

CV

Details

Name: William Buchanan, BSc (Hons.), PhD, FBCS, FIEE (FIET) CEng, MCP
Date of Birth: 6th March, 1961.
WWW page: <http://asecuritysite.com> (🔗)
<http://www.iidi.napier.ac.uk/w.buchanan> (🔗)
Current Post: Professor, School of Computing
Leader, Centre for Distributed Computing and Security
Email: w.buchanan@napier.ac.uk (✉)
Telephone: +44 (0)131 455 2759
Twitter: <http://twitter.com/billatnapier>

Outline

Bill Buchanan is a Professor in the School of Computing at Edinburgh Napier University, and a Fellow of the BCS and the IET. He currently leads the Centre for Distributed Computing, Networks, and Security, and works in the areas of security, Cloud Security, Web-based infrastructures, e-Crime, cryptography, triage, intrusion detection systems, digital forensics, mobile computing, agent-based systems, and security risk. Bill has one of the most extensive academic sites in the World, and is involved in many areas of novel research and teaching in computing. He has published over 27 academic books, and over 200 academic research papers, along with several awards for excellence in knowledge transfer, and for teaching, such as winning at the I ♥ my Tutor Awards (Student voted), Edinburgh Napier University, 2011, 2014 and 2015, and has supervised many award winning student projects.



He has been an external examiner at many universities, and is currently an external examiner at Royal Holloway (University of London). Also with this he has been involved in many PhD completions and many external PhD examinations (including recent ones in Newcastle, Liverpool, and Dublin). He is part of many editorial boards for conferences and reviews in a wide range of journals.

Bill regularly appears on TV and radio related to computer, and has given evidence to the Justice Committee at the Scottish Parliament, along with being part of the BBC Scottish Independence Team of Experts (specialty: Cyber Security). This includes appearances on Newsnight Scotland, Good Morning Scotland, and Radio 5 Newsdrive, and was named as one of the Top 100 people for Technology in Scotland for the last two years. Along with this he gives many keynote/endnote talks at conferences, including at NISC 2014 on Heartbleed.

He has led many innovations in teaching related to Cyber Security, including with the DFET Cloud Training project and leads the Scottish EU Centre of Excellence for Law Enforcement Training within the 2Center Network, along with being part of the setup of SIPR (Scottish Institute for Police Research). He currently leads on a range of training projects with Police Scotland and a range of industry partners. This now includes leading the **GCHQ certification** of the MSc in Advanced Security and Digital Forensics, which should lead to a Centre of Excellence in Cyber Education for Edinburgh Napier University. Bill also leads the international Cyber Academy, which will be launched on 6 May 2015, and which has many industry and law enforcement partners.

Presently he is working with a range of industrial/domain partners, including with the Scottish Police, the finance sector, and many large and small companies. He has a long track record in commercialisation activities, including being a co-founder of Zonefox and safi.re, which of which progressed from PhD work to a university spin-out, through the Scottish Enterprise funded Proof-of-Concept scheme. Over the past three years he has received direct funding of over £2million related to computer security, which has had a major impact on an international basis. Both spin-outs build on patented technology, including one which has patenting protection over three territories around the World.

His current work includes a €500,000 project which aims to build an advanced training infrastructure for Cyber Security and Digital Forensics. Previous projects have included collaboration of TSB Grants with Microsoft plc on a £2million project which aimed to improve the care of the elderly using Trusted Cloud-based services, and with Chelsea and Westminster Hospital on a next generation Health Care platform. This also matches up with other funded projects with the FSA and the Scottish Police.

He has created many innovations in teaching related to computer security, including being sole author on <http://networksims.com> (Cisco Simulators), and <http://asecuritysite.com> (one of the most extensive computer security site for academic material in the World) and in creating DFET (an innovative Cloud training infrastructure for security and digital forensics training). His lectures are online at <http://youtube.com/billatnapier>, with over 500 on-line lectures, and has over 2,000 subscribers, with more than one million minutes watched. He regularly appears on the BBC radio and TV talking about Cybercrime (see <http://youtube.com/billatnapier>), and was part of the winning team for the Universally Challenge 2015 Award for Cipher Cracking (assessed by GCHQ).

Bill is also a member of the ICT in Education Excellence Group, which has been setup by the Scottish Government in 2012, and innovated the Christmas Cyber lecture for Schools in Scotland (attended by over 3,000 pupils in Dec 2013). He has done extensive work with Schools in promoting ICT, especially focused on computer security, and created the Bright Red Digital Zone, which now includes most of the subjects with the N5 (CfE) subjects in Scotland (brightredbooks.net), and which has extensive coverage of areas such as computer security.

PhD/MPhil Examinations/Completions

- **19 PhD Vivas.** (9 External: University of Northumbria, Dublin City University, John Moores University, University of Plymouth, University of Essex, University of West of Scotland, University of Ulster, Loughborough University, and University of Jena. 10 Internal: Edinburgh Napier University).
- **3 MPhil Vivas** (External: Robert Gordon's University. Internal: 2 Edinburgh Napier University).
- **14 PhD Completions.** Dr Owen Lo, Dr Omair Uthmani, Dr Mat Miehling, Dr Jamie Graves, Dr Lionel Saliou, Dr Nicole van Deursen (2nd supervisor), Dr Mustafa Bani Khalaf (2nd supervisor), Dr Zbigniew Kwecka, Dr Nikos Migas, Dr John Pikolous, Dr Abiola Abimbola (2nd supervisor), Dr Oliver Lewis, Dr Lingli Wang (2nd supervisor), and Dr Bill Pearson.
- **3 MPhil Completions.** Steve Cordiner, Hasam Golam and Hsiu-Chiung Wang.
- **2 Patents:**
 - US Patent: 61/116681 (with Jamie Graves), Oct 2009. DNA Digital Fingerprinting Framework.
 - UK Patent: 0816556.5 (with Jamie Graves), Sept 2008. DNA Digital Fingerprinting Framework.
- **External Examiner Activities:**
 - Robert Gordons University, Aberdeen (1997 - 2001), BSc (Hons).
 - Paisley University, Paisley (1998 - 2003), BSc.
 - University of Central Lancashire (1999 - 2003), MSc.
 - Staffordshire University (2004 -2007), BSc (Hons).
 - University of Sunderland (2007 -2011), MSc Security.
 - Dublin College University, Dublin (2011 - 2014), BEng in Media Engineering.
 - MSc in Information Security (2012 -), Royal Holloway, University of London.

Employment

2005-Present	Professor, School of Computing, Napier University, Edinburgh.
2003-2005	Reader, School of Computing, Napier University, Edinburgh.
1989-2003	Senior Lecturer, School of Computing, Napier University, Edinburgh.
1996-Present	Series Editor (IT and Computing), Macmillan Press Ltd.
1989-Present	Consultant to several companies including British Gas plc, HMSO, and so on.
1991-1995	Director, Real-Time Technologies Ltd, Edinburgh.
1989-1990	Software Consultant, ABACUS Simulations Ltd, Glasgow.

1986-1989	Lecturer, Department of Electronics, Napier University, Edinburgh.
1986	Electronic Engineer, Racal-MESL, Edinburgh.
1985	Industrial Training, Royal Observatory, Edinburgh.
1984	Industrial Training, Racal-MESL Ltd, Edinburgh.
1983	Industrial Training, Royal Observatory, Edinburgh.
1977-1981	Apprentice Electrician, ICI Ltd, Grangemouth.

Qualifications (Outline)

2010	Fellow of the BCS
2009	Cisco Regional Instructor, CCNA Security
2007	Cisco Regional Instructor, Network Security
2006	Fellow of IET (previously IEE)
2006	Microsoft XML Web Services (70-320) Certification
2006	Cisco 642-55 Certification, Securing Networks with PIX and ASA
2005	Cisco Regional Instructor, Wireless LANs
2005	Microsoft Certified Professional (MCP)
2000	(and 2005) Cisco Certified Instructor - Semester 1 -4
1996	PhD. Electromagnetic Field Modelling
1993	CEng, MIEE
1986	BSc (Hons) in Communications and Electronic Engineering

Recent Activities

- Proof-of-Concept, Digital Fragment, Scottish Enterprise (to start April 2015).
- DHI Grant on e-Frailty (to start April 2015).
- Lead on winning GCHQ certification of MSc programme in Advanced Security and Digital Forensics (which should lead to a Centre of Excellence for Education within Cyber Security), 2014. BBC article: <http://www.bbc.co.uk/news/uk-28623365>
- University spin-out for safi.re, 2013 and Digital DNA (ZoneFox), 2010.
- EU Grant in Cybercrime Training (<http://d-fet.eu>), 500,000 Euros.
- EPSRC/TSB Award, Scaleable and Open Framework for Human/Digital Trust between Informal/Formal Personal Health Care Infrastructures, Human and Digital Trust, Jan 2010. (overall grant £2million, Napier funding: £300,000).
- KTP, Farrpoint, 2014 (£80,000).
- EPSRC/TSB Award, Information Infrastructure Protection: Managing complexity, risk and resilience, Nov 2009. (£1.5million, Napier funding: £280,000).
- Fraud Analysis, Proof of Concept, Scottish Enterprise, £300,000.
- Information Sharing, Proof of Concept, Scottish Enterprise, £320,000.
- DHI Funding for e-Health Risk Assessment, £90K, 2014.
- SMART funding for Cyber Shares (Payfont), £30K, 2014.
- SMART funding for Alatus, £30K, 2013.
- Strategy Investment Fund, £85,000. Centre of Excellence in CyberCrime (2010).

- Two US Patents: 61/116681 (with Jamie Graves), Oct 2009. DNA Digital Fingerprinting Framework and Modelling of Trust Infrastructures (2014).
- Digital DNA, Proof-of-Concept, Scottish Enterprise, Sept 2008, £210,000.
- Principal's Award, e-Health and Security Network of Excellence, £22500, 2008.
- SIPR (Scottish Institute for Policing Research) funded PhD studentship, 2008, £30,000. Information-sharing Architecture for Information Sharing between the Police and their Community Partners.
- SIPR (Scottish Institute for Policing Research) Knowledge Transfer Co-ordinator for the Evidence and Investigation Network. [<http://www.sipr.ac.uk/networks/network2.php>]
- FSA (Financial Services Authority)-funded PhD studentship, 2008, £30,000. Next-generation Anonymisation for Cybercrime Investigations.
- Finalist BCS Technology Excellence, 2011 and IET Technology Excellence, 2011.
- Wide range of funded innovation work with Scottish SMEs.
- Digital Innovation Finalist, 2012. Most Innovative Tutor of the Year, 2011 and 2014.

Book/CD-ROM publications

1. Buchanan WJ, "C for Electronic Engineering with Applied Software Engineering", Prentice-Hall International, April 1995, ISBN 0-13-342668-8.
2. Buchanan WJ, "Applied PC Interfacing, Interrupts and Graphics", Addison-Wesley, June 1996, ISBN 0-201-87728-7.
3. Buchanan WJ, "Data Communications and Computer Networks", Chapman & Hall, ISBN 0-412-75430-4.
4. Buchanan WJ, "Microelectronic Systems: Design, Modelling and Test", Arnold, Jan. 1997, ISBN 0-340-67771-6.
5. Buchanan WJ, "Mastering Global Information Systems", Macmillan, Sept. 1997, ISBN 0-333-68951-8. (and Chinese edition). Translated into several languages, including Chinese (2002).
6. Buchanan WJ, "Mastering the Internet", Macmillan, Sept. 1997, ISBN 0-333-6926-6. (and Polish edition).
7. Buchanan WJ, "Advanced Data Communications and Networks", Chapman & Hall, Sept. 1997, ISBN 0-412-80630-4.
8. Buchanan WJ, "Software Development for Engineers (C++/ Pascal/ Assembly/ Visual Basic/ HTML/ JavaScript and Java)", Arnold, October 1997, ISBN 0-340-70014-9.
9. Buchanan WJ, "Advanced PC Interfacing, Communications and Windows Programming", Addison-Wesley, Apr. 1998, Nov. 1998. ISBN 0-201-87728-7. Translated into several languages, including Chinese and Japanese editions 2002.
10. Buchanan WJ, "Handbook of Data Communications and Networks", Kluwer, Jan. 1998, ISBN 0-412-84060-0.

11. Buchanan WJ, "Mastering Pascal and Delphi", Macmillan, Apr. 1998. ISBN 0-333-73007-0. Top 100 Bestseller on Amazon.co.uk (January 2000). No.1 Pascal book in the UK / No3. for Delphi.
12. Buchanan WJ, "Mastering Java", Macmillan, Apr. 1998, ISBN 0-333-73008-9.
13. Buchanan WJ, "Software Development", John Wiley & Sons. December 1997. ISBN 0-471-85266-2.
14. Buchanan WJ, "CD-ROM Handbook of Data Communications & Networks", Kluwer, May 1998. ISBN- 0-412-84060. 2nd edition due out soon.
15. Buchanan WJ, "Mastering Windows NT, Novell NetWare and UNIX", Macmillan, Apr. 1999. ISBN 0-412-84060.
16. Buchanan WJ, "Mastering Networks", Macmillan, Apr. 1999. ISBN 0-333-748042. Top 100 Bestseller on Amazon.co.uk (Autumn 1999).
17. Buchanan WJ, "Computer Busses", November 1999, Arnold, ISBN 0-340-74076.
18. Buchanan WJ and Wilson A, "Advanced PC Architecture", Addison-Wesley Longman, Spring 2000, ISBN 0-201-39858-3. Translated into Chinese edition - Chinese Electric Power Press of Beijing (2003)
19. Buchanan WJ, "Wiedziec wieceg Internrt", Oct 1999. (Polish edition). ISBN 83-206-1283-7.
20. Buchanan WJ, "Mastering Computing", ISBN 0333748069, Palgrave. Polish edition.
21. Buchanan WJ, "Mastering Delphi", Jan 2003, Macmillan.
22. Buchanan WJ, "Distributed Systems and Networks", McGraw-Hill, June 2000, ISBN 0-077-09583-9. Translated in Indian by Tata McGraw-Hill (2004).
23. Buchanan WJ, "Handbook of Security and Digital Forensics", ISBN: 9780387286020, release date: 2014.
24. Buchanan WJ, "Introduction to Security and Network Forensics", AUERBACH, ISBN: 084933568X, June 2011.
25. And other publications, including Chinese and Russian translations.

Papers published in Journals/Conferences

1. Penrose, P., Buchanan, W., Macfarlane, R. (2015). Fast contraband detection in large capacity disk drives. Digital Investigator, (March 2015), S22-S29.
2. Buchanan, W. (2015, Jan 2015). The Increasing Challenge for Digital Forensics. The Texas Investigator, 10-12.
3. Spyra, G., Buchanan, W., Cruickshank, P., Ekonomou, E. (2014). CLOUD-BASED IDENTITY AND IDENTITY META-DATA: SECURE AND CONTROL OWN DATA IN

GLOBALIZATION ERA. *International Journal of Reliable and Quality E-Healthcare (IJRQEH)*, 3(1), 49-66.

4. Kwecka, Z., Buchanan, W., SCHAFER, B. (2014). "I am Spartacus" – Privacy Enhancing technologies and Privacy as a public good. *Artificial Intelligence and Law*, 22(2), 113-139.
5. Molla, R., Romdhani, I., Buchanan, W., Fadel, Etimad Y. (2014). Mobile User Authentication System for E-commerce Applications. In: *International Conference on Advanced Networking, Distributed Systems and Applications 2014*. IEEE.
6. Buchanan, W., Kwecka, Z., Ekonomou, E. (2013). A Novel Privacy Preserving Method for the Location Tracking of Mobile Devices. *The Journal of Mobile Communication, Computation and Information: Special Issue on Security*, 18, 728–737.
7. Buchanan, W. (2014). Creating engaging and stimulating Web based material. Paper presented at LTT 2014, Holyrood, Edinburgh.
8. Buchanan, W. (2014, April 2014). Discrete Logarithms within Computer and Network Security. Paper presented at Napier 400 - Numerical Algorithms and Intelligent Software Symposium, International Centre for Mathematical Sciences, University of Edinburgh.
9. Buchanan, W. (2014). The Future of Computer Science Education and Observations from On-line Learning. Paper presented at Higher Computing Science National Qualifications Support, Edinburgh.
10. Buchanan, W. (2014). Complete Anatomy of Heartbleed, TrueCrypt and Large-scale Vulnerabilities. Paper presented at 7th International Conference on Security of Information and Networks (SIN 2014), Glasgow.
11. Buchanan, W. (2014). Creating engaging and stimulating Web based material. Paper presented at LTT 2014, Holyrood, Edinburgh.
12. Buchanan, W., Fan, L., Uthmani, O., Lawson, A. (2014). Information sharing. US 13/739,074, US: US.
13. Buchanan, W. (2014). The New Enlightenment in Scotland. Paper presented at Secure Scotland, Royal Exchange Square, Glasgow.
14. Buchanan, W., Smales, A. (2014, Feb). The Risks and Opportunities of Mobile Working within Cloud Environments. Paper presented at Practical Perspectives on Secure Mobile Working, Edinburgh.
15. Flandrin, F., Buchanan, W., Macfarlane, R., Ramsay, B., Smales, A. (2014). Evaluating Digital Forensic Tools (DFTs). In: *7th International Conference : Cybercrime Forensics Education & Training*.
16. Buchanan, W., Burns, N., Lo, O., Lewis, R., Uthmani, O., Fan, L. (2013, April). A Scalable and Trusted e-Health eco-System: safi.re. Paper presented at Cyber Security and Privacy EU Forum 2013, European Commission, Brussels.

17. Buchanan, W. (2013). Building a New Nation: Risk, Governance and Trust. Paper presented at Cyber Security 2013, Edinburgh.
18. Buchanan, W., Smales, A. (2013, Sept). Cyber Risk and Opportunities in the Cloud. Paper presented at Cloud Security Congress 2013, Edinburgh.
19. Buchanan, W., Smales, A. (2013). e-Health in the Cloud. Paper presented at Future of e-Health, Hollyrood, Edinburgh.
20. Buchanan, W., Macfarlane, R., Clayton, J. (2013). Experimental Evaluation of Disk Sector Hash Comparison for Forensic Triage using a Bloom Filter. In: CyberForensics 2013.
21. Buchanan, W., Fan, L., Uthmani, O., SCHAFER, B. (2013). Interagency Data exchange, Privacy protection and Governance Architecture for Information Sharing across Domains. Artificial Intelligence and Law.
22. Buchanan, W., Uthmani, O., Fan, L., Burns, N., Lo, O., Lawson, A., varga, j., anderson, c. (2013). Modelling of Integrated Trust, Governance and Access safi.re: Information Sharing Architecture. Communications in Computer and Information Science, 182, 91-101.
23. Buchanan, W., Smales, A. (2013). Public Perceptions in Health Care Security. Paper presented at Health Informatics 2013, Heriot-Watt, Edinburgh.
24. Buchanan, W. (2013, March). The Challenges of Big Data: Future Risks, Governance and Trust. Paper presented at The Future of Cyber Security 2013, London, UK.
25. Buchanan, W., Burns, N., Lo, O., Uthmani, O., Varga, j., Lawson, A., Anderson, c. (2013). Who Would You Trust To Identify You In Accessing Your Health Record?. Communications in Computer and Information Science.
26. Kwecka, Z., Buchanan, W., SCHAFER, B. (2013). Schutz der Anonymität als Gemeinschaftsaufgabe – eine neue Generation von PETs?. In: INFORMATIK 2013. (pp. 2134-2148). Köllen Druck+Verlag.
27. Lo, O., Fan, L., Buchanan, W., Thuemmler, C. (2013). Conducting Performance Evaluation of an e-Health Platform. In: Issa, T., Isaías, P., Kommers, P. (Eds.) Information Systems and Technology for Organizations in a Networked Society. (pp. 295-315). Hershey, PA.: IGI Global Publishing.
28. Penrose, P., Macfarlane, R., Buchanan, W. (2013). Approaches to the Classification Of High Entropy File Fragments. Digital Investigator, 10(4), 372–384.
29. Thuemmler, C., Mival, O., Benyon, D., Buchanan, W., Paulin, A., Barros, M. (2013). Norms and Standards in Modular Medical Architectures. In: 2013 IEEE 15th International Conference on e-Health Networking, Applications and Services (Healthcom) (IEEE Healthcom 2013). (pp. 382 - 387). Lisbon, Portugal.
30. Thuemmler, C., Mival, O., Benyon, D., Buchanan, W. (2013). Norms and standards in modular medical architectures. In: Proceedings IEEE 15th International Conference on e-Health Networking, Applications & Services.

31. van Deursen (Hazelhoff Roelfze, N., Buchanan, W., Duff, A. (2013). Monitoring information security risks within health care. *Computers and Security*, 37, 31-45.
32. Bani Khalaf, M., Al-Dubai, A., Buchanan, W. (2012). A New Efficient Distributed Route Discovery for Wireless Mobile Ad hoc Networks. In: the 11th IEEE International Wireless Telecommunications Symposium. (pp. 1-6). IEEE Communication Society.
33. Buchanan, W., Fan, L., Ekonomou, E., Lo, O., Thuemmler, C. (2012). Case Study: Moving Towards an e-health Platform to Store NHS Patient Information in the Cloud . Paper presented at Cloud Computing in the Public Sector: The Way Forward, London.
34. Buchanan, W., Macfarlane, R., Graves, J., Fan, L., Ekonomou, E., Bose, N. (2012). Cloud Forensics. In: .
35. Buchanan, W., Fan, L., Ekonomou, E., Lo, O. (2012). Cloud4Health. Paper presented at Symposium on the Future of e-Health, Edinburgh.
36. Buchanan, W., Fan, L., Lawson, A., SCHAFER, B., Scott, R., Thuemmler, C., Uthmani, O. (2012). Computational data protection law: trusting each other offline and online. *Frontiers in Artificial Intelligence and Applications*, Volume 250: Legal Knowledge and Information Systems, 31 - 40.
37. Buchanan, W., Fan, L., Lawson, A., SCHAFER, B., Scott, R., Thuemmler, C., Uthmani, O. (2012). Computational data protection law: trusting each other offline and online. . *Legal Knowledge and Information Systems*, 250, 31-40.
38. Buchanan, W. (2012). Education & Training for Future Threats. Paper presented at ITEC 2012, London.
39. Buchanan, W. (2012). Future Risks – Including The Rise of the Hacktivism. In: National Information Security Conference (NISC).
40. Buchanan, W., Fan, L., Lo, O., Ekonomou, E. (2012). HOLISTIC HEALTHCARE WITHIN DYNAMIC INFORMATION INFRASTRUCTURES - THE CLOUD BASED eHEALTH PLATFORM. Paper presented at eHealth 2012, Dynamic Earth, Edinburgh.
41. Buchanan, W., Lewis, R., Fan, L., Uthmani, O. (2012, June). Information Sharing Around Child Protection. Paper presented at Information Sharing in the Public Sector, Edinburgh.
42. Buchanan, W. (2012, June). Innovation in Cloud Environments. Paper presented at Future of Technology, Royal Society of Edinburgh.
43. Buchanan, W., Fan, L., Ekonomou, E., Lo, O., Uthmani, O., Thuemmler, C. (2012, May). Integrating Assisted Living with Primary and Secondary Health Care. Paper presented at Data Handling in Health and Social Care: Striking the balance between confidentiality, security and information sharing, Edinburgh.
44. Buchanan, W. (2012, June). Introducing Cloud-based virtualised environments and their use in supporting learning and teaching. Paper presented at Enhancing, extending and empowering student learning within online environments, Edinburgh.

45. Buchanan, W. (2012). New Threats. Paper presented at Transatlantic Conference 2012, Edinburgh.
46. Buchanan, W., Fan, L., Ekonomou, E., Lo, O., Thuemmler, C. (2012). Patient Centric Health Care: An Integrated and Secure, Cloud-based, e-Health Platform. Paper presented at BCS Branch Meeting, University of Edinburgh Informatics Forum.
47. Buchanan, W. (2012). Plugging the Gaps. *ITNOW*, 54(4), 36-37(2).
48. Buchanan, W. (2012, Feb). Skills for cyber security. Paper presented at Cybercrime and Data Protection, Dynamic Earth, Edinburgh.
49. Buchanan, W., Fan, L., Ekonomou, E., Lo, O., Thuemmler, C., Lawson, A. (2012). The UK's eHealth Cloud Project: EHR And The Cloud: Assessing The Benefits And Mitigating The Risks. Paper presented at Arab Health 2012 (Electronic Healthcare Records), Dubai.
50. Buchanan, W. (2012). Training the Next Generation. Paper presented at Digital Security and Cybercrime Staff Skills Shortage: Addressing the Issues, Edinburgh.
51. Fan, L., Buchanan, W., Lo, O., Thuemmler, C., Lawson, A., Uthmani, O., Ekonomou, E., Khedim, A. (2012). SPoC: Protecting Patient Privacy for e-Health Services in the Cloud. In: *eTELEMED 2012*. (pp. 99-104).
52. Flandrin, F., Buchanan, W., Macfarlane, R. (2012). A Platform for Digital Forensics Evaluation (D-FET).
53. Lo, O., Fan, L., Buchanan, W., Thuemmler, C. (2012). Technical Evaluation of an E-Health Platform. *IADIS E-Health 2012*, 21-28.
54. Lo, O., Fan, L., Buchanan, W., Thuemmler, C., Lawson, A. (2012). Towards Simulation of Patient Data for Evaluation of E-Health Platform and Services. In: *PGNET 2012*. (pp. 160-165).
55. Macfarlane, R., Buchanan, W., Ekonomou, E., Uthmani, O., Fan, L., Lo, O. (2012). Review of Security Policy Implementations. *Computers & Security*, 31(2), 253-271.
56. Thuemmler, C., Fan, L., Buchanan, W., Lo, O., Ekonomou, E., Khedim, A. (2012). E-Health: Chances and Challenges of Distributed, Service oriented Architectures. *Journal of Cyber Security and Mobility*, 37(52).
57. Uwagbole, S., Buchanan, W., Fan, L. (2012). Novel Tracking of Rogue Network Packets Using Danger Theory Approach. 11th European Conference on Information Warfare and Security (ECIW-2012).
58. Buchanan, W., Flandrin, F., Macfarlane, R., Graves, J. (2011). A Methodology to Evaluate Rate-Based Intrusion Prevention System against Distributed Denial-of-Service (DDoS). In: *Cyberforensics 2011*.
59. Buchanan, W. (2011, May). A next generation Cloud-based health care platform. Paper presented at Innovation in Healthcare, London.

60. Buchanan, W. (2011). *Advanced Cloud and Virtualisation*. CRC Press.
61. Buchanan, W., Macfarlane, R., Flandrin, F., Graves, J., Fan, L., Ekonomou, E., Bose, N., Ludwiniak, R. (2011). *Cloud-based Digital Forensics Evaluation Test (D-FET) Platform*. Cyberforensics 2011.
62. Buchanan, W., Fan, L., Thuemmler, C., Lo, O., Ekonomou, E. (2011, Sept). *Cloud-based e-Health System*. Paper presented at BCS Health Informatics, Edinburgh.
63. Buchanan, W. (2011, Sept). *Creation of Dynamic Environments for Virtualised and Cloud-based Teaching in Digital Forensics and Computer Security*. Paper presented at CFET, Canterbury.
64. Buchanan, W., Macfarlane, R. (2011, June). *D-FET – A Community Cloud for Enhancing Skills using Virtualised Environments and Cloud-based Infrastructures*. Paper presented at Scottish Higher Education Employability Conference: Strengthening Partnerships with Employers, Heriot-Watt, Edinburgh.
65. Buchanan, W. (2011). *Evidence to the Justice Committee at the Scottish Parliament*. Scottish Executive.
66. Buchanan, W. (2011). *How Academic IT Departments Manage Changing IT Environments*. *VitAL*, 5 (1), 26-32.
67. Buchanan, W. (2011). *Introduction to Security and Network Forensics*. Auerbach Publications.
68. Buchanan, W. (2011). *Making assessment and feedback fun: feedback before and after assessments*. Paper presented at Edinburgh Napier University Staff Conference, Edinburgh Napier University.
69. Buchanan, W. (2011, June). *Next Generation Secure e-Health Platform*. Paper presented at BCS ISSG seminar "The Insider Threat", Edinburgh.
70. Buchanan, W., Graves, J., Bose, N., Macfarlane, R., Davison, B., Ludwiniak, R. (2011). *Performance and Student Perception Evaluation of Cloud-based Virtualised Security and Digital Forensics Labs*. HEA ICS Conference.
71. Buchanan, W. (2011). *Student Perception of On-line Lectures with a Blended Learning Environment*. Paper presented at Edinburgh Napier University Staff Conference, Craiglockhart.
72. Ekonomou, E., Buchanan, W., Fan, L., Thuemmler, C. (2011). *An Integrated Cloud-based Healthcare Infrastructure*. In: *IEEE CloudCom '11*. (pp. 532 - 536). Athens, Greece: IEEE.
73. Fan, L., Buchanan, W., Thuemmler, C., Lo, O., Khedim, A., Uthmani, O., Lawson, A., Bell, D. (2011). *DACAR Platform for eHealth Services Cloud*. *IEEE 4th International Conference on Cloud Computing*, 219-226.
74. Kwecka, Z., Buchanan, W., Spiers, D. (2011). *Minimising Collateral Damage: Privacy-Preserving Investigative Data Acquisition Platform*. *International Journal of Information*

- Technologies and Systems Approach (IJITSA) : Special issue on Privacy and Security Issues in IT, 4(2), 12-31.
75. Miehling, M., Buchanan, W., Lawson, A. (2011). Affiliate Advertising Fraud and an Investigatory Fraud Framework. In: CyberForensics 2011. Glasgow.
 76. Miehling, M., Buchanan, W., Lawson, A. (2011, August). Detection Framework for the Reduction of Click-through and ID Theft Fraud in Affiliate Marketing. Paper presented at SCONE, Glasgow.
 77. Scott, R., Uthmani, O., Buchanan, W., Lawson, A. (2011, June). Intelligence Information Sharing between the Police and their Community Partners. Paper presented at Symposium on Security and Cybercrime, Edinburgh Napier University.
 78. Uthmani, O., Buchanan, W., Lawson, A., Scott, R., SCHAFER, B., Fan, L. (2011). Crime Risk Evaluation within Information Sharing between the Police and Community Partners. *Information & Communications Technology Law*, 20(2), 57 - 81.
 79. Uthmani, O., Buchanan, W., Lawson, A., Scott, R., SCHAFER, B., Fan, L., Uthmani, S. (2011). Crime Risk Evaluation within Information Sharing between the Police and Community Partners. *Information & Communications Technology Law*, 20(2), 57-81.
 80. Uthmani, O., Buchanan, W., Lawson, A. (2011, August). Risk Analysis for Criminal Context in Information Sharing Policies. Paper presented at SCONE, Glasgow.
 81. Bani Khalaf, M., Al-Dubai, A., Buchanan, W. (2010). A New Adaptive Broadcasting Approach for Mobile Ad hoc Networks. In: Proceedings of 2010 6th Conference on Wireless Advanced (WiAD) . (pp. 1 - 6). London: IEEE Computer Society.
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Example Funded Projects

Funding income over the past four years: £2,429,040

Details at: <http://www.iidi.napier.ac.uk/b.buchanan>

News articles

Many articles in The Scotsman, The Herald, The Guardian, The Times, and so on. Some examples on TV are:

- BBC Scotland 2014 Cybercrime - June 2014: <http://youtu.be/xFrUVqgGm-o>
- BBC News White Page on Independence: <http://youtu.be/oEr254Y6QrU>
- STV.TV Cyber Training: <http://youtu.be/n31gobzDzW0>

Innovations in Teaching

Bill has won several awards for innovation in teaching, and has an extensive track record of innovation in teaching including:

- **Advanced Cloud Training (DFET).** This has involved extensive development over the years to create a 10 node cluster infrastructure with 40TB for disk storage, supporting more than 200 students at a time providing a wide range of computer security and digital forensics infrastructures. Each student can have their own environment which can be isolated from others, or can be used in group work to build large-scale networked infrastructures. Over the past year, students have been undertaking advanced penetration testing and malware analysis within sandboxed and isolated environments, and which would not be possible within normal networked equipment. This infrastructure now supports face-to-face and distance students, while also being used for industry training, allow students to learn within a safe environment. <http://www.d-fet.eu/>
- **On-line lectures.** Most of the modules have on-line lectures, which have been recorded to support both campus based, and remote learners. This includes a dedicated YouTube channel, with more than 560 on-line lectures (with over 2,100 subscribers), in a dedicated campus based video server. <http://youtube.com/billatnapier>
- **Simulators.** The School have developed a range of novel software for training, including for Cisco Simulators for both Windows and Web. <http://profsims.com>
- **Asecuritysite.com.** This has been created to support a range of modules, and is one of the most advanced Web sites for computer security and digital forensics, in the World. It includes all the major cryptography methods, using demonstrations of the key principles. <http://asecuritysite.com>