

Christopher Buckingham

Employment address:

Computer Science
Aston University
Aston Triangle
Birmingham B4 7ET
Tel: +44 (0)121 204 3450
Email: C.D.Buckingham@aston.ac.uk

Academic and Professional Qualifications

Certificate of Teaching in Higher Education Staffordshire University

PhD (Computer Science) University of Birmingham (“Galatean model of human classification implemented in a decision support system”)

MSc (Computer Science) University of Birmingham

BSc (Psychology), 2.1 University of Southampton

Career record

August, 2016–present Reader in Computer Science, Aston University.

September, 2008–July, 2016 Senior Lecturer in Computer Science, Aston University.

September, 2000–2008 Lecturer in Computer Science, Aston University.

August, 1996–July, 2000 Lecturer in Cognitive Science, University of Surrey.

September, 1992–July, 1996 Lecturer in Computer Science, Staffordshire University.

External roles related to research expertise

Policy advisor roles

2016–present: External ethics advisor for the PICASO Project (reference: 689209) funded under H2020-EU.3.1. - SOCIETAL CHALLENGES - Health, demographic change and well-being. The project coordinator is Fraunhofer Gesellschaft Zur Forderung Der Angewandten Forschung EV.

2014–present: Member of the Risk and Safety Committee of Cumbria Partnership NHS Trust.

2014: Member of the NHS Pathways Mental Health Review hosted by NHS England in London. This committee explored the questions to be asked by 111 services when mental health problems are suspected.

2013: Organiser and presenter for a conference at Aston University on May 7th focused on mental-health risk and safety. It launched the myGRiST version of GRiST for people to use at home for self-assessment and management of risks, safety, and wellbeing. It also launched the Mental Health Providers Forum Risk and Safety Planning Standards.

2011: Member of the “Implementation of optimal suicide prevention strategies consensus group” consisting of mental-health charities and researchers across the UK. It produced the Guildford Consensus Statement for promoting early detection of suicide risk (see The Alliance of Suicide Charities at <http://www.tasc-uk.org/what-we-are-doing/taking-guildford-consensus-forward>).

2007: Member of Expert Advisory Group for The National Risk Management Programme, which was commissioned by the Department of Health and the Home Office, delivered through the CSIP London Development Centre, to support better understanding and use of risk assessment and management in secondary mental health services.

2006: Member of the NHS Connecting for Health Comms and Messaging Mental Health Project, Risk Data Subgroup, identifying the most effective practicable means by which to communicate mental health risk information across organisationally and geographically dispersed IT systems.

Mental health software service I am the Director of the GRiST mental health risk and care decision support system (www.egrist.org). I conceived GRiST in 2002 and have built up a team of researchers and developers since then, linked to a network of mental-health practitioners. Together, we have produced a web-based system that provides a continuous service to NHS mental-health trusts, IAPT primary care services, social care third sector organisations, and the general public for self assessments. GRiST:

- has assessed 100,000 patients;
- has been used by 3,000 mental-health practitioners;
- generates 1100 completed risk assessments every week;
- is accessed 24 hours a day, seven days a week;
- has accumulated a large data set of nearly one million clinical risk judgements, summed across each individual risk (suicide, self harm, harm to others, self-neglect, and vulnerability);
- is supporting large-scale research projects that are investigating how mental-health risks can be detected and managed more effectively.

Recent external teaching and training

2015-present: Trained around 250 mental-health practitioners to understand and manage mental-health risks more effectively using GRiST.

2016: The design and delivery of an ATHENS module called “Health informatics in the community” in November at KU Leuven. Fourteen students from different Universities across Europe attended and the feedback was extremely positive. See <https://www.egrist.org/content/grace-age-athens-module> for more details.

2016: Two “MasterClasses” were conducted with over 60 sixth-form students from schools ranging from locations in Suffolk to Shropshire, as well as more local ones. The focus was on mental health in the community, with a workshop where the students tried out the GRiST technology.

Journal/publisher positions

2016 – present: Member of the Elsevier Advisory Panel.

2013 – present: Associate editor of BMC Medical Informatics and Decision Making.

Journal reviewer for the following journals:

Journal of Ambient Intelligence and Smart Environments, Digital Health, Journal of Experimental Psychology: Learning, Memory, and Cognition, Journal of Psychiatric and Mental Health Nursing, Journal of Mental Health, British Journal of Medical Psychology, Medical Informatics and the Internet in Medicine, International Journal of Nursing Studies, Journal of Advanced Nursing, The British Journal of Healthcare Computing and Information Management (these were book reviews), *Psychological Bulletin, Engineering Applications of Artificial Intelligence, The Psychiatrist, Mathematical Problems in Engineering, and BMC Medical Informatics and Decision Making.*

Research grants

For each grant, my role is placed in brackets after the name of the grant provider and all the money comes to Aston if there is no split specified.

- **Total value of grants** £4,663,089
- **Total value coming to Aston** £1,926,832
- **Average income to Aston per year since arriving in 2000** £128,455.

European Commission EIT Health KIC: (1/2/2016 - 31/1/2019, Consortium Project Co-ordinator) €1,978,083 (£1,512,541). The EU finances a proportion of the project based on complex metrics that work out as about €900,000 (£624,660) and €400,00 to Aston. Title: “Self-management of mental health and wellbeing in the community for older adults”. The project builds on GRiST to produce web-based software that combines clinical expertise with data from sensors to assess and manage mental health and wellbeing of older adults living at home. It is a collaboration between SEAS and ARCHA in Aston, and a consortium of organisations across Europe, including the University of Leuven, sensor companies in Belgium and Holland, and several health services and organisations within the UK.

European Commission Twinning: (1/1/2016 - 31/12/2018, Co-Investigator) €996,775 with €225,650 for Aston (£772,336 and £172,563 respectively). Title: “Actions for Excellence in Smart Cyber-Physical Systems applications through exploitation of Big Data in the context of Production Control and Logistics”. The Twinning programme addresses networking gaps and deficiencies between the research institutions of the low performing Member States and regions and internationally-leading counterparts at EU level. The project teams Aston with academics from three other European institutions: Institute for Computer Science and Control MTA SZTAKI Hungary, Fraunhofer Institute for Applied Information Technology FIT Germany, and Katholieke Universiteit KU Leuven Belgium.

Erasmus+ KA2 Cooperation for innovation and the exchange of good practices: (1/10/2016 - 31/3/2019, Co-Investigator) €345,092. Title: “GRANDIS XXI: Vocational Education for Interprofessional Elderly Care of the 21st century (2016-1-HU01-KA202-123044”). The project (<http://grandis.prompt.hu/>) aims to develop a competence-based, modular training programme (competence map, curriculum and learning materials) for formal and informal caregivers. It will empower them with advanced health literacy and tailored digital competencies,

with special ICT skills in using eHealth technologies like smart devices, social alarms, wristbands, and special tele-diagnostic tools installed in the home. They will be able to manage, mentor and facilitate activities of elderly people in virtual communities through using ICT-based communication and online learning tools. Five countries are involved: England, Ireland, Spain, France, and Hungary.

Health Foundation: (2014-2015, Principal Investigator) £39,288. Title: “Developing the my-GRiST personal safety and mental-health risk assessment computer decision support system for patients and carers”.

American Foundation for the Prevention of Suicide: (1/3/2013 - 28/2/2015, Principal Investigator) \$72,817.66 (£44,403). Title: “Improving clinical evaluations of suicide risk and their relationship to care planning”.

Arden Cluster Capability Fund: (2013-2014, Principal Investigator) £54,257 with £22,971 to Aston. Title: ‘Self-management of mental health problems and saving GP time’.

European Commission’s 7th Research Framework Programme under the Intelligent Information Management objective (Principal Investigator) £140,668.19 (1/12/11 to 30/9/13). ADVANCE Extension WP8: Creating a shared decision-making model for depot collaborations.

European Commission’s 7th Research Framework Programme under the Intelligent Information Management objective, FP7-ICT-2009-5 (2010-13, Co-Investigator) €1,980,000 (£1,525,834), with £480,518 to Aston. Title: “ADVANCE: Advanced predictive-analysis-based decision-support engine for logistics”. This project includes industrial partners from the UK and Italy and research partners from Hungary (Sztaki) and Holland (Rijksuniversiteit Groningen, RUG).

The Economic and Social Research Council (ESRC-UK) and the Office of Behavioral and Social Sciences Research, National Institutes of Health (NIH-USA), Health Disparities/Inequalities Call (2010-2015, Principal Investigator) £254,000 (UK, with £52,400 coming to Aston University) and £370,000 (US). Title: “Understanding Social Contributions to Disparities in Depression Care: US and UK”. The partners are Warwick and Johns Hopkins universities.

EPSRC CASE PhD studentship (2010-2014, Principal Investigator) £85,000. Title: “Computational models of reasoning with uncertainty that capture clinicians judgements of mental-health risks”. In collaboration with Humber NHS Foundation Trust.

EPSRC CASE Studentship (2010-2013, Principal Investigator) £21,000 from Birmingham Children’s Hospital, £66,000 in total. Title: “Integrating clinical expertise and empirical evidence within a clinical decision support system at the point of care”.

Newcastle University, New South Wales, £650 (1000 Australian dollars) for a conference keynote speech at the 15th NSW Rural Mental Health Conference, New South Wales, Australia, 2012.

Judi Meadows Memorial Fund (2011-2012, Principal Investigator) totalling £93,193.96 with £48,967.55 to Aston. To help develop a service-user version of GRiST.

ESRC (2012, Principal Investigator) £1,500. To investigate mimesis in social science, in collaboration with Warwick University.

Cumbria Partnership NHS Foundation Trust (2010-2011, Principal Investigator) £15,000. Support for the GRiST project.

Raphael Healthcare (2011, Principal Investigator) £5,000. GRiST for forensic women patients.

Advantage West Midlands Proof of Concept grant (2011, Principal Investigator) £30,000. To investigate the market potential for GRiST and create a business plan.

Birmingham and Solihull Mental Health Trust (2009, Principal Investigator), £5,000. Linking GRiST with the trust patient record system.

Nuffield Science Bursary, Undergraduate Scheme (2009, Principal Investigator), £1,440. Title: “Creating graphical user interface tools for explaining and displaying risk evaluations associated with mental health problems”.

Burdett Trust for Nursing (2008, Principal Investigator), £39,783 with £20218 for Aston. Title: “Extending the Galatean Risk Screening Tool (GRiST) for use with adolescents and older people”. Co-applicant with Warwick Medical School.

Nuffield Science Bursary, Undergraduate Scheme (2008, Principal Investigator), £1,400. Title: “Creating software that aids analysis and visualisation of a coding scheme for representing clinical decision making processes”.

Burdett Trust for Nursing (2008, Principal Investigator), £50,000 with £26023 for Aston. Title: “To create the first NHS Trust show case for GRiST — a web-based decision support system for the detection of multiple risks associated with mental health problems”.

Birmingham and Solihull Mental Health Trust (2008, Principal Investigator), £10,000. To develop and pilot GRiST for use as the Trusts’s risk assessment tool.

ORSAS (2008-2011, Principal Investigator) £21,000. PhD grant contribution, Sasha Hegazy.

EPSRC PhD CASE award (2007-2010, Principal Investigator), £80,000. Title “Generating mathematical risk-prediction models from mental-health data”.

NHS New and Emerging Applications of Technology (NEAT) (2003-2006, Overall Project Coordinator): £273,676, with £200,000 coming to Aston. Title: “A decision support system for mental-health risk screening and assessment”. In collaboration with Birmingham University, Surrey Hampshire Borders NHS Trust, North East Wales Institute (now Glyndwr), Warwick University (the Medical School and Department of Psychology).

Spinner Pathfinder award (2004, Principal Investigator) £13,000 to investigate setting up a company for mental-health risk assessment.

NHS Beacon Programme (2000-2002, Principal Investigator) £32,000. Project to develop a data-gathering tool for mental-health risk.

US National Institutes of Health (2000-2003, Principal Investigator) £13,000. Cognitive science consultant on a project led by the New England Research Institute (Boston, USA) investigating US and UK general practitioner decisions about older patients.

PhD students supervised to successful completion

These only include students where I am the main supervisor.

Aston University

1. Ali Rezaei-Yazdi (2016). Modelling clinical expertise for driving dynamic data collection in a mental-health decision support system.

2. Sherine Nagi Saleh (2016). A novel dynamic feature selection and prediction algorithm for clinical decisions involving high-dimensional and varied patient data.
3. J. Chircop (2015). The multiple pheromone Ant clustering algorithm.
4. R. Mohamed. (2014). Implications of query caching for JXTA peers.
5. O. Obembe (2013). Development of a probabilistic graphical structure from a model of mental health clinical expertise.
6. S. Hegazy (2012). An investigation into inductive parameter learning in complex hierarchical knowledge structures representing clinical expertise.
7. A. Ahmed. (2011). Knowledge engineering for mental-health risk assessment and decision support.
8. K. Priscott (2011). Discovering Knowledge Structures in Mind Maps of Mental Health Risks.

University of Surrey

1. R. Crouch (2000). An investigation into the effects of a computer based decision support program on Accident and Emergency nurses' assessment strategies in telephone consultation.

Recent International Programme Committee membership

International Conference on Internet Technologies & Applications (ITA), 2011 – present).

Innovation in Medicine and Healthcare (2013 – present)

Global Health Congress, Kings College London, 2016.

International conference: the quality and its perspectives for care of the soul in illness and health, University of Pardubice, Faculty of Health Studies, 2016.

Global Health Congress at St Hugh's College, Oxford, 2015.

Expanding the Boundaries of Health Informatics Using Artificial Intelligence (HIAI 2013), 2013 in Bellevue, Washington, USA

14th International Conference on Modern Information Technology in the Innovation Processes of the Industrial Enterprises, (2012, Session Chair).

KES 15th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, 2011.

Peer-reviewed publications

- [1] C. D. Buckingham, A. Adams, and A. Ahmed. "Mental health risk, safety, and the lost soul". In: *Care of the Soul in Illness and Health*. Ed. by Petra Mandysovfa. Univerzita Pardubice, 2016, pp. 25–34. ISBN: 978-80-7395-979-1.

- [2] Ine D’Haeseleer, Bart Vanrumste, Dominique Schreurs, Christopher Buckingham, An Mondelaers, and Vero Vanden Abeele. “Attitudes of older adults towards self-assessment of mental health, safety and wellbeing”. In: *Engineering for society proceedings 2016: Raising awareness for the societal role of engineering*. Ed. by Jan Engelen. KU Leuven, 2016, pp. 73–78. ISBN: 978-94-6018-996-8.
- [3] Ali Rezaei-Yazdi and Christopher Buckingham. “Introducing a Pilot Data Collection Model for Real-time Evaluation of Data Redundancy”. In: *Procedia Computer Science* 96 (2016). Knowledge-Based and Intelligent Information & Engineering Systems: Proceedings of the 20th International Conference KES-2016, pp. 577–586. ISSN: 1877-0509. DOI: <http://dx.doi.org/10.1016/j.procs.2016.08.237>. URL: <http://www.sciencedirect.com/science/article/pii/S1877050916320476>.
- [4] N. Zaher and C. D. Buckingham. “Moderating the influence of current intention to improve suicide risk prediction”. In: *2016 Annual Symposium*. AMIA. Chicago, Nov. 2016, pp. 1274–1282.
- [5] A. Adams, A. Realpe, L. Vail, C. D. Buckingham, L. H. Erby, and D. Roter. “How doctors’ communication style and race concordance influence African-Caribbean patients when disclosing depression”. In: *Patient Education and Counseling* 98.10 (2015), pp. 1266–1273.
- [6] C. D. Buckingham, A. Adams, L. Vail, A. Kumar, A. Ahmed, A. Whelan, and E. Karasouli. “Integrating service user and practitioner expertise within a web-based system for collaborative mental-health risk and safety management”. In: *Patient Education and Counseling* 98.10 (2015), pp. 1189–1196.
- [7] E. Ilie-Zudor, A. Ekárt, Z. Kemeny, C.D. Buckingham, P.G. Welch, and L. Monostori. “Advanced predictive-analysis-based decision support for collaborative logistics networks”. In: *Supply Chain Management: An International Journal* 20.4 (2015), pp. 369–388. DOI: [10.1108/SCM-10-2014-0323](https://doi.org/10.1108/SCM-10-2014-0323).
- [8] A. Adams, L. Vail, C. D. Buckingham, J. Kidd, S. Weich, and D. Roter. “Investigating the influence of African American and African Caribbean race on primary care doctors’ decision making about depression”. In: *Social Science & Medicine* 116 (2014), pp. 161–168. DOI: [dx.doi.org/10.1016/j.socscimed.2014.07.004](https://doi.org/10.1016/j.socscimed.2014.07.004).
- [9] J. Chircop and C. D. Buckingham. “A multiple pheromone ant clustering algorithm”. In: *Studies in Computational Intelligence* 512 (2014), pp. 13–27.
- [10] E. Ilie-Zudor, Z. Kemeny, A. Ekárt, C.D. Buckingham, and L. Monostori. “A Solution for Information Management in Logistics Operations of Modern Manufacturing Chains”. In: *PROCEDIA CIRP* 25 (2014), pp. 337–344.
- [11] A. Ramzan, H. Wang, and C.D. Buckingham. “Representing Human Expertise by the OWL Web Ontology Language to Support Knowledge Engineering in Decision Support Systems”. In: *Studies in Health Technology and Informatics* 207 (2014), pp. 290–299.
- [12] A. Rezaei-Yazdi and C. D. Buckingham. “Understanding data collection behaviour of mental health practitioners”. In: *Studies in Health Technology and Informatics* 207 (2014), pp. 193–202.
- [13] D. L. Roter, L. H. Erby, A. Adams, C. D. Buckingham, L. Vail, A. Realpe, S. Larson, and J. A. Hall. “Talking about depression: An analogue study of physician gender and communication style on patient disclosures”. In: *Patient Education and Counseling* 96.3 (2014), pp. 339–345.

- [14] S. N. Saleh and C. D. Buckingham. “Handling varying amounts of missing data when classifying mental-health risk levels”. In: *Studies in Health Technology and Informatics 207* (2014), pp. 92–101.
- [15] C. D. Buckingham, A. Ahmed, and A. Adams. “Designing multiple user perspectives and functionality for clinical decision support systems”. In: *Proceedings of the 2013 Federated Conference on Computer Science and Information Systems*. Ed. by M. Ganzha, L. Maciaszek, and M. Paprzycki. catalogue number CFP1385N-ART. IEEE, 2013, pp. 211–218.
- [16] J. Chircop and C. D. Buckingham. “The multiple pheromone ant clustering algorithm and its application to real world domains”. In: *Proceedings of the 2013 Federated Conference on Computer Science and Information Systems*. Ed. by M. Ganzha, L. Maciaszek, and M. Paprzycki. catalogue number CFP1385N-ART. IEEE, 2013, pp. 27–34.
- [17] C. D. Buckingham, P. Buijs, P. G. Welch, A. Kumar, and A. Ahmed. “Developing a cognitive model of decision-making to support members of hub-and-spoke logistics networks”. In: *Proceedings of the 14th International Conference on Modern Information Technology in the Innovation Processes of the Industrial Enterprises*. Ed. by László Monostori Elisabeth Ilie-Zudor Zsolt Kemény. Hungarian Academy of Sciences, Computer and Automation Research Institute, 2012, pp. 14–30.
- [18] L. Vail, A. Adams, E. Gilbert, A. Nettleingham, and C. D. Buckingham. “Investigating mental health risk assessment in primary care and the potential role of a structured decision support tool, GRiST”. In: *Mental Health in Family Medicine 9.1* (2012), pp. 57–67.
- [19] C. D. Buckingham and A. Adams. “The GRiST web-based decision support system for mental-health risk assessment and management”. In: *Proceedings of the First BCS Health in Wales/ehi₂ joint Workshop*. 2011, pp. 37–40.
- [20] E. Gilbert, A. Adams, and C. D. Buckingham. “Examining the relationship between risk assessment and risk management in mental health”. In: *Journal of Psychiatric and Mental Health Nursing 18.10* (2011), pp. 862–868.
- [21] Z. Kemény, E. Ilie Zudor, J. Fülöp, A. Ekárt, C.D. Buckingham, and P.G. Welch. “Multiple-participant hub-and-spoke logistics networks: challenges, solutions and limits”. In: *MITIP 2011. 13th international MITIP conference on the modern information technology in the innovation processes of the industrial enterprises*. Ed. by H Dreyer, J Strandhagen, and R Bjartnes. Trondheim: Tapir Acad. Pr., 2011, pp. 20–29. URL: <http://eprints.sztaki.hu/6653/>.
- [22] S.E. Hegazy and C.D. Buckingham. “Modulating Membership Grades to Gain Consensus for Fuzzy Set Uncertainty Values in a Clinical Decision Support System”. In: *Advances in Human-Oriented and Personalized Mechanisms, Technologies and Services (CENTRIC)*. IEEE Xplore, 2010, pp. 40–45. DOI: 10.1109/CENTRIC.2010.27.
- [23] O. Obembe and C. D. Buckingham. “Developing a probabilistic graphical structure from a model of mental-health clinical risk expertise”. In: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 6279 LNAI.PART 4* (2010), pp. 88–97.
- [24] S. E. Hegazy and C. D. Buckingham. “A Method for Automatically Eliciting node Weights in a Hierarchical Knowledge Based Structure for Reasoning with Uncertainty”. In: *International Journal on Advances in Software 2* (1 2009), pp. 76–85.

- [25] S. E. Hegazy and C. D. Buckingham. “iARRIVE: An Incremental Algorithm for Robust Relative Influence Values Elicitation”. In: *International Conference on eHealth, Telemedicine, and Social Medicine, 2009*. IEEE, 2009, pp. 239–244. DOI: 10.1109/eTELEMED.2009.42.
- [26] N. Wrighton and C. D. Buckingham. “Defining an OWL ontology that could be used to integrate mental-health risk information within a decision support system”. In: *International Conference on eHealth, Telemedicine, and Social Medicine, 2009*. IEEE, 2009, pp. 245–250. DOI: 10.1109/eTELEMED.2009.11.
- [27] A. Adams, C. D. Buckingham, A. Lindenmeyer, J. B. McKinlay, C. Link, L. D. Marceau, and S. Arber. “The influence of patient and doctor gender on diagnosing coronary heart disease”. In: *Sociology of Health and Illness* 30.1 (2008), pp. 1–18.
- [28] C. D. Buckingham, A. E. Adams, and C. Mace. “Cues and knowledge structures used by mental-health professionals when making risk assessments”. In: *Journal of Mental Health* 17.3 (2008), pp. 299–314.
- [29] S. E. Hegazy and C. D. Buckingham. “An Algorithm for Robust Relative Influence Values Elicitation (ARRIVE)”. In: *Proceedings of the Third International Multi-Conference on Computing in the Global Information Technology (ICCGI 2008)*. IEEE Computer Society, 2008, pp. 91–96.
- [30] C. D. Buckingham. “Improving mental health risk assessment using web-based decision support”. In: *Health Care Risk Report* 13.3 (2007), pp. 17–18.
- [31] C. D. Buckingham, A. Ahmed, and A. E. Adams. “Using XML and XSLT for flexible elicitation of mental-health risk knowledge”. In: *Medical Informatics and the Internet in Medicine* 32.1 (2007), pp. 65–81.
- [32] Department of Health National Risk Management Programme. *Best practice in managing risk*. GRiST tool description, page 35. London: Department of Health, 2007.
- [33] A. E. Adams, C. D. Buckingham, S. Arber, J. B. McKinlay, L. D. Marceau, and C. Link. “The influence of patient’s age on clinical decision-making about coronary heart disease in the USA and the UK”. In: *Ageing and Society* 26 (2006), pp. 303–321.
- [34] C. D. Buckingham and A. E. Adams. “Employing XML-based technologies to elicit mental-health risk knowledge”. In: *Current perspectives in healthcare computing 2006*. Ed. by J. Bryant. Swindon: BCS HIF, 2006, pp. 284–291.
- [35] C. D. Buckingham, G. Kearns, S. Brockie, A. E. Adams, and I. T. Nabney. “Developing a Computer Decision Support System for Mental Health Risk Screening and Assessment”. In: *Current perspectives in healthcare computing 2004*. Ed. by J. Bryant. Swindon BCS HIC, 2004, pp. 189–194.
- [36] C. D. Buckingham. “Psychological cue use and implications for a clinical decision support system”. In: *Medical Informatics and the Internet in Medicine* 27.4 (2002), pp. 237–251.
- [37] C. D. Buckingham and T. Chan. “Developing a mental-health risk-screening tool”. In: *Risk management in mental health*. London: Informa UK, 2002.
- [38] C. D. Buckingham and A. E. Adams. “Classifying Clinical Decision Making: A Unifying Approach”. In: *Journal of Advanced Nursing* 32.4 (2000), pp. 981–989.
- [39] C. D. Buckingham and A. E. Adams. “Classifying Clinical Decision Making: Interpreting Nursing Intuition, Heuristics, and Medical Diagnosis”. In: *Journal of Advanced Nursing* 32.4 (2000), pp. 990–998.

- [40] J. L. Chudleigh and C. D. Buckingham. "A comparison of soap, alcohol and glove use during the nappy-changing procedure in a special care baby unit". In: *Journal of Research in Nursing* 5.6 (2000), pp. 437–449.
- [41] C. D. Buckingham and D. T. Olsson. "Driving information search and retrieval by a cognitive model of classification". In: *AMIA 1999 Annual Symposium Conference Proceedings*. AMIA 1999. Washington DC, 1999.
- [42] J. L. Chudleigh and C. D. Buckingham. "Infection control. Unhappy nappy-changing". In: *Nursing Times* 95.44 (1999), pp. 62–66.
- [43] C. D. Buckingham and J. Birtle. "Representing the assessment process for psychodynamic psychotherapy within a computerized model of human classification". In: *British Journal of Medical Psychology* 70 (1997), pp. 1–16.

Conferences in the last ten years

April, 2016 Keynote speaker for a conference hosted by the University of Pardubice, Faculty of Health Studies, Prmyslová 395, Pardubice: "International conference on quality and its perspectives: care of the soul in illness and health".

VIP Invitation to The Innovation Debate, Royal Institution, Thursday 25th February 2016, chaired by Jonathan Dimpleby and televised. This is an invitation only audience and I was invited to last year's programme as well.

December 2015 A one-day series of presentations hosted by IAPTus at Wolfson College, Cambridge University.

July 2015 The National Recovery and Outcomes Conference was held on Tuesday 14 July 2015 at the National Motorcycle Museum, West Midlands, and myGRaCE had a stall to demonstrate the new self-assessment version of GRiST.

June 2015 Paper presented at St Hugh's College, Oxford University, for an International Health Conference focused on getting research into practice. The title was "Harnessing the power of mental-health risk assessment expertise to create a seamless, evolving partnership between research and the delivery of advice at the point of care".

June 2015 Gave two "peace talks" at the Leamington Peace Festival on June 13th and 14th to promote a new community service based on GRiST called myGRaCE. The GRiST team also hosted a stall at the Peace Festival, which was visited by several hundred people who took leaflets and discussed the important niche that myGRaCE fills for both the public and care services.

December, 2014 Invited delegate for the Healthcare IT Exchange at the Hilton Birmingham Metropole from Monday to Wednesday. Participation is for information officers and heads of IT departments in the NHS and private healthcare organisations. It was an important opportunity for understanding how the GRiST decision support system fits with NHS organisations and existing information systems.

September 2014 The myGRiST research was presented at the EACH conference in Amsterdam.

September 2014 British Science Festival GRiST Presentation: "We live in a crowded world but in our minds we can often feel lonely and forgotten". Hear about GRiST, try it, and see how it creates a canopy of care to maintain mental health and wellbeing with family, carers, friends, and colleagues.

June 2014 The KES International Conference on Innovation in Medicine and Healthcare (InMed-14) had three GRiST papers accepted. Two discuss how to analyse the 500,000 completed risk assessments in the GRiST database so that the expert consensus can support clinical judgements. The third one looks at using the OWL web ontology language to validate and manage the GRiST knowledge representation structures.

September 2013 Two papers were presented at the Artificial Intelligence in Medical Applications FedCSIS conference stream in Krakow, Poland.

December 2013 Presentation to the National Control Meeting of all England Ambulance Services.

October 2012 Paper on "Developing a cognitive model of decision-making to support members of hub-and-spoke logistics networks" presented at the 14th International Conference on Modern Information Technology in the Innovation Processes of the Industrial Enterprises, Budapest, Hungary.

September 2012 One of a series of presentations hosted by IAPTus at Wolfson College, Cambridge University.

August 2012 Invited presentation at the Hunter Institute of Mental Health, New South Wales, Australia.

August 2012 Keynote speaker and also presented a workshop at the 15th New South Wales Rural and Remote Mental Health Conference in Bathurst, Australia, that was attended by the Minister for Mental Health as well as Department of Health commissioners.

June 19th, 2012 The GRiST mental-health risk tool research was presented at the Health Services Research Network Symposium, "Delivering better health services", in Manchester on Tuesday, June 19th. This is the premier knowledge event for the "leading edge of health services research" and the GRiST presentation was one of only 8 selected out of 70 in its category. The paper was awarded the Health Foundation prize for the *Best Contribution to Improvement Science* at the conference. There was a £200 cash payment that went with the prize.

June 2012 The GRiST mental-health risk tool research was presented at the Health Services Research Network Symposium, "Delivering better health services", in Manchester, 2012. This is the premier knowledge event for the "leading edge of health services research" and the GRiST presentation was one of only 8 selected out of 70 in its category. The paper was awarded the Health Foundation prize for the best contribution to Improvement Science at the conference.

November 2011 GRiST was presented to the "Digital Innovation and Technology for Patient Benefit" conference at the International Digital Laboratory, University of Warwick, UK. A tweet from Fiona Collard attending the conference hit the nail on the head: "Chris Buckingham had the hardest spot - speaking after Heinz Wolff. But managed to pull it off. Interesting work". Hopefully others were as charitable but Professor Wolff's talk was certainly a hard act to follow. Lots of other great presentations from international researchers resulted in an excellent and informative day so keep your eyes open for next year's conference announcement; well worth attending.

November 2011 GRiST was presented at the EHI Live exhibition as part of a one-day workshop for people using the IAPTus patient record system. GRiST is going to be made available via IAPTus and will provide the opportunity for rationalising risk assessments across IAPT services. It will help ensure risk information is properly linked to patient records both within IAPT and across to secondary mental-health services where GRiST is used.

September 2011 Invited speaker on GRiST to health researchers at the Department of Veterans Affairs, in Bedford, Boston, America.

September 2011 Paper called The GRiST web-based decision support system for mental-health risk assessment and management presented to The first BCS Health in Wales/ehi2 joint Workshop, Glyndwr University, Wrexham, Wales, UK

June 2011 Paper presented on "Helping patients and clinicians communicate risk across the mental-health care pathway" at the Ninth Interdisciplinary Conference of Communication, Medicine & Ethics (COMET) at the University of Nottingham in association with the Institute of Mental Health, Nottingham, UK.

July 2011 An invited presentation on using GRiST for IAPT services was given to the BABCP Conference at Surrey University, Guildford.

February 2011: GRiST investigators travel to Washington as invited participants in a health inequalities workshop hosted by the US National Institutes of Health (NIH) and the UK ESRC.

February 2011: Presented GRiST at a Suicide Risk Assessment Meeting at The Charlie Waller Institute, School of Psychology and Clinical Language Science, University of Reading.

February 2011: Invited by Boston University to give three linked presentations related to the GRiST mental-health risk screening tool. These took place on Jan 31st and 1st Feb to: (a) primary care service providers from Boston Medical Center; (b) mental-health consumers at the Transformation Centre (a mental health consumer organisation), Boston; and (c) researchers at a seminar in the School of Public Health, Boston University (BUSPH).

September 2010: GRiST's influence on communicating risk information presented to EACH, the International Conference on Communication in Healthcare 2010, 5-8 September 2010, Verona, Italy.

September 2010: GRiST presented to the British Science Festival in Birmingham on 14th September. It was a two-hour workshop involving the public with academics and clinicians to explore using GRiST for self-managing and monitoring risks. See a report at NHS Local or NHS Local report pdf if the original link is broken.

June 2010: GRiST for self assessment presented to the COMET 8th interdisciplinary conference on Communication, Medicine, and Ethics at Boston University, USA, June 28th-30th.

June 2010: Developing an integrated pathway for assessing and managing risks associated with mental health problems using the GRiST mental-health risk and social care assessment tool presented at Care Pathways 2010, 23 & 24 June 2010, Cavendish Conference Centre, London.

March 2010: GRiST for Life presented at the Royal College of Nursing Mental Health Nursing Forum Conference in Liverpool, England, March 5th to 6th.

November 2009: Invited speaker for the Mental Health Providers Forum annual conference and ran a risk-assessment workshop in the afternoon.

September 2009: Two papers on GRiST were presented to the 15th International Network for Psychiatric Nursing Research (NPNR) Conference at Oxford University on September 24th and 25th. One paper discussed how GRiST can be applied across heterogeneous target populations and the other looked at implementing GRiST within primary care.

April 2009: GRiST presented as part of the Mental Health Providers Forum OATS Dissemination Event on April 3rd in London.

March 2009: Paper delivered for the RCN Mental Health Conference, Royal College of Surgeons, Edinburgh.

November 2008: Paper and workshop delivered for the Horatio Festival of Psychiatric Nursing conference, Malta.

October 2008: Paper presented at the 14th International Network for Psychiatric Nursing Research (NPNR) Conference Oxford University, England.

September 2008: Paper presented at the World Psychiatric Association (WPA) Conference, Prague, Czech Republic.

July 2008: Paper presented at the Society for Academic Primary Care Galway, Ireland.

April 2008: Paper called “Pre-processing for Improved Query Routing in Super-peer P2P Systems” presented at the Region 5 Conference, IEEE, Kansas City.

March 2008: Buckingham, C.D. & Adams, A.E. (2008). “Can the GRiST web-based decision support system for mental-health risk assessments have a useful role in primary care?” Society for Academic Primary Care (South West), Warwick, March.

2007: Invited (with expenses paid) by the Irish State Claims Agency, Treasury Building, Grand Canal Street, Dublin 2 to present GRiST at their mental-health risk conference in Dublin.

Teaching

Commitments of present post

Introduction to Artificial Intelligence (2000 – present), BSc, Level 2, between 60 and 100 students per year.

Professional and Social Aspects of Computing (2016 – present), BSc Level 2, between 120 and 150 students per year.

Project supervision: (2000 – present), BSc Level 3, 6 to 10 per year.

Placement supervision: (2000 – present), 2 to 4 per year.

Year Tutor: (2000 – present), originally Computing for Business first and second year, now Multimedia first year.

Current PhD supervision (main supervisor only): Three full-time students; three part-time students.

Previous teaching experience (at any university)

Data Modelling and Database Systems: BSc (Hons), Computer Science; MSc Information Technology.

Introduction to Systematic Programming: BSc (Hons) Computer Science.

Coordinator of final-year BSc (Hons) Nursing and Midwifery undergraduate projects: This included establishing and organising procedures with local research ethics committees in various health trusts.

Clinical Decision Making: BSc (Hons) Nursing and Midwifery Degree; MSc in Advanced Clinical Practice (Nursing and Midwifery).

Research Methods: BSc (Hons) Nursing and Midwifery; MSc in Advanced Clinical Practice (Nursing and Midwifery); PhD students.

Artificial Intelligence: BSc (Hons) Computer Science.

Course planning and review

Over the years, I have been extensively involved with:

Programme reviews: including the conversion of the traditional computer science degrees at Staffordshire University into a modular scheme when these first became the vogue.

Setting up new undergraduate and postgraduate courses: including developing a new European PhD in Nursing involving 11 universities in countries ranging from Finland to Greece.

Validating existing degrees: including being part of the internal validation team for a MSc in Health Informatics and a member of the external validation team for a MSc within the School of Performing Arts at the University of Surrey.

Creating new modules: in various areas, including research methods, clinical decision making, artificial intelligence, and cognitive science, computational intelligence.

Current citizenship

Chair of the SEAS ethics committee.

Member of the University Ethics Committee.

External representative for the School of Life and Health Sciences Ethics Committee.

Member of the School Research Committee.

Developed and currently manage the University Ethics website for managing submissions and their approval process.

Reviewer of the Aston information technology security policy.

UCU membership secretary and CASE representative (grievances, disciplinaries, etc).