

Mark Burgess

Curriculum Vitae - Academic

April 26, 2007

Full Name

Mark Burgess

Address

Faculty of Engineering
University College Oslo
Postboks 4 St Olavs Plass,
N-0130 Oslo
Norway

Languages

Norwegian and English.

Education

1. First class honours degree in Physics from the University of Newcastle Upon Tyne. 1987
2. PhD Theoretical Physics. Dec. 1990 from University of Newcastle Upon Tyne.

Positions

1. Royal Society Post-Doctoral Fellowship 1991/92 University of Oslo, Norway.
2. Post-doctoral fellowship of the Norwegian Research Council 1993/94.
3. Unix systems consultant, Dept. of physics, 1993/94 University of Oslo.
4. Associate professor, University College Oslo, 1994-2005
5. Professor of Network and System Administration, Oslo University College, 2005-

Awards and Prizes

1. Warriner mathematics prize, for best lecture on pure mathematics (geometry).
2. Keith Runcorn prize for best PhD thesis in a physics related subject for 1991 (University of Newcastle Upon Tyne)
3. Usenix Best paper award 1998, in Large Installation System Administration, for Computer Immunology
4. Recognition from Oslo University College for composition of alternative clock chimes for Pilestredet campus 1999
5. NATO collaborative research grant 1995-1997
6. NATO collaborative research grant 1997-1999
7. USENIX 2001 Life-time achievement award. One of many recipients for the GNU project and its contributors. (For Cfengine, volunteer work and the C programming tutorial.)
8. The SAGE 2003 Professional Contribution Award: "For groundbreaking work in systems administration theory and individual contributions to the field".
9. Winner of the World Class Technology Summit contest, Best Innovation Concept Award, with Siri Fagernes for "Promise theory – a model of autonomous objects for pervasive computing and swarms".
10. DSOM2006 Best paper award for "Predictable Scaling Behaviour in the Data Centre with Multiple Application Servers, (with Gard Undheim), Proceedings of DSOM 2006, LNCS 4269 p49-60 (2006) "

Talks and invitations

1. Invited lecturer at Cambridge Technopark, for Acorn Computers three times 1987-1990.
2. Invited Lecture on Induced Chern-Simons coefficients at the 1991 Stockholm meeting on anyon physics.'
3. Third Workshop on Thermal Fields and Their Applications Banff, Canada 1993.
4. Invited visit, University of Winnipeg, April 1994.
5. Invitation to CERN computing group, 1994 for prolonged stay. (Unable to attend).
6. Speaker at HEPiX conference on computing systems, autumn, Saclay 1994.
7. Extended visit, University of Winnipeg, summer 1996
8. Invited talk, University of Manitoba, summer 1996.
9. Invited talk, Norwegian Unix User Group, "cfengine", January 1997

10. Invited talk, Unik, Kjeller, Norway, "cfengine", March 1997
11. Invited visit, University of Winnipeg, May 1997
12. USENIX/LISA Systems administration conference, refereed talk, October 1997
13. USENIX/LISA Systems administration conference, refereed talk, December 1998
14. Fifth Workshop on Thermal Fields and Their Applications Regensburg, Germany 1998.
15. Invited speaker at 8th international colloquium on Numerical Analysis and Computer Science, Plovdiv, Bulgaria August 1999
16. Invited speaker at SANE2000, Maastricht, Netherlands
17. Invited to Andersen Consulting (Accenture), October 2000
18. Invited to Snow, Netherlands, November 2000.
19. USENIX/LISA Systems administration conference, refereed talk, December 2000
20. Invited lecture, Nordic Universities' Computer Club, February 2001.
21. Invited lecture at Molde University College, March 2001.
22. Invited lecture at the International conference of the European Confederation of Junior Enterprises, Oslo 2002. "A kind of magic: attitudes to technology"
23. Keynote speaker at NORDU2003, Vasters, Sweden. "Talking to the walls"
24. Invited lecturer to IEEE/IFIP IM2003 in computer security.
25. Invited speaker at LISA'03. Talking to the Walls (Again)
26. Invited stay at University of Amsterdam, April 2004.
27. Invited stay, Royal Institute of Technology (KTH), Stockholm, March 2004.
28. Invited talk, Anomaly Detection, LISA2004.
29. Invited talk, Kripos Seminar (Norwegian Law Enforcement), 2005.
30. Invitation to International University of Bremen as distinguished guest 2006.
31. Plus normal seminars at various institutions.

Memberships

1. American Physical Society (1992-2000)
2. American Association for the Advancement of Science (1998-)
3. Usenix Association (1997-)
4. System Administrators Guild (SAGE) (1997-)
5. Association of Computing Machinery (2000-2003)
6. IEEE Computer Society (2000-)

Administrative

1. Project leader and coordinator for the Centre of Science and Technology project, HIO, 1995-1999
2. Organizer of the NATO supported laser meeting, summer 1996
3. Fine Arts committee, Oslo University College, 1996-
4. Web committee, Oslo University College, 2000-
5. E-learning committee, Oslo University College, 2002-
6. E-exam committee, Oslo University College, 2002-
7. MSc in Network and System Administration Trustee Board, Oslo University College, 2001-
8. Board of governors, Faculty of Engineering, Oslo University College, 2000-
9. Oslo University College liason for collaboration with Norwegian Unix User Group (NUUG)
10. SAGE committee on system administration certification, 2000-2001.
11. Revised PHP and graphical design for www.iu.hio.no (with S. Straumsnes) 2000.
12. Program committee for MADE2000, Gothenburg, Sweden
13. Conference programme general chair for LISA 2001.
14. Oslo university college, CD-ROM design and science playground (with S. Kberg and R. Lachica)
15. Program committee for IFIP/IEEE DSOM 2002, Montreal, Canada
16. Program committee for IFIP/IEEE DSOM 2003, Germany.
17. Program committee for IFIP/IEEE DSOM 2004, UC Davis.
18. Program committee for IFIP/IEEE Policy Workshop, Boston 2004.

19. Program committee for IFIP/IEEE IM 2003, Colorado Springs, USA
20. Program committee for IFIP/IEEE NOMS 2004, Taiwan.
21. Program committee for IFIP/IEEE IM 2005, Nice, France
22. Head of Master Degree Project in Network and System Administration
23. Member of E-learning committee 2002.
24. Program committee for International Policy Workshop, 2005, Stockholm.
25. Guest Editor, Science of Computer Programming (Elsevier) 2004
26. Editor, Science of Computer Programming (Elsevier) 2006-
27. Editor of Elsevier Handbook of Network and System Administration, with Jan Bergstra (2005-2007)
28. Associate editor for Journal of the Computer Society of India.
29. Workpackage leader of IST-EMANCS Network of Excellence (#26854)

Publications

Books

1. Paged ROM programming for the BBC Micro, Dabs Press, 1985.
2. C, Dabs Press 1988
3. C, (Third Edition) Dabs Press 1992
4. C Tutorial (Fourth edition), Free Software Foundation, 2000
5. AmigaDOS, Dabs Press 1989
6. Classical Covariant Fields, Cambridge University Press, 2002
7. Principles of Network and System Administration, J. Wiley & Sons. 2000
8. Selected Papers in Network and System Administration, J. Wiley & Sons. 2001 (Editor, with E. Anderson and A. Couch.)
9. Principles of Network and System Administration (Second edition), J. Wiley & Sons. 2004
10. Analytical Network and System Administration (Human-Computer management), J. Wiley & Sons. (2004)
11. Handbook of Network and System Administration, Elsevier 2007, (Editor with Jan Bergstra)
12. An Engineers Guide Host Configuration and Maintenance using Cfengine, Usenix Association 2007. (with Aileen Frisch)

Popular Articles

1. Cfengine: An Introduction 1993.
2. The Shape of Programming To come Your Amiga 24-26 June 1988.
3. C - Setting Up Your Amiga 14-16 Aug. 1988.
4. First Words in C Your Amiga 14-18 Oct 1988.
5. Pointing Out Storage Your Amiga 16-19 Dec. 1988.
6. First Words in C Your Amiga 24-26 April 1989.
7. Evolution Shape and Form Your Amiga 24-26 Apr. 1989.
8. The Window to Intuition Your Amiga 18-20 Jun. 1989
9. Getting Going ST/Amiga Format (1) 83-84 1988.
10. Poetic Gravity. Times Literary Supplement 1990
11. Effective Action. University of Oslo report 1992
12. Anyon Superconductivity. University of Oslo 1992
13. Unix local guide. University of Oslo 1992
14. Information revolutions Physics Today November 1996 page 77
15. The encyclopaedia of computer science 4th edition, edited by A. Ralston, E. reilly and D. Hemmendinger, Grove's dictionaries (2000) (contribution on Unix)
16. Managing filesystem ACLs with GNU/Cfengine. ;login: (23). 3:18-22
17. Managing system security with GNU/Cfengine. I ;login: (24) 4:26-28 1999
18. Managing system security with GNU/Cfengine. II ;login: (24) 5:20-28 1999
19. Managing system security with GNU/Cfengine. III ;login: (24) 6:41-47 1999
20. Analytical system administration I ;login: (25) 3:41-46 2000
21. Analytical system administration II ;login: (25) 4:50-54 2000
22. Analytical system administration III ;login: (25) 5:35-38 2000
23. Interview on the meaning of digital,Dagbladet/Magasinet Oct 2000
24. In sickness and in health: the three laws ;login: (25) 8:5-8 (2000)
25. A kind of magic ;login: (26) 1:29-32 (2001)
26. The myth of computer control ;login: (26) 2:30-36 (2001)
27. Entropy: The Good, the Bad and the Aged ;login: (26) 3:24-31 (2001)

28. In Search of Cleopatra's Needles ;login: (26) 4:10-18 (2001)
29. Clusters and Parallels: ecologies (unpublished)
30. Diagnosis - the projection of LISA to come? ;login: (26) 6:35-46 (2001)
31. Christmas Carol ;login: (26) 8:5-13 (2001)
32. Rule-based cluster management with GNU cfengine Newsletter of the IEEE Taskforce on Cluster Computing: 4(1), (2002)
33. Talking to the walls ;login: (2004)
34. Cabbage Patch KISS. ;login: 2007;31(4):15-21
35. Bable, Babble, toil and grammar.;login: 2007;31(5):18-25
36. A Shocking Lack of Ad-hocracy. ;login: 2007;31(6)
37. There's no I/O without U: Economic Networking. ;login: 2007;32(1)
38. Promises, Promises (an interview with Mark Burgess). ;login: 2007;32(2)

Chapters in books

1. Preface to Handbook of Network and System Administration, Elsevier 2007, (Editor with Jan Bergstra)
2. Scaling Data Centre Services, in Handbook of Network and System Administration, Elsevier 2007, (Editor with Jan Bergstra)
3. On the Complexity of Change and Configuration Management (with Lars Kristiansen), in Handbook of Network and System Administration, Elsevier 2007, (Editor with Jan Bergstra)
4. System Administration and the Scientific Method, in Handbook of Network and System Administration, Elsevier 2007, (Editor with Jan Bergstra)
5. System Administration and Micro-Economic Modelling, in Handbook of Network and System Administration, Elsevier 2007, (Editor with Jan Bergstra)

Computer software

1. Drum machine simulator, BBC BASIC1983
2. Adventure game, 6502 assembler1984
3. Interpreted language (toy), BCPL1984
4. The FACILITY system extension (BBC Micro) 6502 assembler1986
5. The Document Executive, word-processing software CDabs Press 1989
6. C Programs Disk, C Dabs Press 1988

7. 3 Computer algebra tools for bosonic Wick reduction University of Newcastle (1988), C
8. Auto-answer daemon, C Public Mail tool 1991
9. Unix system control library, shOslo 1991/92
10. Cfengine: A unix configuration tool, C UiO/HiO, 1993-2002
11. CASE: cellular automaton simulator, C++ (with students T.E.Sevaldud and J.Mikkelsen)HiO, 1993-
12. ECG system data analyzer, C (with S. Straumsnes)HiO,1998-2000
13. Cfengine 2 (significant rewrite and extension) HiO, 2002-
14. Mephisto Web based E-publishing and learning environment (with H. Haugerud) HiO, 2001-2003
15. Installation of cfengine at AI lab, MIT, 1996

Computer science papers

1. Cfengine: a site configuration engine, USENIX Computing systems, Vol8, No. 3 1995
2. Strategies for Distributed resource Administration Using cfengine, Software-Practice and Experience 27, 1083 (1997).
3. Object orientation and visualization of physics in two dimensions Computers in physics Vol12, Issue 3, p.274 1998. With H. Haugerud and A. Strandlie
4. Adaptive locks for frequently scheduled tasks with unpredictable run-times, Proceedings of the 11th system administration conference (USENIX/LISA) October 1997
5. Automated system administration with feedback regulation, Software-Practice and Experience 28, 1519 (1998).
6. Computer Immunology, Proceedings of the 12th system administration conference (USENIX/LISA) 1998
7. Cfengine as a component of computer immune-systems Proceedings of the Norwegian Informatics Conference 1998
8. Measuring system normality I,1999, rewritten 2002 for ACM/TOCS(with H. Haugerud and S. Straumsnes)
9. Measuring system normality II,1999, rewritten 2002 for ACM/TOCS (with T. Reitan S. Straumsnes)
10. Evaluating cfengine's immunity model of site maintenance, Proceedings of the SANE 2000 conference.

11. On the theory of system administration. *Science of Computer Programming* 49, 2003. p1-46
12. Theoretical system administration. *Proceedings of the 14th USENIX/LISA 2000*
13. Predictable configuration management in a randomized scheduling framework, *Proceedings of the IFIP/IEEE DSOM2001 Conference*, with F. Sandnes
14. Recent developments in cfengine. *Proceedings of the 2nd Unix.nl conference*, Netherlands 2001
15. System administration as communication over a noisy channel, *Proceedings of the SANE 2002 conference (NLUUG 2002)*.
16. Security and online evaluation with large classes, *HIO Internal Report 2002*
17. Measuring system normality, *ACM Transactions on Computing Systems* 20, p.125-160 (2002)(with H. Haugerud and S. Straumsnes and T. Reitan)
18. Two dimensional time-series for anomaly detection and regulation in adaptive systems, in *Proceedings of 13th IFIP/IEEE International Workshop on Distributed System, operations and management (DSOM 2002)*. "Management Technologies for E-Commerce and E-Business Applications" Springer 2002.
19. Scalability of peer configuration management in partially reliable and ad hoc networks(with G. Canright), *Proceedings of IEEE/IFIP IM2003 conference on Integrated Network Management*
20. A scaled, immunological approach to anomaly countermeasures (Combining pH with cfengine)(with K. Begnum), *Proceedings of IEEE/IFIP IM2003 conference on Integrated Network Management*
21. Experiences with peer-review evaluation in computer science courses(with F. Sandnes) *ICEE conference proceedings 2002*
22. *Procedural Security and Quality Assurance in Learning and Examinations*, HIO Internal report 2002
23. A Graphical Model of Computer Security (From Access Control to Social Engineering) with Geoffrey Canright, in *International Journal of Information Security (IJIS)*, vol 3, 70-85 (2004).
24. Configurable immunity for evolving human-computer systems, *Science of Computer Programming*, Volume 51, Issue 3 , June 2004, Pages 197-213
25. Archipelago: A Network Security Analysis Tool(With T. Stang et al.) *Proceedings of LISA 2003*. p 153
26. A Network Security Analysis Tool (With T. Stang et al.) *Proceedings of NIK 2003*.

27. Importance functions for directed graphs, 2004, (with G. Canright and K. Engø-Monsen) - resubmitted to Journal of Data Mining and Knowledge Discovery as "Mining Topological Importance From The Eigenvectors Of Directed Graphs" in 2007.
28. Probabilistic anomaly detection in distributed computer networks, Submitted to Science of Computer Programming.
29. Principal components and importance ranking of distributed anomalies(with K. Begnum), Machine Learning Journal, **58**, 217-230, (2005).
30. Pervasive Computer Management I: A Model of Network Policy with Local Autonomy (with S. Fagernes - submitted to IEEE TSE)
31. Pervasive Computer Management II: Voluntary Cooperation (with S. Fagernes - in preparation)
32. Pervasive Computer Management III: Equilibration of human-computer policies (with S. Fagernes - in preparation)
33. Autonomic infrastructure in a virtual grid landscape from abstract roles (with K. Begnum and J. Sechrest - unpublished)
34. Scalability of peer configuration management in logically ad hoc networks(with G. Canright), IEEE eTransactions on Network and Service Management vol 1(1) 2004 (no page numbers).
35. A risk analysis of disk backup or repository maintenance. Science of Computer Programming 2007;64:312-331 (with Trond Reitan)
36. An Approach to Understanding Policy Based on Autonomy and Voluntary Cooperation, submitted to IFIP/IEEE 16th international workshop on distributed systems operations and management (DSOM).
37. Voluntary cooperation in a pervasive computing environment, Proceedings of LISA 2005
38. On the Stability of Adaptive Service Level Agreements, (with Kyrre Begnum, Tore M. Jonassen and Siri Fagernes), submitted to IEEE eTransactions on Network and Service Management, 2005
39. Summary of Stability of Adaptive Service Level Agreements, (with Kyrre Begnum, Tore M. Jonassen and Siri Fagernes), in the IEEE Proceedings of the International Policy Workshop 2005.
40. Modelling Next Generation Configuration Management Tools, LISA 2006.
41. Autonomic Computing Approximated by Fixed-Point Promises, MACE Workshop, Manweek 2006
42. Autonomic Pervasive Computing: A Smart Mall Scenario Using Promise Theory, MACE Workshop, Manweek 2006

43. Predictable Scaling Behaviour in the Data Centre with Multiple Application Servers, (with Gard Undheim), Proceedings of DSOM 2006, LNCS 4269 p49-60 (2006)
44. Uncertainty in Global Application Services with Load Sharing Policy, (with Sven I. Ulland), Proceedings of DSOM 2006, LNCS 4269 p37-48 (2006)
45. On the Reliability of Service Level Estimators in the Data Centre, (with Jon Henrik Bjørnstad), Proceedings of IM 2007, IEEE Press.
46. Promise theory – a model of autonomous objects for pervasive computing and swarms, (with Siri Fagenes), Proceedings of the World Class Technology Summit Contest, 2006. (Winner of best paper)
47. Object Orientation and the Service Oriented Architecture: A Model using Promise Theory, (with D. Aredo and S. Hagen), submitted to SCP?
48. Voluntary Economic Cooperation in Policy Based Management, submitted to IEEE TSE 2006.
49. Adaptive provisioning using virtual machines and autonomous role-based management, (with K Begnum and J. Sechrest), Proceedings of the IEEE International Conference on Autonomic and Autonomous Systems (ICAS'06) (2006).
50. A Promise Theory Approach to Collaborative Power Reduction in a Pervasive Computing Environment, (with F. Sandnes), Lecture Notes in Computer Science 4159 p615-624 (2006).
51. Norms and Swarms, Lecture Notes on Computer Science 4543 (Proceedings of the first International Conference on Autonomous Infrastructure and Security (AIMS)) p. 107-118 (with Siri Fagenes)
52. Validating the Promise Theory Syntax using Rewriting Logic Lecture Notes on Computer Science 4543 (Proceedings of the first International Conference on Autonomous Infrastructure and Security (AIMS)) p. 203-216 (with Kyrre Begnum)
53. Improving Anomaly Detection Event Analysis Using the EventRank Algorithm, Lecture Notes on Computer Science 4543 (Proceedings of the first International Conference on Autonomous Infrastructure and Security (AIMS)) p. 143-154 (with Kyrre Begnum)
54. A Process Algebra based Framework for Promise Theory, Technical Report University of Amsterdam, 2007 (with Jan Bergstra and Inge Bethke)

Physics papers

1. Classical Description of the Faraday Effect. 1986. Unpublished notes.. (1985)
2. Kaluza-Klein Theory. Dissertation 1987.
3. Gauge Vacua on Multiply Connected Spacetimes. Doctoral thesis 1990.

4. One Loop Breaking By Massive Fields, Physics Letters B234: 97 (1990) with David Toms. 7 printed pages (pp).
5. Vacuum Structure of Yang-Mills-Chern-Simons Theory in 3D, Physical Review Letters 64: 1639 (1990) with David Toms. 3 pp.
6. Two-Loop Instabilities of Gauge Vacua and Topological Symmetry Breaking on $R^n \times S^1$, Annals of Physics 210: 438 (1991) with David Toms. 31 pp.
7. Fractional Statistics and the Dynamical Gauge Symmetry of Yang-Mills-Chern-Simons Theory, Physics Letters B252: 596 (1990) with David Toms. 4 pp.
8. Gauge Vacua in Yang-Mills-Chern-Simons Theory on Tori and Projective spaces, Physical Review D43: 1956 (1991) with Alan McLachlan and David Toms. 9 pp.
9. Radiatively Induced Chern-Simons terms on the Torus, Physical Review D44: 2552 (1991). 6 pp.
10. Dynamics Of Magnetic Fields in Maxwell, Yang-Mills and Chern-Simons theories on the Torus, Int. J. Mod. Phys. A8: 2623 (1993). 58 pp.
11. Is there a phase transition in Maxwell-Chern-Simons theory? Phys. Rev. D48: 1808 (1993) with D.J. Toms and N. Tveten
12. Fermions near two dimensional surfaces, Phys. Rev. A48:1861 (1993) with B. Jensen
13. Classical optics in Maxwell-Chern-Simons theory, Phys. Rev. B48: 12912 (1993) with J.M. Leinaas and O. Løvrvik.
14. Gauge Invariance and Disequilibrium in Chern-Simons Theory, Proceedings of the Third Workshop on Thermal Fields and their Applications, Alberta, Canada. 1993
15. Chern-Simons Diffusion Layers: Short wavelength behaviour determined by gauge invariance. Phys. Rev. Lett 72 2823 (1994)
16. Renormalization and the action principle. Int. J. Mod. Phys. A11, no. 19 1996. p. 3549
17. Boundaries and junctions in two parity violating models in (2+1) dimensions. Phys. Rev. B52, 5052-5062, 1995
18. Chern-Simons vortices in an open system. Phys. Rev. D52, 1165-1168, 1995.
19. Quantum fields in disequilibrium: neutral scalar bosons with long-range inhomogeneous perturbations. Phys. Rev D52 7103-7120, 1995 (No. 12)
20. Squeezed inhomogeneities in a quantum field. Phys. Rev. D55, 951 (1997)
21. Simulating physics in two dimensions, with H. Haugerud and A. Strandlie, Computers in physics 12, no.3., 274 1998

22. The effective action for a generalized Jaynes-Cummings model, *Can. J. Phys.* 76, 539 1998
23. Effective field theory of resonant 2-level atoms (unpublished).
24. Effective field theories of non-equilibrium physics, *Proceedings of the 5th Workshop on Thermal Fields*.
25. Non-equilibrium action principles for quasi-fields, Invited contribution to special edition of *Condensed Matter Physics* (2000) Vol (3), No. 1(21) pp. 35-50
26. Thermal, non-equilibrium phase space for networked computers, *Phys. Rev. E* (2000)62:1738
27. The kinematics of distributed computing, *Int. J. Mod Phys. C*12 759-789 (2001)
28. Covariant approach to equilibration in effective field theories, *Can. J. Phys.* 80(2) 97-107 (2002), with M. Carrington and G. Kunstatter

Patents

1. (255033US) (“T-rank 3”), *A Method, System and Computer Program Product for Ranking Documents Using Link Analysis, Without Sinks*, with G. Canright and K. Engø-Monsen.

Lecturing and tutoring experience

I have been teaching students at university level, both graduate and undergraduate, in England and in Norway since 1987. I have taught physics, mathematics and computer science. All of the courses I teach are built up from scratch by me. I never adopt other persons’ courses and I seldom recommend any single textbook. Rather I provide my own notes in a manner which I consider to be pedagogically defensible and recommend a variety of sources, if possible.

1. 3 weeks teaching at school level, ages 11-18, general science and mathematics.
2. Tutorial advisor, University of Newcastle, 1987-1990, mechanics, electromagnetism, mathematics, special relativity and atomic and nuclear physics.
3. Cambridge Technopark, hired lecturer, Acorn Computers 1988,1989
4. Graduate lectures, University of Oslo, dept of physics, 1991-1994
5. An introduction to covariant field theory, Oslo 1991, postgraduate course
6. Anyons and Chern-Simons Theory, Oslo 1992, postgraduate course
7. Renormalization in Field Theory., Oslo 1993, postgraduate course
8. Oslo University College (Høgskolen i Oslo), 1995-
9. Introduction to operating systems., Oslo 1994. Undergraduate.

10. Unix programming, Oslo 1994. Undergraduate.
11. Tutorial advisor in linear algebra, Oslo 1995. Undergraduate.
12. Crash course in linear algebra, Oslo 1995. Undergraduate.
13. Systems Administration, Oslo 1997,1998,1999,2000. Undergraduate. 70
14. Computer Security, Oslo 1999-. Masters.
15. Networking: technologies and principles, Oslo 2003-. Masters
16. Networking Laboratory, Oslo 2003-. Masters
17. Analytical Network and System Administration, Oslo 2003-. Masters
18. Christmas lecture, Faculty of Engineering, Oslo college, 1999.

My courses are available on the World Wide Web, and I receive a considerable amount of E-mail from all around the world thanking me for these course materials, which are normally available both in English and Norwegian. I am often asked to lecture at private companies, but usually have to turn down these offers due to lack of time.

External Examiner for doctorates

Gary Huish, Newcastle, England 1994: Renormalization of quantum field theory in 3d curved spacetime
 Erling Hohler, NTNU, Norway, 1995: Relativistic Field Equations with exponential interactions

Student supervision

I no longer try to keep track of this. There have been numerous students since 1992. I now have two PhD students:

- Kyrre Begnum
- Siri Fagernes

External Examiner/Moderator

1. University College Molde, Norway, drift av datasystemer, 1998,1999,2000,2003. Written.
2. University College Gjøvik, Norway, drift av datasystemer, 1998,1999,2002. Written.
3. Oslo University, Norway, Classical theoretical physics,(fys301) 1997,1998,1999,2000. Oral.
4. Oslo University, Norway, Relativistic quantum mechanics, (fys305) 1999. Oral.
5. Oslo University, Norway, Quantum mechanics, (fys201) 1999. Oral.

6. Oslo University, Norway, Numerical methods, (fys210) 2000. Oral.
7. Oslo University, Norway, Quantum Mechanics, external moderator 2004-2006.

Lecture materials

I research and develop my own materials for every course that I teach, based on whatever material is available. This is the only way I know to be a competent teacher. I prepare each lecture in detail, every year. I have written several books and compendia of notes, where existing materials were inadequate or poorly suited. (See publications) These materials are widely used all around the world.

1. Operating systems, course compendium. (1994-)
2. Unix programming, course compendium. (1994-)
3. Operativsystemer og Unix, oppgavekompendium for selvstudium. (1996)
4. System administration course compendium (1997)
5. Network and System administration textbook (2000)
6. Computer Security Course, adopted by INFOSEC (2001)
7. Computer Security Course, IEEE/IM (2003)
8. Networking: principles and technologies (2003)
9. High Volume Services Handbook (2003-)
10. Network Infrastructure and Security Lab Handbook (2004-)
11. Analytical Network and System Administration Workbook (2005-)

I am also coordinating and quality-assuring all of the Masters level courses at Oslo University College.

Pedagogical committees etc

I am a member of the international SAGE system administration certification committee, and am a regular member in committees within Oslo University College. I am currently planning a course in collaboration with the department of chemistry on Bio-information, incorporating Bioinformatics and information theory applied to biological systems.