December 2013.
- “Dominance, Compassion, and Evolved Social: Behaviour: Advisable Roles and Limits for Companion Robots”, talk based on an extended abstract, at *Taking Care of Each Other: Synchronisation and Reciprocity for Social Companion Robots* a workshop of The International Conference on Social Robotics (ICSR), Bristol, UK, 27 October 2013.
- Alice Stuart Lee and Joanna J. Bryson, “Explanations of Matriarchal Social Structures” reviewed talk and abstract *The Fifth Congress of the European Federation for Primatology*, Antwerp, Belgium; 10–13 September 2013; abstract in *Folia Primatologica*, **84**(3–5):326.
- “Punishment As Regulation of Public Goods Investment: Understanding Cultural Variation in Anti-Social Punishment”, with James Mitchell, Simon T. Powers and Karolina Sylwester, reviewed abstract and talk, *The Seventeenth International Conference on Social Dilemmas (ICSD)*, Zurich, 10–13 July 2013.
- Joanna J. Bryson, “Costly punishment as a strategy for optimising public goods investment”, reviewed abstract and talk, *The European Human Behaviour Association Conference*, Amsterdam, 27 March 2013.
- Daniel J. Taylor, Marios Richards and Joanna J. Bryson “On the Excludability of Public Goods”, reviewed abstract and talk, *The European Human Behaviour Association Conference*, Amsterdam, 25 March 2013.
- Dominic Mitchell, Gordon P. D. Ingram and Joanna J. Bryson, “On the reliability of unreliable information: Gossip as cultural memory”, *The European Human Behaviour Association Conference*, reviewed abstract and talk, Amsterdam, 25 March 2013.
- “The EPSRC Principles of Robotics: Applications to Serious Games”, *Ethical Issues and Social Responsibility in Serious Games*, reviewed abstract and talk, Sheffield, 21 January 2013.
- “Dominance, aggression and public goods investment: Explaining anti-social punishment”, *Theoretical and Empirical Aspects of Decision Making*, reviewed abstract and talk, Bristol, 17–18 December 2012.

- “Costly punishment and the regulation of public goods investment”, with Karolina Sylwester, James Mitchell, Simon T. Powers and Daniel J. Taylor, reviewed abstract and poster, *ETH Latsis Symposium 2012: Economics on the Move*, Zurich, 11–14 September 2012.
- “The Valence of Ties and the Regulation of Public Goods Investment”, with Karolina Sylwester, James Mitchell, Simon T. Powers and Daniel J. Taylor, reviewed abstract and talk, *Negative Ties and Social Networks*, Budapest, 19–20 April 2012.
- Simon T. Powers, Daniel J. Taylor and Joanna J. Bryson “Punishment can promote defection in group-structured populations”, reviewed abstract and talk, *The European Human Behaviour Association Conference*, Durham UK March 2012.
- Daniel J. Taylor and Joanna J. Bryson “Rogers’ Paradox: Resolved”, reviewed abstract and poster, *The European Human Behaviour Association Conference*, Durham UK March 2012.
- Bidan Huang, Jason Leake and Joanna J. Bryson, “Humanoid robots and cognitive systems research: An epistemological case study based on the iCub”, reviewed poster, brief talk, and extended abstract at *The International Conference on Development and Learning, (ICDL)*, Frankfurt, August 2011.
- “Internet memory and life after death” reviewed talk and abstract in *Death & Dying in the Digital Age*, Bath, UK 25–26 June 2011.
- “The interplay between cognition and secondary replicators: Could memetics explain human uniqueness?”, reviewed talk and abstract in *Current challenges and applications of comparative cognition (CompCog II)* Prague, 25–27 May 2011.
- “The Impact on Organisms of Transmitting Secondary Replicator Systems”, with Sam P. Brown, reviewed abstract and talk, *The European Human Behaviour Association Conference*, Gießen, Germany 24–26 March 2011.
- “The Scientific Application of Agent-Based Modelling; The Impact on Organisms of Transmitting Secondary Replicator Systems”, solicited talks for the workshop *Microbial Evolution: Modeling and Experimental Techniques*, e-Science Institute, University of Edinburgh, 11–13 January 2011.
- “Social Simulation and Explaining Religion”, talk in the *The Explaining Religion Project (EXREL): How Do Religions Evolve?* symposium of *Religion, a Human Phenomena: The XX<sup>th</sup> Quinquennial World Congress of the International Association for the History of Religions*. Toronto, Canada, 17 August 2010.
- “Determinants of the Size of Social Species’ Culture” talk and reviewed abstract, *Complexity and Nonlinear Phenomena in Biological Systems*, a one-day meeting organised by the Nonlinear and Complex Physics Group of the Institute of Physics (UK), Bath, 20 May 2010.
- Marios N. Richards and Joanna J. Bryson, “Comparing individuality to phenotypic plasticity in facilitating evolution”, talk and reviewed abstract, *Individual Specialisation: The Association for the Study of Animal Behaviour’s Winter Meeting*, London, 3–4 November 2009.
- Joanna J. Bryson, “Information Dissemination as an Explanation of Troop-Level Aggregation in Fission-Fusion Species with Varied Party Composition”, talk and reviewed abstract *Vertebrate Models of Social Evolution*, Adelboden, Switzerland; 16–18 August 2009.
- Joanna J. Bryson, “Information Dissemination as an Explanation of Troop-Level Aggregation in Fission-Fusion Species with Varied Party Composition”, talk and reviewed abstract *The Third Congress of the European Federation for Primatology*, Zürich, Switzerland; 12–15 August 2009; abstract in *Folia Primatologica*, **80**(2):111.
- Hagen Lehmann and Joanna J. Bryson, “A Unified Account of The Primate Tolerance Spectrum”, talk and reviewed abstract *The Third Congress of the European Federation for Primatology*, Zürich, Switzerland 12–15 August 2009; abstract in *Folia Primatologica*, **80**(2):124.
- Joanna J. Bryson, “Shared Information as an Explanation of Troop-Level Aggregation in Fission-Fusion Species with Varied Party Composition”, talk and reviewed abstract *Multiply Structured Populations in Biology*, Bath UK, 1–3 July 2009.
- Joanna J. Bryson, “What Limits the Biological Evolution of Cultural Evolution?” reviewed abstract and talk presented to *Social Genes, Social Brains and Social Minds*, Budapest 13–15 May 2009.

- Joanna J. Bryson, “Selection for variation: Evolutionary processes affecting dominance, social structure and female mate choice”, reviewed abstract and poster presented to *The European Human Behaviour Association Conference*, St. Andrews, UK, 6–8 April 2009, abstract booklet p. 29.
- Robert A. Jenks, Julia Lehmann and Joanna J. Bryson, “A model of factors generating fission-fusion social dynamics”, reviewed abstract and poster presented to *The European Human Behaviour Association Conference*, St. Andrews, UK, 6–8 April 2009, abstract booklet p. 36.
- Marios Richards and Joanna J. Bryson, “Does learning accelerate evolution?”, reviewed abstract and poster presented to *The European Human Behaviour Association Conference*, St. Andrews, UK 6–8 April 2009, abstract booklet p. 46.
- Hagen Lehmann and Joanna J. Bryson, “Evolutionary Determinates of Social Structure in Macaque Troops”, reviewed abstract and talk presented to *The International Primatological Society’s XXII Congress*, Edinburgh, UK 8 August 2008.
- “What Limits the Biological Evolution of Cultural Accumulation?”, reviewed abstract and poster presented to *The International Primatological Society’s XXII Congress*, Edinburgh, UK 4 August 2008.
- “Information can be free: Implications for recent developments in the evolution of altruism”, *The Sixth Göttinger Freilandtage: Primate Behavior and Human Universals* reviewed abstract and presentation, Göttingen Germany, 11–14 December 2007.
- “Hierarchical organization of intelligence: Ethology and AI perspectives”, The NIPS workshop on *Hierarchical Organization of Behavior: Computational, Psychological and Neural Perspectives*, solicited and reviewed extended abstract and presentation, Vancouver, Canada, 7–8 December 2007.
- “Robots Should Be Slaves”, solicited and reviewed extended abstract and presentation for the Oxford e-Horizons forum *Artificial Companions in Society: Perspectives on the Present and Future*, Oxford University, 26 October 2007.
- Panel participant, *Humans and Humanoids — Perspectives in Cognition and Robotics*, The Research Institute for Cognition and Robots — CoR-University of Bielefeld, 9 October 2007.
- Hagen Lehmann and Joanna J. Bryson, “The Socio-Ecological Model of Female Social Relationships in the Genus *Macaca*: An Agent Based Approach”, reviewed abstract and talk, presented at the biannual meeting of the European Federation for Primatology, 3 September 2007.
- “The Adaptive Advantage of Knowledge Transmission”, reviewed abstract and talk presented to *Evolution of Language 5*, Rome, Italy, 14 April 2006.
- “Embodiment vs. Memetics”, reviewed abstract and talk for *Post-Cognitive Psychology*, Glasgow, UK, August 2005.
- “Learning Action Selection from Observation of Humans in Unreal Tournament” talk at Southwest Regional Meeting on Mathematics, Computation and Biology, University of Western England, Bristol UK, 24 June 2005.
- “Representations Underlying Social Learning”, reviewed abstract and poster presented at Animal Social Learning, St. Andrews, UK, 15–18 June 2005.
- “Artificial Intelligence Models of Primate Intelligence” talk at Southwest Regional Meeting on Mathematics, Computation and Biology, University of Bristol, UK, 21 June 2004.
- “Language Needs 2<sup>nd</sup> Order Representations and A Rich Memetic Substrate”, reviewed abstract and talk presented to *Evolution of Language 5*, Leipzig, Germany, 1 April 2004.
- “The Relationship Between AI Architectures and Neuroscience”, presentation to *Workshop on Grand Challenge 5: Architecture of Brain and Mind*, De Montfort University, Leicester, 5 January 2004.
- “Artificial Emotions”, presented with Dylan Evans to *Foresight Cognitive Systems Interaction Conference*, Bristol UK, 3 September 2003.



- “Modular models of social agents: Modelling the emergence of Macaque social structure”, reviewed abstract and talk *Agent-Based Social Simulation Special Interest Group Meeting*, Barcelona, Spain 3 February 2003.
- “Modelling Tolerance: An agent-based model of conflict resolution”, talk at the workshop on *Computer-Aided Methods for International Conflict Resolution and Prevention*, Austrian Research Institute for Artificial Intelligence (ÖFAI), Vienna, Austria, 26 October 2002.
- “Representing Cognitive Phenomena in Biological Systems”, invited talk and paper for the *Theoretical Fundamentals of Intelligent Systems* Workshop of the Joint Conference on Information Sciences, A. Meystel ed., Washington DC, 11 March 2002.
- Joanna J. Bryson, Keith Decker, Scott DeLoach, Michael Huhns and Michael Wooldridge, “Agent Development Tools”, chapter from the invited panel *The Seventh International Workshop on Agent Theories, Architectures and Languages (ATAL)*, Boston, eds. C. Castelfranchi and Y. Lespérance, pp. 331–338, Springer 2000.
- Joanna Bryson, “Primitive Parallax and Parallax Primitives”, *The Third European Conference on Artificial Life*, June 1995. Poster and abstract.

### Invited Talks: National and International Conferences and Workshops

- “There Is No AI Ethics: AI Expresses and Extends NI”, *Summit on Human Problem Solving and Artificial Intelligence* (Jacob Sherson), Sandbjerg, Denmark, 28–30 November 2016.
- “Human Autonomy and the Hazards of Principle Agency in an Era of Expanding AI”, **keynote**, *Machine Ethics and Machine Law* (Bipin Indurkha), Cracow, Poland, 18–19 November 2016.
- “What makes a person?”, *Robotics in the 21<sup>st</sup> century: Challenges and Promises*, Göttingen, Germany 25–28 September, 2016.
- “The Design of Artificial Intelligence and the Root of the Moral Subject” , **keynote**, *Designing Moral Technologies: Theoretical, Practical, and Ethical Issues*, Monte Verità, Switzerland, July 10–15 2016.
- “Embodiment vs Memetics: From Semantics to Moral Patiency through the Simulation of Behaviour”, **keynote**, annual symposia of the *Society for the Study of Artificial Intelligence and the Simulation of Behaviour (AISB)*, Canterbury, Kent, 22 April 2015.
- “Artificial Intelligence and Pro-Social Behaviour”, invited talk in the workshop, *Collective intelligence, coordinated action and communities on the Internet*, Tamás Dávid-Barrett (organiser), Oxford University, 16–17 September 2014.
- “The Ethical Principle of Transparency for Artificially Intelligent Romantic Companions.” *The AISB Symposium on Love and Sex with Robots*, London, 3 April 2014.
- “Beyond thought experiments: The experience of AI in the humanities”, *Autonomy and Automation: Robotics, AI and the Digital Cultural Future*, Bristol, 8 March 2014.
- “Honing Heuristics: The Interaction of Evolution, Learning and Thought”, *Heuristic Mechanisms in Natural and Artificial Cognitive Systems*, at the Bavarian Academy of Sciences and Humanities, Munich, 8–9 October 2013.
- “Punishment As Regulation of Public Goods Investment: Understanding Cultural Variation in Anti-Social Punishment”, *Human Cooperation*, Ruth Mace (organiser) at the University College of London (UCL) Department of Anthropology, 17 September 2013.
- “We’re Already Succeeding (& It’s Already Scary / Wonderful)” *The Future of AI: What if We Succeed?*, **plenary panel** participant with Henry Kautz, Anders Sandberg and Sebastian Thrun, chaired by Stuart Russell at the 23<sup>rd</sup> *International Joint Conference on Artificial Intelligence (IJCAI)*, Beijing, 9 August 2013.
- “In-Group or Out-Group? A Role for Living Machines in Human Society”, *Societal Impacts of Living Machines*, Tony Prescott (organiser) workshop at *Living Machines*, London, 2 August 2013.
- “Why Do Some Chimpanzees Have Laptop Projectors?” *Collective Agency and Cooperation in Natural and Artificial Systems*, Stuttgart Germany, 22–24 July 2013.

- “A Roadmap to the Adoption of Every-Day Domestic Robots”, *CHIST-ERA conference on Call 2013 Definition: Adaptive Machines in Complex Environment*, Brussels, 13 June 2013.
- “Roles for Emotions in Artefacts and Other Agents”, *Affective Computing*, Nottingham UK, 7 September 2012.
- “Bondage as Cognition: Exploiting Physical Constraints to Produce Intelligent Behaviour”, *Physical Cognition & Problem Solving*, The Association for the Study of Animal Behaviour’s Interdisciplinary Workshop, Birmingham UK, 27–28 June 2012.
- “Space, Time and Evolving Cognition”, *Using robotic and computer stimuli in animal behaviour and cognition research*, an EU Comparative Cognition Workshop, Lincoln, UK, 24–25 May 2012.
- “Memory, Action and Expectation — The Means and Extent to Which You and Your Society Construct Your Self”, invited talk and network participant, *The Future of Memory*, The Memory Network, London, 29–30 October 2011.
- “Space, Time and Information: Modelling the Ecology of Cultural Species”, *Modelling Ecological Environments and Agents: Understanding the Past and Predicting the Future*, Hominid Dispersals Research Group, McGill and Montreal Universities, 24–26 October 2011.
- “Cognition and Ecology: What Nature Tells Us About Autonomy”, *Autonomous Activity in the Real World: The Fifth EUCogII Members Conference*, Groningen, 10 October 2011.
- “Why We Share Information: The Evolution of Social Behaviour”, *IJCAI 2011 Workshop on Agents Learning Interactively from Human Teachers (ALIHT)*, Barcelona, 16–17 July 2011.
- “The scientific application of agent-based modelling: From biology to anthropology”, invited talk at the *Interdisciplinary Workshop on Society, Culture and Language*, Plymouth, 11-13 November 2010.
- “The Role of Cognition in Cognitive Systems: From Robots to Primatology”, invited talk for *IEEE Robotics and Automation Chapter (UKRI): The first UK Symposium on Cognitive Robotics and Learning*, Manchester, 20 October 2010.
- “Who is Responsible? Ethics with Robots”, invited talk in the *Social human-robot interaction and ethics symposium of Active Ageing — Smart Solutions: The Ambient Assisted Living Forum 2010*, Odense, Denmark, 16 September 2010.
- “Must Cognitive Robots Experience the Terrible Twos? Sensory-Motor Learning & Cognition”, invited twenty-minute response to and one-hour discussion of Linda B. Smith’s plenary, “Grounding Learning in Sensory Motor Dynamics”, *Development of Cognition in Artificial Agents*, EUCogII member’s meeting, Zürich, January 29 2010.
- “A Computation-Enabled Biological Perspective on Cultural Variation”, *Integrating Cultures: Models, Simulations and Applications* The Lorentz Center, Leiden, 6–9 April 2009.
- “Adaptive & Computational Explanations for The Pervasiveness of Social Learning and Altruistic Communication”, at *Organisation, Cooperation and Emergence in Social Learning Agents*, a workshop at The Tenth European Conference on Artificial Life (ECAL ’09), Budapest, 15 September 2009.
- “Time for AI: Emotions, Goals, Turn Taking (and more) for Intelligent Actors”, *Games AI & Avatars: Industry/Academia Workshop*, Bradford UK, 12 January 2009.
- “The Role of Cognition in Cognitive Systems” *Modelling Cognitive Behaviour*, Avon Gorge Hotel, Bristol UK, 10 October 2008.
- “Crude, Cheesy, Second-Rate Consciousness”, invited discussion / response to Daniel C. Dennett’s plenary, *The Second Vienna Conference on Consciousness (2008): The Brain and its Self*, Vienna, Austria, 26 September 2008.
- “Cognition (and Robots)”, *Humans and Humanoids — Perspectives in Cognition ad Robotics*, The Research Institute for Cognition and Robots — CoR-Lab, University of Bielefeld, 9 October 2007.
- “AI Architectures (or State Requirements for Human-like Action Selection)” *Network Meeting on Cognitive Architectures*, The European Network for the Advancement of Artificial Cognitive Systems, Munich Airport, 29 June 2007.

- “Agency and Spaces: A Proposal for Behavior-Oriented Design of Intelligent Environments”, invited presentation for *HCI and Cognitive Modelling in Ubiquitous Knowledge Discovery* Barcelona, Spain 20 April 2006. Also invited participant in the same group’s meeting in Berlin, 23 September 2006.
- “Emotions as Durative State for Action Selection”, invited panel presentation at *AISB: Motivational and Emotional Roots of Cognition and Action*, Hatfield, UK, April 2005.
- “Representing Cognitive Phenomena in Biological Systems”, invited talk and paper for the *Theoretical Fundamentals of Intelligent Systems* Workshop of the Joint Conference on Information Sciences, A. Meystel ed., Washington DC, 11 March 2002.
- “Agent Development Tools”, invited panel (with Keith Decker, Scott DeLoach, Michael Huhns and Michael Wooldridge) *The Seventh International Workshop on Agent Theories, Architectures and Languages (ATAL)*, Boston, 2000 (see also chapter).

### **Invited Talks: Universities, Companies, Local Workshops and Research Institutes**

- “Human Autonomy & the Hazards of Principle Agency in an Era of Expanding AI” followed by a discussion of the Draft Report of the European Parliament Resolution on Civil Law Rules on Robotics, *Technology & Society Reading Group, Center for Information Technology Policy*, Princeton University, 17 January 2017.
- “Generating Publics for your Goods Investment: Trust, Inequality, and Polarization”, Lichtenstein Institute for Self Determination, Princeton University (Wolfgang Danspeckgruber), 1 December 2016.
- “Generating Publics for your Goods Investment: Trust, Inequality, and Polarization”, The Interacting Minds Centre, Århus University (Andreas Roepstorff), 25 November 2016
- “Five Reasons Not to Personify AI”, Elisa Academy (for Journalists and Media), Helsinki, Finland 24 November 2016.
- “Five Reasons Not to Personify AI”, **keynote**, *Workshop on Responsible Robotics* (Arto Laitinen), University of Tampere, 23 November 2016.
- “Cooperative is not boolean: How we choose publics for our goods investment”, The Political Economy Research Group (PERG), with the Political Behavior Research Group (PolBeRG), at Central European University, Budapest, 5 October 2016.
- “The computational utility of human identity”, Magyar Tudományos Akadémia (Hungarian Academy of Science), Budapest, 4 October 2016.
- “Embodiment vs Memetics: Intelligence, Language, and the Place of AI in Human Society” , School of Computer Science (Kristinn Thórisson), Reykjavik University, 16 September 2016.
- “Privacy vs. Public Memory”, Technology and Society Working Group, Center for Information Technology Policy, Princeton, 26 April 2016.
- “AI, Privacy, and Human Identity”, Interdisciplinary Center for Bioethics, Yale University (Wendall Wallach), Autumn 2016.
- “The evolutionary and computational utility of human identity”, Center for Computational Molecular Biology , Brown University (Daniel Weinreich), 2 March 2016.
- “Learning, Evolvability, and GRN (or How we could all get rich)”, Weinreich Lab, Brown University (Daniel Weinreich), 1 March 2016.
- “The evolutionary and computational utility of human identity”, Pentlandians, Media Lab , MIT (Sandy Pentland), 1 March 2016.
- “The computational utility of human identity”, Cognitive Science, Tufts University (Daniel Dennett), 29 February 2016.
- “Understanding and addressing the anti-social punishment of investment in the public good”, Center for Information Technology Policy, Princeton University, 17 December 2015.
- “Embodiment versus Memetics: Intelligence, Language, and the Place of Robots in Human Society,” EECS Distinguished Lecturer Seminar Series, Queen Mary, University of London, 9 December 2015.

- “Gamifying Social Order”, Entertainment Intelligence Lab (Mark Riedl), Georgia Institute of Technology, 4 December 2015.
- “Cognition, communication, dominance, and risk: Finished and unfinished models of the socioecology of cognitive strategies”, Daniel Rubenstein’s Group, Ecology and Evolutionary Biology, Princeton, 6 November 2015.
- “What If We All Get Smarter? An Ecological Perspective on Cognition, Computation, Human Society, and Artificial Intelligence”, Centre for Quantum Photonics, University of Bristol (Jeremy O’Brien), 9 October 2015.
- “Costly punishment as a strategy for optimising public goods investment”, Levin Lab Tea (Simon Levin), Ecology and Evolutionary Biology, Princeton, 23 September 2015.
- “Costly punishment as a strategy for optimising public goods investment”, Social and Cultural Evolution Working (SCEW) Group (Erol Akçay), University of Pennsylvania, Philadelphia, 4 September 2015.
- “Semantics, Consciousness, Ethics... The Reality of AI Kicks Philosophy Out of the Armchair”, Philosophy, Psychology, and Informatics Reading Group; Department of Philosophy (David Carmel), Edinburgh, 21 January 2015.
- “Regulating the Singularity”, Centre for Research in Intellectual Property and Technology Law, Edinburgh, 27 May 2014.
- “Containing the Intelligence Explosion: The Role of Transparency”, Oxford Martin School, University of Oxford, 14 May 2014.
- “From OOD to Moral Subjectivity: What Does It Take to Build ‘Real’ AI?”, Department of Informatics, Edinburgh, 17 January 2014.
- “Designing Intelligent Systems”, Space Information and Remote Sensing Laboratory (Jihao Yin), Beihang University, Beijing, China, 10 August 2013.
- “Costly punishment as a strategy for optimising public goods investment” Department of Ecology and Evolution (Laurent Lehmann), Université de Lausanne (UNIL), Switzerland, 16 July 2013.
- “From OOD to Moral Subjectivity What Does It Take to Build ‘Real’ AI?” The Learning Algorithms and Systems Laboratory (LASA, Aude Billard), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, 15 July 2013.
- “From OOD to Moral Subjectivity: What Does It Take to Build ‘Real’ AI?”, Institute for Artificial Intelligence, University of Bremen, 11 January 2013.
- “Dominance, Aggression and Public Goods Investment: Explaining Anti-Social Punishment”, Mannheimer Zentrum für Europäische Sozialforschung, Mannheim, 6 November 2012.
- “From OOD to Moral Subjectivity: What Does It Take to Build ‘Real’ AI?”, Department of Computer Science, Birmingham, December 2012.
- “Cognition, Culture and Social Investment: Computational and Evolutionary Perspectives”, Department of Biosciences, University of Exeter (Sasha Dall), 15 November 2012.
- “Cognition, Culture and Social Investment: Computational and Evolutionary Perspectives”, Department of Computer Science, Sheffield, 12 November 2012.
- “Understanding Antisocial Punishment of Public Goods Contributors”, *Behavioural Finance and Economics Workshop*, Bath, 8–9 October, 2012.
- “Bonds that Make Us Freer: The Role of Cognition in Constructing Cognitive Systems”, *Informatics Institute*, University of Amsterdam, 29 May 2012.
- “Cognition, Culture & Social Investment: Computational and Evolutionary Perspectives”, *Department of Zoology*, Cambridge, 23 May, 2012.
- “Cognition and Ecology: What Nature Tells Us About Autonomy”, *Department of Informatics*, University of Edinburgh, 12 December 2011.
- “Understanding Cultural Variation in Social Behaviour: A Simulation-Based Approach to Anthropology”, *Department of Computer Engineering*, Koç University, Istanbul, 2 December 2011.

- “Cognition and Ecology: What Nature Tells Us About Autonomy”, *Centre for Research in Cognitive Science (COGS)*, University of Sussex, 20 October 2011.
- “Evolution and information: The biology of social learning.” *Evolution@Bath&Bristol*, Bath, 26th September 2011.
- “Sharing Information: The Adaptive Value of Social Behaviour”, The Learning Algorithms and Systems Laboratory (LASA, Prof. Aude Billard), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, 15 June 2011.
- “Why Information Can Be Free: The Evolutionary Origins of Collective Intelligence”, Human Dynamics Laboratory (Alex Pentland), The Media Laboratory, Massachusetts Institute of Technology (MIT), 17 May 2011.
- “Modelling the evolution of social behaviour: Can sharing valuable information be adaptive?”, Ecology and Evolution Group (Prof. Torben Dabelsteen), Department of Biology, University of Copenhagen, 13 May 2011.
- “The Utility of Human Social Motivations: Biology, Individuality, and Culture”, Department of Computing (Eduardo Alonso), City University London, 28 February 2011.
- “Modelling social evolution: The role of space & time in the evolution of co-operation”, Human Evolutionary Ecology Group (Prof. Ruth Mace), Department of Anthropology, University College of London, 25 January 2011.
- “The Utility of Human Social Motivations: Biology, Individuality, and Culture”, School of Computing and Mathematics (James Borg), Keele University, UK, 17 November 2010.
- “The scientific application of agent-based modelling: From biology to anthropology”, The Department of Software and Computer Science Education (Cyril Brom), Charles University, Prague, 19 November 2010.
- “The Biological Basis of Human Social Motivations: Selective Pressure for Culture and Individuality”, Faculty of Social Sciences, Carl von Ossietzky Universität Oldenburg, 31 May 2010.
- Joanna J. Bryson and Will Lowe, “Agent-Based Modelling for Social Science: Modelling & Cultural Evolution”, invited presentation to *The Second EXREL (Explaining Religion) Project Conference*, Centre for Anthropology and Mind, Oxford, UK; 17–19 August 2009.
- “Adaptive Trade-Offs Concerning Cognition and Culture”, Oxford University, Department of Experimental Psychology, 16 June; also Oxford University, Centre for Anthropology & Mind, 17 June 2009.
- “Understanding Human Social Motivations: Modeling the Evolution of Cognition and Culture”, Central European University, Department of Philosophy, Budapest 2 June 2009.
- “Time for AI”, The Austrian Institute for Artificial Intelligence (ÖFAI), Vienna, 14 May 2009.
- “Evolving Origins of Behaviour: Imitation, Culture and Cognition”, University of Sussex, Brighton UK, 6 May 2009.
- “What limits the biological evolution of cultural evolution?”, Institute of Ecology and Evolution, Bern University, 25 February 2009.
- Two talks (in a small one-day workshop): “Time for AI” and “Why information can be free: The evolution of altruistic communication and its impact on social learning”, Department of Computer Science, Charles University Prague, 30 January 2009.
- “The Role of Cognition in Cognitive Systems”, AI Lab, Department of Informatics, University of Zürich, 9 December 2008.
- “Why information can be free: The evolution of altruistic communication and its impact on social learning”, Department of Behavioural Biology, University of Utrecht, 18 November 2008.
- “Why information can be free: The evolution of altruistic communication and its impact on social learning”, The Konrad Lorenz Institute for Ethology, Wilhelminenberg Seminar, 12 November 2008.
- “What limits the biological evolution of cultural evolution? Modularity in evolution and learning”, School of Computer Science, The University of Birmingham, 13 June 2008.

“What limits the biological evolution of cultural evolution? Modularity in evolution and learning”, School of Computer Science, The University of Nottingham, 11 June 2008.

“What limits the biological evolution of cultural evolution? Modularity in evolution and learning”, Centre for Policy Modelling, Manchester Metropolitan University, 10 June 2008.

“What limits the biological evolution of cultural evolution? Modularity in evolution and learning”, The Konrad Lorenz Institute for Evolution and Cognition Research, Vienna, 5 June 2008.

“State Requirements for Action Selection”, Center for Connected Learning and Computer-Based Modeling, Northwestern University, 3 April 2008.

“Conflict and Collaboration: Modeling Primate Social Behavior”, Centre for Complexity Science, Imperial College London, 15 January 2008.

“A Primer on AI for Domestic Robots: Does Thinking Help?” Centre for Non-Linear Mechanics, University of Bath, 20 November 2007

“The Role of Cognition in Cognitive Systems” School of Computer Science, University of Birmingham, 9 October 2008.

“Action Selection for Human-Like Intelligence”, Lionhead Studios, Guildford, UK 2 July 2007.

“Why Information Can Be Free”, Department of Psychology, University of Chicago, 10 April 2007.

“Action Selection for Human-Like Intelligence”, Center for Technology & Social Behavior, Northwestern University, 4 April 2007.

“Semantics from Memetics”, Centre for Cognitive Neuroscience and Cognitive Systems, University of Kent, 14 March 2007.

“Evolving Cultural Evolution”, The Konrad Lorenz Institute for Evolution and Cognition Research, Vienna, 12 March 2007.

“Embodiment vs. Memetics”, Department of Philosophy, Universiteit Utrecht, 26 September 2006.

“Action Selection as Intelligent Systems Integration”, Google, Mountain View, CA, 15 August 2006.

“Intelligence by Design”, Joanneum Research, Graz, Austria, 4 July 2006.

“Intelligence by Design”, Boeing Phantom Works, Seattle, 7 June 2006.

“Conflicts & Collaboration: Modelling of the Evolution of Primate Social Behaviour”, Department of Psychology, University of Sheffield, 12 May 2006.

“Intelligence by Design”, Centre for Interactive Intelligent Systems, University of Plymouth, UK, 28 April 2006.

“Intelligence by Design”, Department of Software and Computer Science, Univerzita Karlov (Charles University), Prague, 14 January 2006.

“Intelligence by Design”, School of Computer and Communication Sciences, EPFL, Lausanne, Switzerland, 18 November 2005.

“Conflicts & Collaboration: Agent-Based Modelling of Primate Social Behaviour”, Artificial Intelligence Lab, Department of Informatics, University of Zurich, 15 November 2005.

“Conflict and Collaboration: Modeling Primate Social Behavior”, Northwestern Institute of Complex Systems (NICO), Northwestern University, 18 October 2005.

“Modularity, specialization, and an innate bias for reason”, Department of Physiology, Northwestern University, 17 October 2005.

“Building and Organising Heterogenous Modular Intelligent Systems: Intelligence by Design”, Bath Institute of Complex Systems, 9 May 2005.

“Complex or Complicated? Agent-Based Models of Primate Societies”, Middlesex University (London), 9 February 2005.

“Humanoid Faces for Assistive Ambient Intelligent Technology”, Bath Institute of Medical Engineering, Royal United Hospital, UK, 7 February 2005.

- “Humanoid Faces for Assistive Ambient Intelligent Technology”, The Institute for Learning and Research Technology, University of Bristol, UK, 18 November 2004.
- “Humanoid Faces for Assistive Ambient Intelligent Technology”, Institute for Ageing and Health, University of Newcastle, UK, 22 September 2004.
- Invited lecture series:** “Reactive and Behavior-Based AI”, “Consciousness is Easy but Learning is Hard”, “Intelligence by Design”, Electronics and Telecommunications Research Institute (ETRI), South Korea, 16–18 August 2004.
- “Intelligence by Design”, Korea Advanced Institute of Science and Technology (KAIST), 18 August 2004.
- “Reactive and Behavior-Based AI” and “Intelligence by Design”, School of Electrical and Computer Sciences, Hanyang University, South Korea, 19 August 2004.
- “Intelligence by Design”, Department of Computer Science, University of Hertsfordshire, 20 April, 2004.
- “Modularity, specialization, and an innate bias for reason”, Department of Computer Science, University of Birmingham, 26 January 2004.
- “Conflict Resolution in Monkeys, Agents and Modules”, Institute of Informatics, Humboldt University, 16 December 2003.
- “Intelligence by Design”, Department of Computer Science, University College Dublin, 23 June 2003.
- “Conflict Resolution in Monkeys, Agents and Modules” Department of Computer Science, University of Nottingham, 15 May 2003.
- “Modularity, specialization, and an innate bias for reason”, Centre for Mathematical Biology, University of Bath 30 April 2003.
- “Modularity, specialization, and an innate bias for reason”, Division of Informatics Programme of Reasoning Seminar, University of Edinburgh 2 August 2002.
- “Modularity in Artificial and Natural Intelligence”, Computer Science Department at the University of Vermont, 26 February 2002
- “Intelligence by Design: Principles of Modularity and Coordination for Engineering Complex Adaptive Agents”, BBN, Cambridge MA, 16 October, 2001
- “Simple Heuristics in Complex Agents”, Adaptive Behavior and Cognition Group, The Max Planck Institute of Human Development, Berlin, 28 August 2001.
- “Intelligence by Design: Principles of Modularity and Coordination for Engineering Complex Adaptive Agents”, Cambridge Basic Research (Nissan), 23 April, 2001
- “Making Modularity Work: Progress in Complete Agent Architectures”, Oberlin College, Department of Computer Science, 3 November, 2000
- “Intelligence by Design: Specialized Learning and Behavior-Based AI” Machine Learning Research Group, The University of Bristol; 30 May, 1999
- “What’s Wrong with Behavior-Based AI (and How to Fix It)” University of Aarhus (Denmark), Department of Computer Science; 26 May, 1998
- “Dynamic Cognitive Architectures and Artificial Intelligence”, Glasgow Caledonian University, Department of Psychology; 18 October, 1996
- “What’s Wrong with Behavior-Based AI (and How to Fix It)” University of Wales, Aberystwyth; Department of Computer Science; 25 July, 1996
- “What’s Wrong with Behavior-Based AI (and How to Fix It)” Free University of Brussels, Artificial Intelligence Laboratory; 20 June, 1996
- “What’s Wrong with Behavior-Based AI (and How to Fix It)” University of Zurich, Artificial Intelligence Laboratory; 18 June, 1996
- “The Human-Computer Interface — Applications in AI”, Living Neurons on Silicon Group, University of Edinburgh 15 May, 1996

- “When Robots Hum Along: Music meets Behavior-Based AI” AI and Music Group, University of Edinburgh; 8 May, 1996
- “Complex Behavior in Reactive, Behavior-Based Systems” Robot and Vision Group, University of Edinburgh; June, 1995
- “The Humanoid Project (or What’s Happening at MIT)”, Computer Science Department, Trinity College, Dublin; 25 March 1994

## Public Policy

- Invited panelist, “Artificial Intelligence and Big Data in the financial sector”, *ESMA Financial Innovation Day: FinTech Innovation, Infrastructure, Inclusion*, European Securities and Markets Authority, Paris, 10 February 2017.
- Invited participant (one of 50), *Royal Society and National Academy of Sciences Sackler Forum on Machine Learning*, Washington, DC, 31 January – 1 February 2017.
- Invited panelist, ACM Panel and Town Hall *Big Thoughts and Big Questions about Ethics in Artificial Intelligence* (with Francesca Rossi, Stuart Russell, and Michael Wooldridge.) Online event, 25 January 2017.
- Invited speaker by the OECD Directorate for Science, Technology and Innovation Committee on Digital Economy Policy’s Technology Foresight Forum, *Artificial Intelligence — Economic and Social Implications*. Talk title: “Artificial Intelligence versus Legal Persons”. Paris, France, 17 November 2016
- One of four invited speakers for a breakfast panel at the Eighth European Innovation Summit, titled *Ethical Considerations in Artificial Intelligence — and what it means for policy makers*. Talk title: “Artificial Intelligence versus Legal Persons”. Sponsored by IEEE, the other speakers were Raja Chatila, Kay Firth-Butterfield, and Mady Delvaux, MEP. European Parliament Building, Brussels, 16 November 2016.
- Invited Panelist, *IEEE AI & Ethics Summit 2016: Artificial Intelligence & Ethics — Who Does the Thinking?*, Brussels, Belgium, 15 November 2016.
- Invited Committee Member, *IEEE Global Initiative for Ethical Considerations in the Design of Autonomous Systems*, April 2016–present. This is the IEEE’s second major policy initiative in the history of the organisation. Made co-chair of the Affective Computing Committee.
- Invited participant, *Ethical and Social Challenges Workshop: Oral Evidence Gathering Event for Machine Learning*, UK technology policy consultation conducted by the Royal Society. Spoke on the “Human-machine/software interactions and agency in the near term (5-10 years)” panel and provided written commentary on full proceedings. London (by video), 14th January 2016.
- Invited participant, *Roundtable on Ethics and Trust Issues in the Human-Machine Relationship*. Round table convened by the Royal Society, the Government Office for Science (GOSci), and the Arts and Humanities Research Council (AHRC). London, 23 June 2015.
- Invited participant, *European Workshop on Ethical Issues in Human-Machine-Interaction and Service Robotics*, Brussels, 6 May 2015.
- Invited participating observer of the *UK Robot Ethics Forum* for the development of the draft ISO standard “BS 8611 Robots and robotic devices — Guide to the ethical design and application of robots and robotic systems”, *British Standards Institution (BSI)*, London, 22 June and 6 March, 2015. Also provided further consultation on their documents later in 2015. Chair: Osman Tokhi, Sheffield.
- Expert consultant, “Health, demographic change and well being: Perspectives from SSH on research and innovation”, Brussels, 11 November, 2014.
- Expert consultant, “Big Data Overview for Parliamentarians”, Parliamentary Office of Science and Technology, contributing to several of their data sheets released in 2014.
- Contributed substantial structure and text to the *Cognition* section of *Robotics 2020: Strategic Research Agenda for Robotics in Europe* policy document (pp. 80–82 of Draft 0v42, dated 11 October 2013, produced by euRobotics aisbl).



Member of the euRobotics *AI and Cognition in Robotics (AICoR)* Topic Group advisory committee since 2013; The topic group *Ethical, Legal and Socio-economic issues (ELS)* since 2016.

Margaret Boden, Joanna Bryson, Darwin Caldwell, Kerstin Dautenhahn, Lilian Edwards, Sarah Kember, Paul Newman, Vivienne Parry, Geoff Pegman, Tom Rodden, Tom Sorell, Mick Wallis, Blay Whitby, and Alan Winfield, **EPSRC Policy Statement**, *Principles of Robotics*, April 2011, available from the EPSRC website.

Invited participant (expert in AI ethics and social impact) in the UKs Engineering and Physical Sciences Research Council (EPSRC) Robotics Retreat, New Forest, UK, 29 September – 1 October 2010.

### **Public Engagement and Education, Media Appearances, Encyclopædia Articles, etc.**

Lecture: “Embodiment versus Memetics: What AI semantics tells us about human intelligence”, invited participant, and public keynote: “Human Autonomy and the Hazards of Principle Agency in an Era of Expanding AI”, for the workshop *Moral Machines? Ethical Implications of Contemporary Robotics* ETH, Zürich; 23–24 February 2017.

Panelist (with Adrian Weller, Cambridge and John Lewis, Bank of England) for the Goodenough College (University of London) AI Society Port Talk: *Artificial Intelligence and the Future of Humanity*, 7 February 2017.

[reddit science AMA](#) (ask me anything), featured on their front page, received 1864 comments (questions) and 9,535 upvotes. AMA was also covered by *tech crunch* with the title “You should read this super-interesting AMA with AI researcher Joanna Bryson”, by Devin Coldewey on the same day: 13 January 2017.

Panelist, “Brian Cox presents Science Matters — AI and machine learning”, Royal Festival Hall (hosted by the Royal Society), London, 10 January 2017.

“Five Reasons Not to Personify AI”, also, panel participant: *Robots & The Future of Welfare Services*, Helsinki Robottiviikko, 22 November 2016.

Invited panelist (with Robin Saxby and Simon Maskell; Roger Phillips, chair) *Could Artificial Intelligence Become a Threat to Mankind?* The City of Liverpool College, 21 September, 2016.

“Some Research Methods in/using AI”, 90 minute presentation to postgraduate students in a taught methods course. School of Computer Science (Kristinn Thórrisson), Reykjavik University, 16 September 2016.

Invited panelist (with Michael Bratman, Bernard ter Haar, Dirk Helbing, Johan Hoorn, and Miriam Struik), *Public Session: AI and Human Values*, at the European Conference of Artificial Intelligence (ECAI), Peace Palace, The Hague, Netherlands, 1 September 2016.

Invited speaker at the Royal Society on Artificial Intelligence, in the context of the New Scientist Live festival, 23 July 2016.

Featured panelist on “Do we want robots to be like humans?”, *The Guardian*, Science Weekly podcast, 1 July 2016 with Oxford’s Paul Newman.

Invited panelist, “Ethics and Autonomous Weapons”, Centre of Global Insecurities, University of Bristol, 25 May 2016.

“Artificial intelligence: Whose mind is it anyway?“, invited talk at *Pint of Science: Beautiful Mind*, Bath, 24 May 2016.

“Which Dæmon?”, Princeton Futurists, dinner talk and discussion, 25 April 2016.

Invited panelist, “Unbottling the AI Demon”, *The Edinburgh Science Festival*, 7 April 2016.

**BBC World Service** programme *World Have Your Say*: “AI v Humans”. 30-minute live discussion with questions from social media, on the occasion of Google AlphaGo winning its first game against Lee Sedol. 9 March 2016.

“Technology, Reason and the Future of Morality”, Effective Altruism Seminar, Tufts University, 29 February 2016. 2-hour panel discussion session with informal introductory talks, Daniel Dennett being the other panelist.

Invited talk, “Artificial intelligence and human uniqueness”, Princeton Futurist Society, 23 February 2016.

Joanna J. Bryson “Abundance is Relative”, invited book chapter, *A Very Human Future*, Fast Future Publishing, London, in press.

Robert H. Wortham and Joanna J. Bryson, “Communication”, *Living Machines: A Handbook of Biomimetic and Biohybrid Systems*, Oxford University Press, T. J. Prescott, P. Verschure, and N. Lepora in press.

Featured panelist on “Robots are coming for your job... and that’s not all”, *The Guardian*, Tech Weekly podcast, 8 October 2015, with Martin Ford, and Deloitte’s chief economist Ian Stewart.

Invited speaker in the plenary session “On the cusp: The promise of breakthrough brain research.” *Women’s Forum Global Meeting*, Deauville, France, 14–16 October 2015.

Quoted in articles:

- Manju Manghani, “Artificial intelligence to create an industrial revolution for the legal sector”, *Managing Partner*, 9 October 2015.
- Agnese Smith, “Artificial Intelligence”, *CBA/ABC National*, Fall, 2015.

Invited participant: “You, robot! What does it mean to regulate artificial intelligence? A public debate”, University of Westminster, London, 8 October 2015.

**BBC Newsnight**, appeared with Microsoft’s Chris Bishop for a special long report at the end of BBC AI week, 17 September 2015.

“Intelligence in the Flesh: Why Your Mind Needs Your Body Much More than It Thinks, by Guy Claxton” *Times Higher Education* book of the week review, 17 September 2015.

BBC newsbeat (social media) “Five questions we should ask ourselves before AI answers them for us”, interviewed by Felicity Morse, 16 September 2015.

“Special Report: Does Artificial Intelligence benefit all parts of our society?”, interview / report for the website of *The Women’s Forum*, 20 August 2015.

Invited panellist for the panel “Critical Engineering or critical thinking?” *net:25 — 650 Years of University of Vienna, 25 Years of Internet in Austria*, Vienna, 2 June 2015.

“The Future of Robot Ethics”, invited public talk, *London Futurists*, Birkbeck College, London, 18 April 2015.

“From psychology to robots to philosophy to biology: Tips from an interesting academic life”, invited plenary, *Women in STEM: A celebration of research excellence*, Plymouth University, 20 March 2015 (British Science Week).

Tea and mentoring, Edinburgh Women in Philosophy Group, Edinburgh University, 21 January 2015.

**Channel 4 7pm News**: live interview on *ex Machina* and AI as a threat to middle class jobs, 20 January 2015.

“Semantics, Consciousness, Ethics... The Reality of AI Kicks Philosophy Out of the Armchair”, *ShanghAI Lectures*, AI lectures delivered live online to lecture rooms in several continents, 11 December 2014.

**BBC World Service**: live interview on Stephen Hawking and AI as existential threat, 2 December 2014.

**BBC Newsnight**, appeared with Nick Bostrom to discuss the ethics of Google’s Deep Mind, and AI more generally. 2 October 2014.

Joanna J. Bryson, *Soapbox Science, SEBulletin*, The Society for Experimental Biology, p. 43, October 2014.

“Cooperation is Natural; Can We Make It Artificial?” *Soapbox Science*, Bristol UK, 14 June 2014.

“Counting on Girls”, participant expert for speed-dating advice on careers to 13-year-olds at the Ralph Allen School (state school in Bath), 7 March 2014.

Miles Brundage and Joanna Bryson, “Why Watson Is Real Artificial Intelligence”, article in the *Slate* blog *Future Tense*, 14 February 2014.

**BBC World Service Business Daily** prerecorded interview (with Nick Bostrom) 5 February 2014.

“Patience Is Not a Virtue: Intelligent Artefacts and the Design of Ethical Systems”, invited talk at *The Person in Virtual Reality*, a discussion event of the Albertus Institute, Edinburgh, 18 January 2014.

**Huffington Post Live**, panelist for “The complex relationship between humans and robots”, broadcast originally 9 January 2014, still available on Web archive.

Quoted in Steve Ranger, “Robots of death, robots of love: The reality of android soldiers and why laws for robots are doomed to failure” *Tech Republic*, 20 December 2013.

Guest lecture / Q&A (by video) on robot ethics, *Philosophy of Technology*, Evan M. Sellinger (course organiser), Rochester Institute of Technology, 29 October 2013, and 15 January 2013.

**Sky News** feature “Do robots need an ethical code?”, broadcast and on the web. Interviewed 25 October 2013, story was broadcast and available on line for about a week afterwards.

**CBC Radio** (Canada) interviewed in a two-hour radio documentary, “Mind and Machine,” (Dan Falk, director), aired throughout September 2013, streamed on the Web October 2013.

“From Artificial Consciousness to Human Public Goods: A Skeptical Review of Robot Ethics”, invited public lecture, *The Conway Hall Ethical Society*, London, 15 September 2013.

(Losing) contestant, *I’m a Scientist, Get Me Out of Here!*, “Animal Behaviour Zone”, June 2013.

“Robots, Science, & Simulated Society: How AI Helps Us Change Our World”, *Ignite: Bath Digital Festival*, 18 March 2013.

“Robot Faces”, *TEDx Loughborough*, 16 March 2013.

Anil K. Seth and Joanna J. Bryson, “Natural Action Selection, Modeling”, in *Encyclopedia of the Mind*, H. Pashler (ed.), Sage, January 2013.

“Can Robots Be Conscious?” *Skeptics on the Fringe*, Banshee Labyrinth, Edinburgh, 5 August 2012.

Joanna J. Bryson, “Internet memory and life after death”, in *Bereavement Care* **30**(2):70–72, 2012.

Joanna J. Bryson, Kerstin Dautenhahn and Geoff Pegman, “Man and the machine”, letter in the online version of the *The Economist*, 16 June 2012.

Jason Leake and Joanna J. Bryson “Can you indict a robot”, invited poster presentation for *Emerging technologies: are the risks being neglected?* London 21 May 2011.

Joanna J. Bryson “The Making of the EPSRC Principles of Robotics”, in *The AISB Quarterly*, (133) Spring 2012.

“The Ethics of Conscious Robots”, *Cardiff Skeptics in the Pub*, 19 March 2012.

“The Ethics of Conscious Robots”, *Bath Skeptics in the Pub*, 6 December 2011.

Joanna J. Bryson “AI Robots Should Not Be Considered Moral Agents”, *Artificial Intelligence: Opposing Viewpoints Series*, selected and edited (from *Robots Should Be Slaves*) by Noah Berlatsky for Greenhaven Press (schoolbooks), pp.155–168, Farmington Hills, MI, USA, June 2011.

“Thinking on Robot Thought”, *BathCamp* (local technology-oriented monthly networking event), 2 November 2011.

“Do We Need Emotional Robots?”, *General University Lecture Programme*, University of Bath, 2 March 2011.

“The Ethics of Robotics”, *Southampton Science Café*, with Alan Winfield, 30 November 2010.

Joanna J. Bryson, “The Need for Cognitive Systems in Medical Care”, *CyberTherapy & Rehabilitation Magazine* **3**(3):35–36, 2010.

“Cognitive and Behavioural Robotics”, *The Austrian Association for Innovative Computer Science — Summer Robotics Course*, Technical University of Vienna, 4 August 2009.

- Joanna J. Bryson, “Adaptive Trade-Offs Concerning Cognition and Culture”, talk presented at *Hot Topics in Cognitive Science*, Grünau, Austria, 12–13 June 2009.
- “Agent Based Modelling for Science: The Evolution of Cultural Evolution”, Lecture for PhD students in *The European Science Foundation Network for the Evolution of Social Cognition (CompCog)*, Department of Cognitive Biology, University of Vienna, 23 September 2008.
- “Consciousness is Easy but Learning is Hard: The Computational Complexity of Cognition”, guest talk for the Hot Topics in Cognitive Science student symposium, The Konrad Lorenz Research Station, Grünau, 20 June 2008.
- “Can we build artificial intelligence — and should we?”, public talk and discussion at the Bath Science Café, *The Raven* (public house), Bath, UK. 14 January 2008.
- Quoted several times in Michael Balter, “Why We’re Different: Probing the Gap Between Apes and Humans”, *Science*, **319**(5862):404–405, 25 January, 2008.
- Cyril Brom and Joanna J. Bryson, “Action Selection for Intelligent Systems”, white paper for *The European Network for the Advancement of Artificial Cognitive Systems*, 7 August 2006. Originally developed as the Wikipedia articles “Action selection” and “Reactive planning”.
- “Robot Emotions”, invited presentation and panel participation for *The Cambridge Robot Project*, Cambridge, UK. 25 May 2006.
- Joanna J. Bryson, “Funding: Income is already dependent on outcome”, correspondence about a British funding controversy, *Nature*, **441**:690 8 June, 2006.
- BBC World Service Digital Planet** prerecorded interview related to the Cambridge Robot Project, broadcast 22 May 2006.
- “Developing Modular Intelligent Systems”, four-hour tutorial with laboratories, *European Agent-based Systems Summer School (EASSS)*, Utrecht, July 2005.
- Joanna J. Bryson, “Consciousness is Easy but Learning is Hard”, invited article, *The Philosophers’ Magazine*, (28):70–72, Autumn 2004.
- Joanna J. Bryson, Emmanuel Tanguy and Phil J. Willis, “The Role of Emotions in Modular Intelligent Control”, in *The AISB Quarterly*, Summer 2004.
- “Why Make Monkeys?”, talk for Cybersalon, the Museum of Science, London. 27 May 2004.
- “Intelligence by Design” talk for the *It’s In Your Head*, a UK National artists’ initiative, Generator Studios, Dundee, Scotland. 11 August, 1999.

## Professional Activities

- Associate Editor for *Adaptive Behavior* (2002–present); Editorial board for *Connection Science* (2014–present), *AI & Society* (2013–present), *The International Journal of Synthetic Emotions* (2008–present), *Journal of Mind Theory* (2008–2010), *Web Intelligence and Agent Systems* (2002–2004).
- Additional journal reviews for: Animal Behaviour; Artificial Intelligence; Artificial General Intelligence; Behavior; Biological Theory; Ecological Modelling; Ethics and Information Technology; Evolution and Human Behaviour; Information Sciences; IEEE Intelligent Systems, IEEE Systems, Man and Cybernetics, B; IEEE Transactions on Evolutionary Computation; IEEE Transactions on Robotics; Interaction Studies; Journal of Artificial Societies and Social Simulation; Journal of the Royal Society Interfaces; Knowledge-Based Systems; Neurocomputing; NeuroImage; Procedia Computer Science; Proceedings of the Royal Society, B; Biological Sciences; PLoS Computational Biology; PLoS ONE.
- Member of the UK’s Engineering and Physical Sciences Research Council (EPSRC) College. *Note: Appointment follows peer nomination plus selection. The college is the review board of the UK research council in charge of (among other things) computer sciences and artificial intelligence.* (2006–present).
- Additional grant reviews for: the USA’s National Science Foundation (NSF) and Air Force Office of Research (USAFOR); The United Kingdom’s Economic and Social Research Council (ESRC) and their Biotechnology and Biological Sciences Research Council (BBSRC), The Vienna Science and Technology Fund (WWTF, Cognitive Science Call), The Leverhulme Trust, Swiss National Science Foundation.

Scientific and technical reviews for the European Commission:

Project reviewer:

- *RobotCub*: €8.5 million, 5-year, 16-university EU FW6 Information Society Technologies (IST) Cognitive Systems (2005–2010).
- *Integrating Cognition, Emotion and Autonomy (ICEA)*: €8.08 million, 4-year, 10-partner EU FW6 IST Cognitive Systems (2007).
- *Responsive Artificial Situated Cognitive Agents Living and Learning on the Internet (RASCALLI)*: €1.6 million, 3-year, 6-partner EU FW6 IST Cognitive Systems (2007–2009).
- *EUropean RObotics research Network (EURON)*: €3.34 million EU FW6 4-year IST Network of Excellence (2007).

Proposal evaluations for Advanced Robotic Systems (June 2006); for Cognitive Systems (June 2007); Cognitive Systems and Robotics (May 2009).

Chair of Organising Committee for The Annual Convention, Society for the Study of Artificial Intelligence and the Simulation of Behaviour (AISB) 2017, theme: *Society with AI; Principles in Robotics; The Machine Question: AI, Ethics, and Moral Responsibility*, (Symposium at *AISB / IACAP World Congress 2012—Alan Turing 2012*, Birmingham); The Third South-west Regional Meeting on Mathematics, Computation and Biology (2007, Bath); Modeling Natural Action Selection (Workshop at *IJCAI 2005*, Edinburgh).

Organising Committee for The Principles of Robotics—Five Years On, Symposium at AISB 2016; *Ethical and Moral Considerations in Nonhuman Agents*, AAAI Spring Symposium 2016;

External Advisory Committee member for the University of California, Los Angeles (UCLA) Human Complex Systems Program (2008-2011).

Executive Committee Member for the European Network for the Advancement of Artificial Cognitive Systems (euCognition, 2007–2008).

Program or Scientific Committee for: IJCAI 2017 (Senior Program Committee for Special Track on AI and Autonomy), AAAI (2017), Fairness, Accountability, and Transparency on the World Wide Web (FAT/WEB 2017), WWW 2017 Workshop on the Sociotechnical and Ethical Impacts of Online Web Services (2017), Ethics for Artificial Intelligence (at IJCAI 2016); ECAI (2016); FLAIRS-28 Special Track on Autonomous Robots and Agents (2015); Advances in Cognitive Systems (ACS, 2015, 2013); AAMAS (2017, Challenges and Visions track, 2014); IACAP 2014; Philosophical Theory and AI 2013; TAROS 2012; SocialCom 2012; CMCV 2011; The International Joint Conference on Artificial Intelligence (IJCAI 2009,2011); Artificial Life XI (2008) and XV (2016); IEEE Congress on Evolutionary Computation, special session on Evolutionary Robotics (2009); Intelligent Virtual Agents 3–7 (2001, 2003, 2005, 2006, 2007); Simulation of Adaptive Behavior 7–11 (2002, 2004, 2006, 2008, 2010); IEEE CEC 2009 Special Session on Evolutionary Robotics; Learning and Adaptive Behavior in Robotic Systems (LAB-RS 2008); Agent cognitive ability and orders of emergence (at AISB 2008); Attention in Cognitive Systems (at IJCAI 2007), Modular Construction of Human-Like Intelligence (at AAAI 2005); Toward Social Mechanisms of Android Science (at Cognitive Science 2005); Socially Inspired Computing (at AISB 2005); Motivational and Emotional Roots of Cognition and Action (at AISB 2005); Autonomous Agents and Multi-Agent Systems 4 (2005); Robotics and Neurobiology (at IWINAC 2005); Intelligent Agent Technology, 2003, 2004; Niche Autonomous Robots (at The 14<sup>th</sup> International FLAIRS Conference), 2001; Autonomy Control: Lessons from the Emotional (at the 15<sup>th</sup> European Meeting on Cybernetics and Systems Research), 2000.

Additional Reviews for: Evolution of Language (2008, 2010); Cognitive Science (2000, 2004–7, 2009); Neural Computation and Psychology 9 (2004); Imitation in Animals and Artifacts 3 (at AISB 2005); International Workshop on Biologically-Inspired Machine Learning (1999), AAAI (1994), CogSci (2017).

Member of The Society for the Study of Artificial Intelligence and the Simulation of Adaptive Behaviour (1996–*present*), Cognitive Science (1998–*present*, off and on), The European Social Simulation Association (2003–*present*), Association for the Study of Animal Behaviour (2004–*present*), The International Primatological Society (2007–2009), The European Human Behavior & Evolution Association (2008–*present*).

Invited member of the EPSRC Biologically-Inspired Robotics Network (BIRO-net, 2003–2006), the European Network for the Advancement of Artificial Cognitive Systems (euCognition I–III, 2006–2014); the European Science Foundation Network for The Evolution of Social Cognition (CompCog, 2008–2011); the EPSRC Research Network on AI and Games Technology (2007–2012), the RCUK Digital Economy network+ for Sustainable Society (2012-*present*), the RCUK Digital Economy network+ for Communities & Culture (2012-*present*), the AHRC Memory Network (2012–2015).

Moderator of the international mailing list *autonomous-robots* October 1997–June 2001.