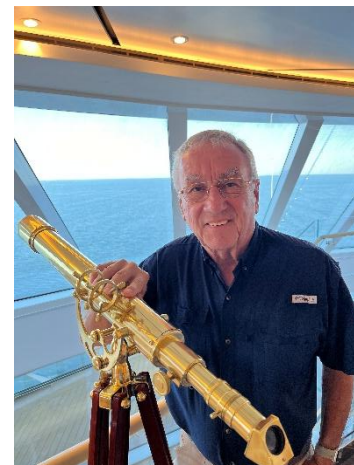


Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Personal Data:

Email: rod goodman @ gmail .com
Website: www.rod.goodman.name
Phone (626) 922 4478
Citizenship: US Citizen.
Education: B.Sc., Honors, Electrical. Engineering, University of Leeds, U.K., 1968.
Ph.D., Electronics, University of Kent at Canterbury, U.K., 1976,
Advisor: Prof. P.G. Farrell.
Professional: C.Eng., FIET, FIEEE.



Career:

2024- Distinguished Professor of Practice, College of Charleston
2002- CEO Gaea Corporation, CEO Trimension Technologies.
1994-2001 Professor of Electrical Engineering, California Institute of Technology.
1994-1996 Director, Center for Neuromorphic Systems Engineering, National Science Foundation
Engineering Research Center, California Institute of Technology.
1989-2001 Faculty, Computation and Neural Systems Program.
1985-1993 Associate Professor of Electrical Engineering with tenure, California Institute of Technology,
Pasadena, California.
1982-1985 Senior Lecturer (Associate Professor), Dept. of Electronic Engineering, University of Hull, U.K.
1975-1982 Lecturer (Assistant Professor, tenure 1978), Dept. of Electronic Engineering, University of Hull,
U.K.
1972-1975 Lecturer (Assistant Professor), Department of Electrical Engineering, Kingston-upon-Thames
Polytechnic, U.K.
1971-1972 Tutorial Fellow, Electronics Laboratories, University of Kent at Canterbury, U.K.

Research Interests:

Intelligent information processing systems: Neural networks, machine learning, pattern recognition, data mining, neuromorphic and biologically inspired processing systems, VLSI and MEMS, microprocessors and embedded systems, AI methodologies, robotics, collective robotics, swarm intelligence, machine consciousness, machine vision and distributed computation, biomedical applications.

Communications systems: Information theory, error control coding, data compression, distributed and mobile networks, Ultra Wideband Wireless, Ad Hoc Networks, RFID, RTLS.

Teaching Interests:

I have taught communications and computation courses that appear in most EE/CS undergraduate, masters, and Ph.D. programs including digital systems, microprocessors, analog electronics, circuit theory, linear systems theory, signals and systems, computer architecture, software engineering, introduction to programming languages, communications, and VLSI. I have always implemented significant practical laboratory components into these courses, including lab experiments, simulation design, and hardware design projects. I have supervised senior projects lab and senior experimental and theoretical theses. Graduate level courses include: information theory and coding, cryptography, digital communications and networks, neural networks and pattern recognition, machine learning, signal and image processing, robotics, computation and neural systems, swarm intelligence and collective robotics. I have also taught Amateur Radio Courses for the Technician, General, and Expert levels. I am also a American Sailing Association (ASA) instructor, and have taught their sailing courses at all levels.

Industrial Interests:

Startup formation, industrial/university/government labs liaison, research parks, incubators. Knowledge of startup funding sources such as venture capital, SBIRs, and state/federal/private foundation entrepreneurial programs. Knowledge of technology company formation and operations.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Professional Memberships and Activities:

- Chartered Electrical Engineer and Fellow of the Institution of Engineering and Technology (IET, U.K.),
- Fellow of the Institution of Electrical and Electronic Engineers. (IEEE).
- Reviewer for IEEE (U.S.A.), and IEE and IERE (U.K.) journals including: IEEE Transactions on Information Theory, Computers, Neural Networks, Pattern Analysis and Machine Intelligence, Proceedings of the IEEE, Proceedings of the IEE, Electronics Letters, Neural Computation.
- Reviewer for proposals to NSF, ARO, AFOSR, ONR, DARPA.
- Have served as North American editor of *Neural Computing and Applications*, Springer International.
- Have served on various organizing and program committees for: IEEE International Information Theory Symposium, Neural Information Processing Systems (NIPS), NIPS Foundation, International Joint Conference on Neural Networks (IJCNN), Neural Networks for Computing/Machines that Learn (Snowbird), IFIP International Symposium on Integrated Network Management (ISINM), International Symposium of Circuits and Systems (ISCAS), International Workshop on Applications in Neural Networks in Telecommunications (IWANNT), Frontiers in Distributed Information Systems (FDIS), International workshop on “Can a Machine be Conscious” – Cold Spring Harbor.
- Ph.D. Students: Have advised a total of 25 Ph.D. graduate students, and six Post-doctoral students.
- Publications: A total of over 250 patents and publications in journals and conference proceedings. Erdos No 2.
- Research Grants: Have attracted over \$7M in research grants since 1985 to support the Goodman research lab at Caltech.
- Was the responsible Principal Investigator for winning a National Science Foundation (NSF), Engineering Research Center (ERC) for Caltech. Was responsible for administering this award of \$11M over 5 years, and served as the center Director for its first two years of operation, and director of industrial liaison thereafter. These are national centers of excellence, and the Caltech Center for Neuromorphic Systems Engineering, together with its educational component, the Computation and Neural Systems graduate degree program is at the forefront of this field. The mission of this Center is to develop the technologies necessary for endowing the machines with the human-like senses of vision, audition, touch, and smell (chemical sensing), and applying these to autonomous robots.
- Have acted as technical consultant for a variety of government and commercial organizations in both the UK and the USA.
- Amateur Radio Licensed Operator (Expert Level), Callsign: K3ROD.
- USCG Captain’s License: 100 Ton Master #2677339.
- Startup Companies: Have been responsible for founding six technology startup companies in the UK and the USA. Have been responsible for attracting private, government, and venture capital startup funds for these companies and have served on their boards of directors. Have also acted as technical consultant to these companies.

Honors and Awards:

- Undergraduate Class of 1968 project prize, Institution of Electrical Engineers of Great Britain, 1968.
- Member of the Institution of Electrical Engineers of Great Britain and Chartered Engineer, 1979.
- Paper Prize: The 1980 Marconi Premium of the IEE of Great Britain (With P.G.Farrell)
- NATO Senior Scientist Awards, 1981 and 1983.
- Research Fellow of the Royal Society of Great Britain, Microcomputer Synthesis of Speech and Music, 1982-84.
- Research Fellow of the Leverhulme Trust of Great Britain, Knowledge-Based Personal Information Systems, 1984.
- NASA Tech Brief Awards: 1990, 1991.
- Fellow of the Institution of Engineering and Technology of Great Britain, 2002.
- Fellow of the Institution of Electrical and Electronic Engineers, 2004.
- Carnegie Trust Centenary Millenium Professorship 2008.
- Visiting Professor University of Edinburgh, Scotland, UK.
- Visiting Professor University of the West of England, Bristol, UK.
- Distinguished Professor of Practice 2024, College of Charleston, Charleston SC, USA.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Ph.D. Students Advised:

Hull University UK-

| | | |
|----------------|--------------|---|
| W.H. Ng | EE PhD, 1978 | Optimization of Decoding Procedures for Convolutional Codes. |
| K.A. Salloum | EE PhD, 1983 | Error Control Coding for a Multi-Level HF Data Transmission Modem. |
| A.F.T Winfield | EE PhD, 1984 | Maximum-Likelihood Sequential Decoding of Convolutional Error Correcting Codes. |
| A.J. McAuley | EE PhD, 1985 | Public Key Cryptosystems – Theory, Application, and Implementation. |

Caltech-

| | | |
|---------------------|---------------|--|
| Padhraic Smyth | EE PhD, 1988 | The Application of Information Theory to Problems in Decision Tree Design and Rule-Based Expert Systems. |
| Tsi-Dar Chiueh | EE PhD, 1989 | Pattern Classification and Associative Recall by Neural Networks. |
| Sean Coffey | EE PhD, 1989 | On Complexity and Efficiency in Encoding and Decoding Error Correcting Codes. |
| Kathleen Kramer | EE PhD, 1991 | Large Operand Division and an Asynchronous Approach to Fault Detection. |
| John W. Miller | EE PhD, 1992 | Building Probabilistic Models from Databases. |
| Masahiro Sayano | EE PhD, 1992 | Analyses of Coding and Compression Strategies for Data Storage and Transmission. |
| Andrew J. Moore | CNS PhD, 1992 | Spatial Filtering in Tone Reproduction and Vision. |
| Charles Higgins | EE PhD, 1993 | Classification and Approximation with Rule-based Networks. |
| Hayit Greenspan | EE PhD, 1993 | Multi-resolution Image Processing and Learning for Texture Recognition and Image Enhancement. |
| Gamze Erten Salam | EE PhD, 1993 | An Analog VLSI Architecture for Stereo Correspondence. |
| Zheng Zeng | EE PhD, 1994 | Recurrent Neural Networks for Grammatical Inference. |
| Barry Ambrose | EE PhD, 1995 | Dynamic Routing of Telephone Traffic Using Network Management Tools. |
| John Cortese | EE PhD, 1995 | Stochastic Computation. |
| Bhusan Gupta | EE PhD, 1997 | Analog VSLI for Active Drag Reduction. |
| Jeff Dickson | EE PhD, 1999 | Adaptive Systems in CMOS Analog VLSI. |
| David Babcock | EE PhD, 1999 | Intelligent Control Using Generalizing Case-Based Reasoning with Neural Networks. |
| Randy Spangler | EE PhD, 1999 | Rule-Based Analysis and Composition of Music. |
| Cindy Daniell | EE PhD, 2000 | Object Recognition in Compressed Imagery. |
| Sanza T. Kazadi | CNS PhD, 2000 | Swarm Engineering. |
| Samuel Tang | EE PhD, 2001 | Neuromorphic VLSI Circuits for an Electronic Nose Chip. |
| Vincent Koosh | EE PhD, 2001 | Analog Computation and Learning in VLSI. |
| John Lindal | EE PhD, 2001 | An Investigation of Classification Algorithms for an Autonomous Software Agent for Locating Information on the World Wide Web. |
| Adam Hayes | CNS PhD, 2002 | Self-Organized Robotic System Design and Autonomous Odor Localization. |
| William Agassounon. | EE PhD, 2003 | Modeling Artificial, Mobile Swarm Systems. |

Post-Docs Advised:

| | | |
|--------------------|-----------|---|
| Tony McAuley | 1985-1988 | VLSI processors and asynchronous logic. |
| Dawei Dong | 1995-96 | Neural networks for automotive drivetrain applications. |
| Alcherio Martinoli | 1999-2001 | Collective robotics. |
| Jeff Dickson | 1999-2001 | Nose chips. |
| Vincent Koosh | 2001-2001 | Analog VLSI. |
| Ian Kelly | 2001-2001 | Robot hardware systems. |

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Academic Research Grants:

| | | | |
|---------|-------------------------|-------------|--|
| 1978 | S.E.R.C. (U.K.) | £8,500 | Minimum Distance Decoding of Long Convolutional Codes. |
| 1979 | S.E.R.C. (U.K.) | £7,700 | Error Correction Coding for Large Semiconductor Memories. |
| 1981 | NATO | £5,000 | Error Control Coding. |
| 1981 | S.E.R.C. (U.K.) | £10,000 | Maximum Likelihood Decoding of Long Convolutional Codes. |
| 1982 | Nuffield Found (U.K.) | £5,000 | VLSI Education Using Computer Assisted Learning. |
| 1982 | Royal Society | £10,000 | Microcomputer Speech and Music. |
| 1983 | GEC | £71,000 | (at GEC Hirst Research Center), VLSI RSA Public Key Cryptosystem. |
| 1983 | NATO | £5,000 | Coding for VLSI Memories. |
| 1984 | Leverhulme Trust (U.K.) | £5,000 | Development of a Knowledge Based Personal Information System. |
| 1984 | S.E.R.C. (U.K.) | £22,000 | VLSI Implementation of Convolutional Error Control Decoders. |
| 1985 | Caltech | \$80,000 | Microsystems Lab startup funds. |
| 1985-87 | PAT | \$71,729 | Program in Advanced Technologies sponsored by Aerojet, General Motors, and TRW: On Chip Error correction Coding for VLSI RAMs and Wafer Scale Integration. |
| 1986 | Tektronix | \$29,600 | Equipment Donation: Logic Analyzers. |
| 1986 | IBM | \$48,000 | Discretionary funds: Image processing equipment purchase. |
| 1986 | Fluke Mfg. Co. | \$15,000 | Equipment Donation: Lab instrumentation. |
| 1986-87 | JPL | \$10,000 | Efficient Error Correcting Spacecraft Memory. |
| 1986-87 | JPL | \$45,340 | JPL Director's Discretionary Fund: Maximum Likelihood Decoding of Long Constraint Length Convolutional Codes. |
| 1987-88 | Pacific Bell | \$42,000 | Expert Systems for Real Time Network Management. |
| 1987-89 | PAT | \$73,700 | Program in Advanced Technology sponsored by Aerojet, General Motors, and TRW: Information Theoretic Approach to Expert Systems. |
| 1987-89 | NSF | \$90,000 | Undergraduate creativity award Expert Systems in VLSI Design. |
| 1988 | Hewlett-Packard | \$26,430 | Equipment donation: Communications instrumentation. |
| 1988 | Xerox | \$10,000 | Discretionary funds: Computer Vision System purchase. |
| 1988 | Fluke Mfg. Co. | \$3,620 | Equipment Donation: Lab multimeters. |
| 1988-89 | Pacific Bell | \$90,000 | Expert Systems for Real Time Network Management. |
| 1988-90 | NSF | \$142,328 | Architectures for Error Control in VLSI Random Access Memory Systems. |
| 1989-90 | JPL | \$71,400 | JPL Directors Discretionary Fund: Source Coding using Neural Vector Quantizers. |
| 1989-91 | ARO | \$200,000 | An Information Theoretic Approach to Rule Based Expert Systems. |
| 1990 | Apple Computer | \$32,603 | Equipment donation: Macintosh computers and peripherals. |
| 1990 | Silicon Compiler Sys. | \$120,000 | Equipment donation: GDT automated VLSI design software. |
| 1990 | Pacific Bell | \$85,400 | Discretionary funds: Purchase of Sun Computers. |
| 1990 | Caltech | \$120,000 | Discretionary funds: Resdesign of EE14 Electronics Teaching Laboratory. |
| 1990-91 | Pacific Bell | \$100,000 | Expert Systems for Real Time Network Management |
| 1990-92 | DARPA | \$394,118 | Neural Networks Initiative: An Information Theoretic Approach to Distributed Inference and Learning. |
| 1991-92 | ARO | \$50,000 | Development of ITRULE algorithms. |
| 1992-93 | Pacific Bell | \$50,000 | Expert Systems for Real Time Network Management. |
| 1992-95 | AFOSR | \$146,899 | Real Time Adaptive VLSI Neural Classifiers. |
| 1993-94 | NYNEX | \$40,000 | Automatic Methods of Knowledge Acquisition. |
| 1993-95 | ONR-ASSERT | \$157,532 | Hybrid Neural/Fuzzy Reasoning System. |
| 1993-98 | AFOSR | \$3,872,461 | University Research Initiative (URI): Integrated Microtransducer and Neural Network Systems for Distributed Control. Goodman lab amount: \$760,000 over 4 years. |

Rodney M. Goodman

Curriculum Vitae

April 3, 2025

| | | | |
|---------|-----------------------|--------------|---|
| 1994-96 | ONR | \$1,169,300 | Hybrid Neural Vision System for Image Classification and Recognition. |
| 1994-99 | NSF | \$11,000,000 | Center for Neuromorphic Systems Engineering, Engineering Research Center. Goodman lab award \$1,250,000 over 5 years. |
| 1994 | State of California | \$250,000 | Engineering Research Center. Matching funds. |
| 1994 | Caltech | \$80,000 | Engineering Research Center. Matching funds. |
| 1994 | Intel | \$60,000 | Neural computing. |
| 1995 | AGL | \$40,000 | Expert Systems in Telecommunications. |
| 1995 | Intel | \$20,000 | Neural computing. |
| 1996 | Honeywell | \$40,000 | Neural networks. |
| 1997 | Nortel | \$60,000 | Neural networks for communications networks applications. |
| 1997 | Honeywell | \$40,000 | Neural networks for condition monitoring. |
| 1997 | General Motors | \$33,000 | Neural networks for automotive applications. |
| 1997-98 | DURIP | \$173,754 | Instrumentation for Testing of Low Power Electronics. |
| 1997-00 | ONR/AASERT | \$183,478 | A Hybrid Neural Vision System for Image Classification and Recognition. |
| 1997-00 | ARO/DARPA | \$4,647,795 | A Conducting Polymer-Based Electronic Nose for Landmine Detection. (Goodman lab: \$897,949). |
| 1998-00 | ONR/DARPA | \$500,000 | Chemical Plume Tracing via Collective Autonomous Robotics |
| 1998-00 | ARO/DARPA | \$400,000 | Distributed Robotics. |
| 1998 | Nortel | \$40,000 | Intelligent Network Management. |
| 1998-01 | ARO | \$2,600,093 | MURI: Understanding Olfaction from Detection to Classification. (Goodman lab: \$363,351) |
| 1998 | Honeywell | \$40,000 | Neural networks. |
| 1999-00 | AFOSR | \$111,040 | Distributed Turbulent Flow Control by MEMS and Neural Networks. |
| 1999 | Nortel | \$40,000 | Intelligent Network Management for Cable Modem Networks. |
| 2000-02 | IMLS | \$461,011 | American Archive Digitization Project. |
| 2000 | Nortel | \$40,000 | Ant-based routing Algorithms for Network Traffic Flow. |
| 2000 | TRW Foundation | \$20,000 | Optimal Task Allocation in Collective Robotics. |
| 2000 | TRW | \$25,000 | Swarm Sensing. |
| 2000 | Delphi-Delco | \$65,000 | Integrated Safety Systems through Swarm Intelligence. |
| 2001 | Florence Gould Found. | \$20,000 | Handwriting Recognition. |
| 2001 | Delmas Foundation | \$30,000 | Cursive Handwriting Recognition. |

Startup Companies:

1980. Electronic Automation Ltd. Hull, UK. Founder and Board Member. Automated visual inspection hardware and software for manufacturing.
- 1982 Advanced Processor Design (APD) Ltd Hull UK. Founder and Board Member. (Now part of Lynx Group PLC). Integrated communications/IT networks for public safety, public transport, and logistics. FORTH machine, Arithmetic Stack Processor (ASP) RISC chip.
- 1995 AGL Inc. Pasadena, CA, USA. Founder and Board Member. (Sold to Nortel Networks) Intelligent network management software.
- 1997 Cyrano Sciences Inc. Pasadena, CA, Founder and Board Member. USA. (Now part of Smiths Detection) Electronic nose technology.
- 2004 InfinID Technologies Inc., Founder and Board Member. RFID, RTLS, Ad-hoc Networks.
- 2008 TixTrack Inc., Founder and Board Member. Ticket Analytics, Dynamic Pricing for Ticket Sales. (Now part of The Nederlander Organization).

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Consulting:

- 1975-1978 Royal Arthritis Society, Canada:
Telemetry systems for Electrogoniometers.
- 1978-1983 Hull Royal Infirmary and Yorkshire Regional Health Area, U.K.:
Telemetry systems for prosthetic hip joints. Nationwide on-line nephrology computer record system.
Kidney donor regional computer network.
- 1976-1985 Sea Fish Industry Association of Great Britain, Edinburgh, U.K.:
Computerized fish auction sales via datatext networks. Electric fishing techniques.
Computer controlled echo sounders.
Automated fish detection using expert systems.
- 1980-1985 Electronic Automation Ltd., Hull, U.K., Founder, Board Member, and Consultant:
Robot vision system for Unimation Inc. Puma robots. Computerized teachable routing machines.
Microprocessor tachographs.
- 1983-1985 Advanced Processor Design Ltd., Hull, U.K., Founder, Board Member and Consultant:
High speed stack based computer architectures. Functional language and AI computer systems.
Network management for on-line computer systems.
- 1983-1985 CairnTech Ltd., Edinburgh, Scotland:
Public key cryptosystems for speech scramblers.
- 1983-1985 British Telecom, Martlesham Research Laboratories, U.K.:
Consultant on CCITT V32 modem and error correction proposals.
Design of high speed data transmission modems and equalizers.
- 1985-1986 Jet Propulsion Laboratory, Pasadena:
Error control coding for deep space communications.
- 1986-1988 Pacific Bell, San Ramon, California:
Network switch software.
- 1989-1992 Jet Propulsion Laboratory, Pasadena:
Network management automation for the JPL ILAN.
Expert systems for monitoring and control of the GPS range datalink system.
Deep Space Network review panel.
- 1992 U.S. Army Chemical Research, Development and Engineering Center, Aberdeen Proving Ground, MD:
Hybrid neural network and expert system software in support of the spectroscopy 6.1 program.
- 1992-1994 Communications Manufacturing Company (CMC), Los Angeles:
Calling Number Delivery (CND) test systems.
Mobile spread spectrum links for test equipment.
- 1995-1997 AGL Inc. Founder and Board Member:
Intelligent network management software.
- 1995-1996 ALCOA:
Visual inspection using neural network techniques.
- 1997-2000 Nortel Networks:
Intelligent network systems.
- 1997- Cyrano Sciences, Founder, Board Member, and Consultant:
Electronic nose technology.
- 2001-2003 IdeaLab!, Consultant:
Autonomous robot technology.
- 2001-2004 StereoVision Inc, Consultant and Advisory Board Member.
3D vision systems.
- 2002-2003 Calhoun Vision:
MEMS applications to contact lens technology.
- 2004-2013 InfinID Technologies Inc. Founder and Board Member.
RadioFrequency ID and location Systems. (RFID, RTLS)
- 2008- TixTrack Inc. Founder and Board Member.
Ticket Analytics, Dynamic Pricing for Ticket Sales.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Publications

Rod Goodman B.Sc., Ph.D., C.Eng., FIET, FIEEE.

Patents

29. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, "System and Method for Pricing Secondary Inventory," U.S. Patent 12,014,388, June 18, 2024.
28. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 11,681,956 June 20, 2023.
27. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, "System and Method for Pricing Secondary Inventory," U.S. Patent 11,354,688, June 7, 2022.
26. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 11,107,012, August 31, 2021.
25. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 11,100,432, August 24, 2021.
24. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 11,087,243, August 10, 2021.
23. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 10,963,818, March 30, 2021.
22. Steven A. Sunshine, Rod Goodman, Michael Arya, "Display Panel or Portion Thereof with Graphical User Interface," U.S. Patent D874,487 S, February 4, 2020.
21. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 10,423,894, September 24, 2019.
20. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 10,423,895, September 24, 2019.
19. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 10,192,174, January 29, 2019.
18. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, "Display Screen or Portion of a Display Screen with a Computer Generated Venue Map and a Pop-Up Window Appearing in Response to an Electronic Pointer," U.S. Patent D838,288 S, January 15, 2019.
17. Steven A. Sunshine, Rod Goodman, Michael Arya, "Display Panel or Portion Thereof with Graphical User Interface," U.S. Patent D763,860 S, August 16, 2016.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

16. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 8,639,541, January 28, 2014.
15. Steven A. Sunshine, Rod Goodman, Michael Arya, Larry Chu, Michael Ripberger, "Sports and Concert Event Ticket Pricing and Visualization System," U.S. Patent 8,126,748, February 28, 2012.
14. Rodney M. Goodman, Barry E. Ambrose, "Active ID Tags for Increased Range and Functionality," U.S. Patent 8,094,022, January 10, 2012.
13. Rodney M. Goodman, Nathan S. Lewis, Robert H. Grubbs, Jeffrey Dickson, Vincent F. Koosh, Richard S. Payne, "Techniques and Systems for Analyte Detection," U.S. Patent 7,550,310, June 23, 2009.
12. Rodney M. Goodman, Nathan S. Lewis, Robert H. Grubbs, Jeffrey Dickson, Vincent F. Koosh, Richard S. Payne, "Techniques and Systems for Analyte Detection," U.S. Patent 7,061,061, June 13, 2006.
11. Patricia A. Keaton, Rodney M. Goodman, "Image and Video Indexing Scheme for Content Analysis," US Patent 7,046,851, May 16, 2006.
10. Rodney M. Goodman, Karen Emerson, Jeffrey Dickson, "Television Advertising Automated Billing System," US Patent 7,039,930, May 2, 2006.
9. Rodney M. Goodman, Donald J. Woods, Patricia A. Keaton, Joseph Chen, "Handwriting Recognition by Word Separation into Silhouette bar Codes and other Feature Extraction," U.S. Patent 6,917,708 July 12, 2005.
8. Rodney M. Goodman, "Electronic Techniques for Analyte Detection," U.S. Patent 6,746,960, June 8, 2004.
7. Rodney M. Goodman, Vincent F. Koosh, Jeffrey Dickson, "Electronic Techniques for Analyte Detection," U.S. Patent 6,627,154, September 30, 2003.
6. Rodney M. Goodman, Nathan S. Lewis, Robert H. Grubbs, Jeffrey Dickson, Vincent F. Koosh, Richard S. Payne, "Techniques and Systems for Analyte Detection," U.S. Patent 6,495,892, December 17, 2002
5. Rodney M. Goodman, Karen Emerson, Jeffrey Dickson, "Television Advertising Automated Billing System," US Patent 6,173,271, January 9, 2001.
4. Rodney M. Goodman, Randall R. Spangler, "Music Composition," U.S. Patent 5,883,326, March 16, 1999.
3. Rodney M. Goodman, Randall R. Spangler, "Music Composition," U.S. Patent 5,736,666, April 7, 1998.
2. Anthony McAuley, Rod Goodman, "Arithmetic Stack Processor which Pre-calculates External Stack Address Before Needed by CPU for Building High Level Language Computers," U.S. Patent No. 5,187,799, February 16, 1993.
1. A.F.T. Winfield, R.M.F. Goodman "Data Processing System," U.S. Patent No. 4,974,157, November 27, 1990.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

Journal Papers

46. O. Holland, and R. Goodman, “Robots with Internal Models: A Route to Machine Consciousness?,” *Journal of Consciousness Studies*, Special Issue on Machine Consciousness, Vol. 10, No. 4-5, pp. 77-109, April/May 2003.
45. C. Daniell, A. Mahalanobis, and R. Goodman, “Object Recognition in Subband Transform Compressed Images Using Correlation Filters,” *Applied Optics-Information Processing*, Vol. 42, Issue 32, November 2003.
44. A.T. Hayes, A. Martinoli, and R.M. Goodman, “Swarm Robotic Odor Localization: Off-Line Optimization and Validation with Real Robots,” *Robotica*, Special issue on Biological Robotics, Vol. 21, No. 4, pp. 427-441, August 2003.
43. A.T. Hayes, A. Martinoli, and R.M. Goodman, “Distributed Odor Source Localization,” *IEEE Sensors Journal*, Special Issue on Electronic Nose Technologies, Vol. 2, No. 3, pp. 260-217, June 2002.
42. V. F. Koosh, and R.M. Goodman, “Analog VLSI Neural Network with Digital Perturbative Learning,” *IEEE Transactions on Circuits and Systems II*, Vol. 49, No. 5, pp. 359-368, May 2002.
41. S. Kazadi, A. Abdul-Khaliq, R. Goodman, “On the Convergence of Puck Clustering Systems,” *Robotics and Autonomous Systems*, 38 (2), pp. 93-117, 2002.
40. S. Kazadi, R. Goodman, D. Tsikata, and H. Lin, “An Autonomous Water Vapor Plume Tracking Robot Using Passive Resistive Polymer Sensors,” *Autonomous Robots*, Vol. 9, No. 2, pp. 175-188, 2000.
39. Lee, C., Kim, J., Babcock, D., and Goodman, R. “Application of Neural Network to Turbulence Control for Drag Reduction”, *Phys. Fluids*, Vol.9, pp. 1740-1747, 1997.
38. B. Gupta, R. Goodman, F. Jiang, Y-C. Tai, S. Tung, C-M, Ho, “Analog VLSI System for Active Drag Reduction,” *IEEE Micro*, Vol. 16, No. 5, pp. 53-59, October 1996.
37. B.E. Ambrose and R.M. Goodman, “Neural Networks Applied to Traffic Management in Telephone Networks,” *Proceedings of the IEEE*, Vol. 84, No. 10, pp. 1421-1430, October 1996.
36. G. Erten and R.M. Goodman, “Analog VLSI Implementation for Stereo Correspondence Between 2-D Images,” *IEEE Transactions on Neural Networks*, Vol. 7, No. 2, pp. 266-277, March 1996.
35. R.M. Goodman and B.E. Ambrose, “Stability of Traffic Patterns in Broadband Networks,” *Journal of Network and Systems Management*, Special Issue on Routing in Broadband Networks, Vol. 3, No. 4, pp. 371-380, December 1995.
34. Z. Zeng, R.M. Goodman P. Smyth, “Discrete Recurrent Neural Networks for Grammatical Inference,” *IEEE Transactions on Neural Networks*, Special Issue on Dynamic Recurrent Neural Networks: Theory and Applications, Vol. 5, No. 2, pp. 320-330, March 1994.

Rodney M. Goodman

Curriculum Vitae

April 3, 2025

33. C.M. Higgins and R.M. Goodman, "Fuzzy Rule-Based Networks for Control," *IEEE Transactions on Fuzzy Systems*, Vol. 2, No. 1, pp. 82-88, February 1994.
32. H. Greenspan and R.M. Goodman, R. Chillappa, C. Anderson, "Learning Texture Discrimination Rules in a Multiresolution System," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Special Issue on Learning in Computer Vision, Vol. 16, No. 9, pp. 894-901, September 1994.
31. Z. Zeng, R.M. Goodman and P. Smyth, "Learning Finite State Machines with Self-Clustering Recurrent Networks," *Neural Computation*, Vol. 5, No.6, pp. 976-990, November 1993.
30. J. W. Miller, R.M. Goodman and P. Smyth, "On Loss Functions which Minimize to Conditional Expected Values and Posterior Probabilities," *IEEE Transactions on Information Theory*, Vol. 39, No. 4, pp. 1404-1408, July 1993.
29. R. M. Goodman and P. Smyth, "Automated Induction of Rule-Based Neural Networks from Databases," *International Journal of Intelligent Systems in Accounting, Finance and Management*, Special Issue on Neural Networks, Vol. 2, No. 1, pp. 41-54, 1993.
28. R.M. Goodman, R.J. McEliece and M. Sayano, "Phased Burst Error Correcting Array Codes," *IEEE Transactions on Information Theory*, Vol. 39, No. 2, pp. 684-693, March 1993.
27. R.M. Goodman, P. Smyth, C.M. Higgins & J. Miller, "Rule-Based Neural Networks for Classification and Probability Estimation," *Neural Computation*, Vol. 4, No. 6, pp. 781-804, November 1992.
26. P. Smyth and R.M. Goodman, "An Information Theoretic Approach to Rule Induction from Databases," *IEEE Transactions on Knowledge and Data Engineering*, Vol. 4, No. 4, pp. 301-316, August 1992.
25. R.M. Goodman and M. Sayano, "The Reliability of Semiconductor RAM Memories with On-Chip Error Correction Coding," *IEEE Transactions on Information Theory*, Special Issue on Coding for Storage Devices, Vol. 37, No. 3, pp. 884-896, May 1991.
24. A. Moore, J. Allman and R. Goodman, "A Real-time Neural System for Color Constancy," *IEEE Transactions on Neural Networks*, Vol. 2, No. 2, pp. 237-247, March 1991.
23. T. Chiueh and R.M. Goodman, "Recurrent Correlation Associative Memories," *IEEE Transactions on Neural Networks*, Vol. 2, No. 2, pp. 275-284, March 1991.
22. T. Chiueh, R.M. Goodman and M. Sayano, "A Static RAM Chip with On-Chip Error Correction," *IEEE Journal of Solid-State Circuits*, Vol. 25, No. 5, pp. 1290-1294, October 1990.
21. R.M. Goodman and M. Sayano, "Size Limits on Phased Burst Error Correcting Array Codes," *Electronics Letters*, Vol. 26, No. 1, pp. 55-56, January 1990.
20. J.T. Coffey, R.M. Goodman, and P.G. Farrell, "New Approaches to Reduced-Complexity Decoding," *Discrete Applied Mathematics*, Vol. 33, pp. 43-60, 1991.
19. R.M. Goodman and P. Smyth, "Decision Tree Design Using Information Theory," *Knowledge Acquisition*, Vol. 4, No. 1, pp. 1-26, 1990.
18. J.T. Coffey and R.M.F. Goodman, "The Complexity of Information Set Decoding," *IEEE Transactions on Information Theory*, Vol. 36, No. 5, pp. 1031-1037, September 1990.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

17. J.T. Coffey and R.M.F. Goodman, "Any Code of Which we Cannot Think is Good," *IEEE Transactions on Information Theory*, Vol. 36, No. 6, pp. 1453-1461, November 1990.
16. R.M. Goodman, P. Smyth, and Hayes Latin, "Real Time Autonomous Expert Systems in Network Management," *Office: Technology & People*, Vol. 5, No. 3, pp. 205-228, 1989.
15. R.M. Goodman and A.J. McAuley, "An Arithmetic-Stack Processor for High Level Language Execution," *Journal of Forth Applications & Research*, Vol. 5, No. 4, pp. 469-492, 1989.
14. R.M.F. Goodman and P. Smyth, "Decision Tree Design from a Communication Theory Standpoint," *IEEE Transactions on Information Theory*, Vol. 34, No. 5, pp. 979-994, September 1988.
13. M. Blaum, R.M.F. Goodman and R.J. McEliece, "The Reliability of Single-Error Protected Computer Memories," *IEEE Transactions on Computers*, Vol. 37, No. 1, pp. 114-119, January 1988.
12. T. Fuja, C. Heegard and R.M. Goodman, "Linear Sum Codes for Random Access Memories" *IEEE Transactions on Computers*, Vol. 37, No. 9, pp. 1030-1042, September 1988.
11. R.M.F. Goodman and A.J. McAuley, "New Trapdoor-Knapsack Public-Key Cryptosystem," *Proceedings of the IEE*, Vol. 132, Pt. E, No. 6, pp. 289-292, November 1985.
10. R.M.F. Goodman and R.J. McEliece, "Lifetime Analyses of Error-Control Coded Semiconductor RAM Systems," *Proceedings of the IEE*, Vol. 129, Pt. E, No. 3, pp. 81-85, May 1982.
9. R.M.F. Goodman, G.E. Taylor, and A.F.T. Winfield, "An Advanced Electronics Teaching Laboratory," *International Journal on Electrical Engineering Education*, Vol. 19, pp. 357-366, 1982.
8. M. Kilvington and R.M.F. Goodman, "In Vivo Hip Joint Forces Recorded on a Strain Gauged "English" Prosthesis using an Implanted Transmitter," *Engineering in Medicine*, Vol. 10, No. 4, pp. 175-187, 1981.
7. R.M.F. Goodman, C. Eng and A.F.T. Winfield, "Soft-Decision Minimum Distance Sequential Decoding Algorithm for Convolutional Codes," *Proceedings of the IEE*, Vol. 128, Pt. F, No. 3, pp. 179-186, June 1981.
6. P.G. Farrell and R.M.F. Goodman, "Soft-Decision Error Control Coding for HF Data Transmission," *Proceedings of the IEE*, Vol. 127, Pt. F, No. 5, pp. 389-399, October 1980.
5. R.M.F. Goodman, "Soft-Decision Decoding of the Teletext Character Code," *Electronics Letters*, Vol. 15, No. 4, pp. 108-109, February 1979.
4. W.H. Ng and R.M.F. Goodman, "Analysis of the Computational and Storage Requirements for the Minimum-Distance Decoding of Convolutional Codes," *Proceedings of the IEE*, Vol. 126, No. 1, pp. 29-34, January 1979.
3. W.H. Ng and R.M.F. Goodman, "An Efficient Minimum Distance Decoding Algorithm for Convolutional Error-Correcting Codes," *Proceedings of the IEE*, Vol. 125, No. 2, pp. 97-103, February 1978.

Rodney M. Goodman

Curriculum Vitae

April 3, 2025

2. R.M.F. Goodman and P.G. Farrell, "Data Transmission with Variable-Redundancy Error Control over a High-Frequency Channel," *Proceedings of the IEE*, Vol. 122, No. 2, pp. 113-118, February 1975.
1. R.M.F. Goodman, "Binary Codes with Disjoint Codebooks and Mutual Hamming Distance," *Electronics Letters*, Vol. 10, No. 18, pp. 390-391, September 1974.

Book Chapters

13. V. Koosh, B. Gupta, D. Babcock, R. Goodman, F. Jiang, Y-C. Tai, S. Tung and C-M. Ho, "Analog VLSI Systems for Drag Reduction" in *Learning on Silicon*, G. Cauwenberghs and M.A. Bayoumi, Eds., Norwell: Kluwer, ISBN 0-7923-8555-1, 1999, pp. 79-101.
12. G. E. Salam and R.M. Goodman, "A Digital Neural Network Architecture Using Random Pulse Trains," in *Silicon Implementation of Pulse Coded Neural Networks*, M.E. Zaghloul, J. L. Meador and R.W. Newcomb, Eds., Boston: Kluwer Academic, ISBN 0-7923-9449-6, 1994, pp. 249-262.
11. T.D. Chiueh and R.M. Goodman, "Recurrent Correction Associative Memories and their VLSI Implementation," in *Associative Neural Memories: Theory and Implementation*, M.H. Hassoun, Ed., New York: Oxford University Press, ISBN 0-19-507682-6, 1993, pp. 276-287.
10. R.M. Goodman, B. Gupta and M. Sayano, "Neural Network Implementation of Adaptive Vector Quantization for Image Compression," in *Communication Theory and Applications I*, B. Honary, M. Darnell, P.G. Farrell, Eds., Communication and Signal Processing Series:1, ISBN 0 901800 25 2, 1993.
9. P. Smyth, J. Statman, G. Oliver and R.M. Goodman, "Combining Knowledge-based Techniques and Simulation with Applications to Communications Network Management," in *Integrated Network Management II*, I. Krishnan and W. Zimmer, Eds., New York: Elsevier Science Publishers, ISBN 0 444 89028 9, 1991, pp. 505-515.
8. R.M. Goodman and H. Latin, "Automated Knowledge Acquisition from Network Management Databases," in *Integrated Network Management II*, I. Krishnan and W. Zimmer, Eds., New York: Elsevier Science Publishers, ISBN 0 444 89028 9, 1991, pp. 541-549.
7. P. Smyth and R.M. Goodman, "Rule Induction using Information Theory," in *Knowledge Discovery in Databases*, G. Piatetsky-Shapiro and W.J. Frawley, Eds., Cambridge: The MIT Press, 1991, pp. 159-176.
6. R.M.F. Goodman, "Processing Techniques in Public Key Cryptosystems," in *The Impact of Processing Techniques on Communications*, J. Skwirzynski, Ed., NATO A.S.I. Series E: Applied Sciences, No. 91, The Hague, Netherlands: Martinus Nijhoff, ISBN 90-247-3160-7, 1985, pp. 465-476.
5. R.M.F. Goodman, "A New Trapdoor-Knapsack Algorithm," in *Lecture Notes in Computer Science*, No. 209, T. Beth, N. Cot, I. Ingemarsson, Eds., Berlin: Springer-Verlag, ISBN 3-540-16076-0, 1985, pp. 150-158.

Rodney M. Goodman

Curriculum Vitae

April 3, 2025

4. R.M.F. Goodman, "Soft-Decision Threshold Decoders," in *Algebraic Coding Theory and Applications*, G. Longo, Ed., CISM Courses and Lectures No. 258, New York: Springer-Verlag, ISBN 0-387-81544-9, 1979, pp. 423-445.
3. R.M.F. Goodman, "On the Design of Practical Minimum Distance Convolutional Decoders," in *Algebraic Coding Theory and Applications*, G. Longo, Ed., CISM Courses and Lectures No. 258, New York: Springer-Verlag, ISBN 0-387-81544-9, 1979, pp. 395-422.
2. R.M.F. Goodman, "Towards the Maximum-Likelihood Decoding of Long Convolutional Codes," in *Algebraic Coding Theory and Applications*, G. Longo, Ed., CISM Courses and Lectures No. 258, New York: Springer-Verlag, ISBN 0-387-81544-9, 1979, pp. 367-393.
1. R.M.F. Goodman, T.A. English and M. Kilvington, "An Implantable FM Telemetry System for Measuring Forces on Prosthetic Hip Joints", in *A Handbook on Medical Biotelemetry & Radio Tracking*, C.J. Amlaner Jr. and D.W. Macdonald, Eds., Oxford: Pergamon Press, ISBN 0080249280, 1979, pp. 297-306.

Edited Conference Proceedings

3. *Applications of Neural Networks to Telecommunications 3*, J. Alspector, R. Goodman and T.X. Brown, Eds., Mahwah: Lawrence Erlbaum Associates, ISBN 0-8058-2900-8, 1979.
2. *Applications of Neural Networks to Telecommunications 2*, J. Alspector, R. Goodman and T.X. Brown, Eds., Hillsdale: Lawrence Erlbaum Associates, ISBN 0-8058-2084-1, 1995.
1. *Applications of Neural Networks to Telecommunications 1*, J. Alspector, R. Goodman and T.X. Brown, Eds., Hillsdale: Lawrence Erlbaum Associates, ISBN 0-8058-1560-0, 1993.

Papers in Published Conference Proceedings

88. W. Agassounon, A. Martinoli and R. M. Goodman, "A Scalable, Distributed Algorithm for Allocating Workers in Embedded Systems," *Proceedings of the IEEE Conference on System, Man and Cybernetics (SMC-01)*, October 2001, Tucson, Arizona, USA, Vol. 5, pp. 3367-3373.
87. A.T. Hayes, A. Martinoli and R.M. Goodman, "Swarm Robotic Odor Localization," *Proceedings of the 2001 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS-01)*, October 2001, Maui, Hawaii, USA, Vol. 2, pp.1073-1078.
86. K-T. Tang and R. M. Goodman, "Electronic Olfaction System on a Chip," *Proceedings of the 5th World Multi-Conference on Systemics, Cybernetics and Informatics (SCI 2001)*, July 2001, Orlando, Florida, USA, Vol. XV, p. 534.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

85. V. Koosh and R. Goodman, "Dynamic Charge Restoration of Floating Gate Subthreshold MOS Translinear Circuits," *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS-2001)*, May 2001, Sydney, Australia, Vol. 1, pp. 33-36.
84. V. Koosh and R. Goodman, "VLSI Neural Network with Digital Weights and Analog Multipliers," *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS-2001)*, May 2001, Sydney, Australia, Vol. 2, pp. 233-236.
83. V. Koosh and R. Goodman, "Dynamic Charge Restoration of Floating Gate Subthreshold MOS Translinear Circuits," *Proceedings of the 19th IEEE Conference on Advanced Research in VLSI (ARVLSI 2001)*, March 2001, Salt Lake City, Utah, USA, pp. 163-171.
82. A. T. Hayes, A. Martinoli and R. M. Goodman, "Comparing Distributed Exploration Strategies with Simulated and Real Autonomous Robots," *Proceedings of the 5th International Symposium on Distributed Autonomous Robotic Systems*, L. E. Parker, G. Bekey and J. Bahren, Eds., October 2000, Knoxville, Tennessee, USA, pp. 261-270.
81. J. A. Dickson, M. S. Freund, N. S. Lewis and R. M. Goodman, "An Integrated Chemical Sensor Array using Carbon Black Polymers and a Standard CMOS Process," *Technical Digest of the Solid-State Sensor and Actuator Workshop*, June 2000, Hilton Head Island, South Carolina, USA, pp. 162-165.
80. J. A. Dickson, R. M. Goodman, "Integrated Chemical Sensors based on Carbon Black and Polymer Films using a Standard CMOS Process and Post-processing," *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS'2000)*, May 2000, Geneva, Switzerland, pp. 341-344.
79. P. Keaton and R. Goodman, "A Compression Framework for Content Analysis," *Proceedings of the IEEE Workshop on Content-Based Access of Image and Video Libraries (CBAIVL '99)*, in conjunction with the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '99), June 1999, Ft. Collins, Colorado, USA, pp. 69-73.
78. P. Keaton, H. Greenspan and R. Goodman, "Keyword Spotting for Cursive Document Retrieval," *Proceedings of the IEEE Workshop on Document Image Analysis (DIA '97)*, in conjunction with the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '97), June 1997, San Juan, Puerto Rico, pp. 74-81.
77. D. Babcock, R.M. Goodman, C. Lee and J. Kim, "Neural Networks for Drag Reduction in Fully Turbulent Airflows," *Proceedings of 5th International IEE Conference on Artificial Neural Networks*, July 1997, Churchill College, University of Cambridge, Cambridge, U.K.
76. R. Spangler, R. M. Goodman and J. Hawkins, "Bach in a Box - Real-Time Harmony", *Advances in Neural Information Processing Systems 10*, (NIPS 97), M.I. Jordan, M.J. Kearns and S.A. Solla, Eds., MIT Press, 1998, pp. 957-963.
75. D. Babcock, C. Lee, B. Gupta, J. Kim and R. Goodman, "Active Drag Reduction using Neural Networks," *Proceedings of the IEEE International Workshop on Neural Networks for Identification, Control, Robotics, and Signal/Image Processing (NICROSP'96)*, August 1996, Venice, Italy, pp. 279-287.
74. B. Gupta, R. Goodman, F. Jiang, Y-C. Tai, "Analog VLSI System for Active Drag Reduction," *Proceedings of the IEEE 5th International Conference on Microelectronics for Neural Networks and Fuzzy Systems (MicroNeuro '96)*, February 1996, Lausanne, Switzerland, pp. 45-51.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

73. F. Jiang, Y.-C. Tai, B. Gupta, R. Goodman, S. Tung, J.- B. Huang and C.-M. Ho, "A Surface-Micromachined Shear Stress Imager," *Proceedings of the 1996 IEEE Micro Electro Mechanical Systems Workshop (MEMS '96)*, February 1996, San Diego, California, USA, pp. 110-115.
72. R.M. Goodman and B.E. Ambrose, "Learning Telephone Network Trunk Reservation Congestion Control using Neural Networks," *Proceedings of the International Workshop on Applications of Neural Networks to Telecommunications 2 (IWANNT '95)*, Stockholm, Sweden, J. Alspector, R. Goodman and T.X. Brown, Eds., Lawrence Erlbaum & Associates, 1995, pp. 258-264.
71. R.M. Goodman and B.E. Ambrose, "Time Series Prediction of Telephone Traffic Occupancy Using Neural Networks," *Proceedings of the 4th Irish Neural Network Conference (INNC)*, University College Dublin, Dublin, Ireland, September 1994.
70. R.M. Goodman, B.E. Ambrose, H.W. Latin and C.T. Ulmer, "NOAA - An Expert System Managing the Telephone Network", *Proceedings of the IFIP/IEEE International Symposium on Integrated Network Management (ISINM '95)*, May 1995, Santa Barbara, California, USA, *Integrated Network Management IV*, S. Sethi, Y. Raynaud, and F. Faure-Vincent, Eds. Chapman & Hall, 1995, pp. 316 –327.
69. R.M. Goodman and B.E. Ambrose, "Hybrid Neural Network/Expert System for Telephone Network Management," *Proceedings of the Safety Through Quality Conference*, June 1994, Berkshire, U.K.
68. R.M. Goodman and Z. Zeng, "A Learning Algorithm for Multi-Layer Perceptrons with Hard-Limiting Threshold Units," *Proceedings of the 1994 IEEE Workshop on Neural Networks for Signal Processing (NNSP'94)*, September 1994, Ermioni, Greece, pp. 219-228.
67. R. M. Goodman, "In Memoriam Ed Posner," *Advances in Neural Information Processing Systems 6*, (NIPS 93), J. Cowan, G. Tesauro and J. Alspector, Eds., Morgan-Kaufmann, 1994, pp. xviii-xxv.
66. H. Greenspan, S. Belongie, P. Perona,, R.M. Goodman, S. Rakshit, and C. H. Anderson, "Overcomplete Steerable Pyramid Filters and Rotation Invariance," *Proceedings of the IEEE Conference on Computer Vision Pattern Recognition (CVPR)*, June 1994, Seattle, Washington, USA, pp. 222-228.
65. Z. Zeng, R.M. Goodman and P. Smyth, "Discrete Recurrent Neural Networks as Pushdown Automata," *Proceedings of the 1993 International Symposium on Nonlinear Theory and its Applications (NOLTA'93)*, December 1993, Waikiki, Hawaii.
64. R.M. Goodman and B.E. Ambrose, "Applications of Learning Techniques to Network Management," *Proceedings of the International Workshop on Applications of Neural Networks to Telecommunications 1 (IWANNT '93)*, J. Alspector, R. Goodman and T.X. Brown, Eds., Lawrence Erlbaum & Associates, 1993, pp. 34-44.
63. H.K. Greenspan and R.M. Goodman, "Remote Image Analysis via a Texture Classification Neural Network," *Advances in Neural Information Processing Systems 5*, (NIPS 92), S. Hanson, J. Cowan, L. Giles Eds., Morgan-Kaufmann, 1993, pp. 425-432.
62. C.M. Higgins and R.M. Goodman, "Learning Fuzzy Rule-Based Neural Networks for Control," *Advances in Neural Information Processing Systems 5*, (NIPS 92), S. Hanson, J. Cowan, L. Giles Eds., Morgan-Kaufmann, 1993, pp. 350-357.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

61. J. Miller and R.M. Goodman, "Probability Estimation from a Database Using a Gibbs Energy Model," *Advances in Neural Information Processing Systems 5*, (NIPS 92), S. Hanson, J. Cowan, L. Giles Eds., Morgan-Kaufmann, 1993, pp. 425-432.
60. Z. Zeng, R.M. Goodman and P. Smyth, "Self-Clustering Recurrent Networks," *Proceedings of the 1993 IEEE International Conference on Neural Networks*, March 1993, San Francisco, California, USA.
59. R.M. Goodman and B. Ambrose, H. Latin and S. Finnell, "A Hybrid Expert System / Neural Network Traffic Advice System," *Proceedings of the IFIP/IEEE International Symposium on Integrated Network Management (ISINM '93)*, April 1993, San Francisco, California, USA, *Integrated Network Management III*, H. G. Hegering and Y. Yemini, Eds., Elsevier Science Publishers B.V., 1993, pp. 607-616.
58. R.M. Goodman and B. Ambrose, "Network Operators Advice and Assistance (NOAA): A real-time traffic rerouting expert system," *Proceedings of IEEE Global Telecommunications Conference (GLOBECOM '92)*, December 1992, Orlando, Florida, USA.
57. G. Erten and R.M. Goodman, "A Digital Neural Network Architecture Using Random Pulse Trains," *Proceedings of the 1992 IEEE International Joint Conference on Neural Networks (IJCNN-92)*, Baltimore, Maryland, USA, June 1992, Vol. 1, pp. 190-195.
56. C.M. Higgins and R.M. Goodman, "Learning Fuzzy Rule-Based Neural Networks for Function Approximation," *Proceedings of the 1992 IEEE International Joint Conference on Neural Networks (IJCNN-92)*, Baltimore, Maryland, USA, June 1992, Vol. 1, 251-256.
55. H.K. Greenspan, R.M. Goodman and R. Chellappa, "Combined Neural Network and Rule-Based Framework for Probabilistic Pattern Recognition and Discovery," *Advances in Neural Information Processing Systems 5*, (NIPS 92), S. Hanson, J. Cowan, L. Giles Eds., Morgan-Kaufmann, 1993, pp. 444-452.
54. A. Moore, J. Allman, G. Fox and R.M. Goodman, "VLSI Implementation of a Network for Color Constancy," in *Advances in Neural Information Processing Systems 3*, (NIPS 90), R. Lippmann, J. Moody, D. Touretzky, Eds., Morgan-Kaufmann, 1991, pp. 370-376.
53. R.M. Goodman and P. Smyth, "Automated Induction of Rule-Based Neural Networks from Databases," *Proceedings of the Fourth International Conference on Expert Systems in Accounting, Finance & Management*, October 1991, Pasadena, California, USA.
52. R.M. Goodman, B. Gupta, and M. Sayano, "Neural Network Implementation of Adaptive Vector Quantization for Image Compression," *Proceedings of the 1st IEE International Symposium on Communication Theory and Applications*, September 1991, Crieff, Scotland, UK.
51. A. Moore and R.M. Goodman, "Image Range Control and Contrast Enhancement via VLSI Masking," *Proceedings of the Second Government Neural Network Applications Workshop*, September 1991, Huntsville, Alabama, USA.
50. R. M. Goodman and C.M. Higgins, "Fuzzy Control using Rule-Based Neural Networks," *Proceedings of the Second Government Neural Network Applications Workshop*, September 1991, Huntsville, Alabama, USA.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

49. T. Chiueh and R.M. Goodman, "The Kanerva Memory is Stable," *Proceedings of the 1991 International Joint Conference on Neural Networks (IJCNN-91)*, July 1991, Seattle, Washington, USA, Vol. 2, pp. 267-271.
48. J. W. Miller, R.M. Goodman and P. Smyth, "Objective Functions for Probability Estimation," *Proceedings of the 1991 International Joint Conference on Neural Networks (IJCNN-91)*, July 1991, Seattle, Washington, USA, Vol. 1, pp. 881-886.
47. H.K. Greenspan, R.M. Goodman and R. Chellappa, "Texture Analysis via Unsupervised and Supervised Learning," *Proceedings of the 1991 International Joint Conference on Neural Networks (IJCNN-91)*, July 1991, Seattle, Washington, USA, Vol. 1, pp. 639-644.
46. C. M. Higgins and R.M. Goodman, "Incremental Learning with Rule-Based Neural Networks," *Proceedings of the 1991 International Joint Conference on Neural Networks (IJCNN-91)*, July 1991, Seattle, Washington, USA, Vol. 1, pp. 875-880.
45. A. Moore and R.M. Goodman, "Image Smoothing at Video Rates with Analog VLSI," *Proceedings of the 1990 IEEE International Conference on Systems, Man and Cybernetics (SMC '90)*, November 1990, Los Angeles, California, USA, pp. 839-841.
44. J.W. Miller and R.M. Goodman, "A Polynomial Time Algorithm for Finding Bayesian Probabilities from Marginal Constraints," *Proceedings of the Sixth Conference on Uncertainty in Artificial Intelligence*, July 1990, Cambridge, Massachusetts, USA, P. P. Bonissone, M. Henrion, L. N. Kanal and J. F. Lemmer, Eds., Elsevier Science Publishing.
43. R.M. Goodman and M. Sayano, "The Reliability of Semiconductor Random Access Memories with On-Chip Single Error Correction Coding," *Proceedings of the 1990 International Symposium on Information Theory and its Applications*, November 1990, Waikiki, Hawaii, USA, pp. 183-186.
42. K. Kramer, R.M. Goodman and A.J. McAuley, "An Efficient Divider for Large Operands," *Proceedings of the 1990 International Conference on Application Specific Array Processors*, September 1990, Princeton University, New Jersey, USA.
41. R.M. Goodman and T. Chiueh, "VLSI Implementation of a Neural Associative Memory and its Application to Vector Quantization," July 1990, *Proceedings of the 1990 International Neural Network Conference (INNC '90)*, Palais Des Congres, Paris, France.
40. T. Chiueh and R.M. Goodman, "VLSI Implementation of a High-Capacity Neural Associative Memory," *Advances in Neural Information Processing Systems 2*, NIPS 89, David S. Touretzky, Ed., Morgan-Kaufmann, 1990, pp. 793-800.
39. R.M. Goodman, C. Higgins, J. Miller and P. Smyth, "A Rule-Based Approach to Neural Network Classifiers," *Proceedings of the 1990 International Neural Network Conference (INNC '90)*, July 1990, Palais Des Congres, Paris, France.
38. I. Galton and R.M. Goodman, "An Equivalence Between Fractals and L-Systems", *Proceedings of the 1990 Conference on Artificial Life*, February 1990, Santa Fe, New Mexico, USA.
37. R.M. Goodman, C. Higgins and P. Smyth, "A Hybrid Rule-Based/Bayesian Classifier," *Proceedings of the 7th European Conference on Artificial Intelligence (ECAI '90)*, August 1990, Stockholm, Sweden, Springer-Verlag, pp. 610-615.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

36. P. Smyth and R.M. Goodman, "Search in Learning Algorithms using the Minimum Description Length Principle," *Proceedings of the 1990 AAAI Symposium on the Theory and Application of Minimal-Length Encoding*, March 1990, Stanford, California, USA.
35. P.G. Farrell, F. Taleb, M. Rice, J.T. Coffey and R.M. Goodman, "Soft-Decision Decoding of Reed-Solomon Codes," *Proceedings of the Third Workshop on ECC*, September 1989, IBM Almaden Research Center, California, USA.
34. R.M. Goodman and P. Smyth, "The ITRULE Algorithm for Rule Induction," *Proceedings of the 1989 IJCAI Workshop on Knowledge Discovery in Databases*, August 1989, Detroit, Michigan, USA.
33. J.T. Coffey and R.M. Goodman, "Generalized Information Set Decoding and other Reduced-Complexity Decoding Algorithms," *Proceedings of the 1989 International Symposium on Applied Algebra and Error-Correcting Codes*, February 1989, Toulouse, France.
32. R.M. Goodman and P. Smyth, "The Induction of Probabilistic Rule Sets - the ITRULE Algorithm," *Proceedings of the Sixth International Workshop on Machine Learning (ML-89)*, 1989, Ithaca, New York, USA. 1989, Morgan-Kaufmann, pp. 129-132.
31. K. Kramer, R.M. Goodman and A.J. McAuley, "Exploiting the Inherent Fault Tolerance of Asynchronous Arrays," *Proceedings of the 1989 International Conference on Systolic Arrays*, Killarney, Ireland, 1989.
30. R.M. Goodman, J. Miller, P. Smyth and H. Latin, "Real Time Autonomous Expert Systems in Network Management," Invited Paper, *Proceedings of the First IFIP International Symposium on Integrated Network Management*, May 1989, Boston, Massachusetts, USA.
29. P. Smyth and R.M. Goodman, "On Rule-Based Probabilistic Inference: Theoretical Principles and Practical Techniques," January 1989, *Proceedings of the 2nd International Workshop on AI and Statistics*, Fort Lauderdale, Florida, USA.
28. R.M. Goodman, J.W. Miller, and P. Smyth, "An Information Theoretic Approach to Rule-Based Connectionist Expert Systems," *Advances in Neural Information Processing Systems I*, NIPS 88, D. Touretzky, Ed., Morgan-Kaufmann, 1989, pp. 256-263.
27. T. Chiueh and R.M.F. Goodman, "A Neural Network Classifier based on Coding Theory," *Neural Information Processing Systems 0*, NIPS 87, D. Z. Anderson, Ed., American Institute of Physics, New York, 1988, pp. 174-183.
26. R.M. Goodman, J. Miller and P. Smyth, "NETREX, A Real Time Network Management Expert System," *Proceedings of the 1988 IEEE Globecom Workshop on the Application of Emerging Technologies in Network Operation and Management*, December 1988, Florida, USA.
25. R.M.F. Goodman and P. Smyth, "Automated Rule Acquisition," *Proceedings of the Third AAAI Workshop on Knowledge Acquisition for Knowledge-Based Systems*, November 1988, Banff, Canada.
24. T. Chiueh and R.M. Goodman, "Learning Algorithms for Neural Networks with Ternary Weights," *Proceedings of the First Annual Meeting of the International Neural Networks Society*, September 1988, Boston, Massachusetts, USA, p. 166.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

23. T. Chiueh and R.M. Goodman, "High Capacity Exponential Associative Memories," *Proceedings of the IEEE Annual International Conference on Neural Networks*, July 1988, San Diego, California, USA, Vol.1, pp. 153-160.
22. R.M.F. Goodman and P. Smyth, "Information-Theoretic Rule Induction," *Proceedings of the 8th European Conference on Artificial Intelligence (ECAI '88)*, August 1988, Munich, Germany, pp. 357-362.
21. R.M.F. Goodman and P. Smyth, "Information Theory, Expert Systems and Neural Networks," *Proceedings of the 1988 Beijing International Workshop on Information Theory*, July 1988, Beijing, China, Int. Academic Publishers.
20. R.M. Goodman and A.J. McAuley, "An Arithmetic-Stack Processor for High Level Language Execution," *Proceedings of the 1988 Rochester Fourth Conference on Programming Environments*, June 14-18 1988, University of Rochester.
19. R.M. Goodman and A.J. McAuley, "An Efficient Asynchronous Multiplier," *Proceedings of the International Conference on Systolic Arrays*, May 1988, San Diego, California, USA, pp. 593-599.
18. R.M.F. Goodman and P. Smyth, "Learning from Examples using Information Theory," *Proceedings of the Second AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop*, October 1987, Banff, Canada.
17. R.M.F. Goodman and P. Smyth, "ITRULE: An Information Theoretic Rule Induction Algorithm," *Proceedings of the First European Workshop on Knowledge Acquisition*, September 1987, Reading, U.K.
16. J.T. Coffey, R.M.F. Goodman and P. Farrell, "Mapping Vector Decoding," *Proceedings of the Second Workshop in Error Correcting Codes*, September 1987, IBM Almaden Research Center, California, USA.
15. R.M.F. Goodman and A.J. McAuley, "Decoding Long Convolutional Codes with a VLSI Path Generator Chip," *Proceedings of the 20th Princeton Conference on Information Sciences and Systems*, March 1986, Princeton, New Jersey, USA.
14. T. Fuja, R.M.F. Goodman and C. Heegard, "The Structure and Complexity of Linear Sum Codes," *Proceedings of the 23rd Annual Allerton Conference on Communications, Control, and Computing*, October 1985, University of Illinois, Urbana-Champaign, USA.
13. M. Blaum, R.M.F. Goodman and R.J. McEliece, "Methods for Protection of Computer Memories," *Proceedings of the 23rd Annual Allerton Conference on Communications, Control, and Computing*, October 1985, University of Illinois, Urbana-Champaign, USA.
12. R.M.F. Goodman and A.J. McAuley, "Key Exchange in a Broadcast Environment via a Public-Key-Cryptosystem," *Proceedings of the IERE Conference on Digital Processing of Signals in Communications*, Loughborough, UK, 1985, 3 pages.
11. R.M.F. Goodman and P.J.C. Clare, "Channel Codes and Computer Memories," *Proceedings of the IEE Conference on Practical Applications of Channel Coding Techniques*, February 1983, London, UK, 5 pages.
10. R.M.F. Goodman and R.J. McEliece, "Hamming Codes, Computer Memories, and the Birthday Surprise," *Proceedings of the 20th Allerton Conference on Communications, Control and Computing*, October 1982, University of Illinois, Champaign-Urbana, USA, 8 pages.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

9. D.G. Whitehead, R.M.F. Goodman and K.A. Welsh, "A Low-Cost Microprocessor Controlled Weighbridge," *Proceedings of the IERE Conference on Measurements, Instruments and Transducer Design*, June 1982, UMIST, Manchester, UK, pp. 215-220.
8. R.M.F. Goodman, "Computer Networks in the U.K.," *Proceedings of the 7th West Coast Computer Fair*, March 1982, San Francisco, California, USA, 7 pages.
7. R.M.F. Goodman and K. Salloum, "Error Control Coding for a Multi-Subcarrier H.F. Modem," *Proceedings of the IEE Conference on H.F. Systems and Techniques*, February 1982, London, UK, pp. 1-6.
6. R.M.F. Goodman, "Burst Error Correcting Convolutional Codes," *Proceedings of the IEE Colloquium on Data Transmission Codes*, November 1980, London, UK, 7 pages.
5. R.M.F. Goodman, "Error Correction Coding for VLSI Memories," *Proceedings of the IEE Conference on The Impact of New LSI Techniques on Communication Systems*, September 1980, London, UK, pp. 119-122.
4. R.M.F. Goodman, A.D. Green and A.F.T. Winfield, "Soft-Decision Error-Correcting Coding Schemes for HF Data Transmission," *Proceedings of the IEE Conference Recent Advances in HF Communications Systems and Techniques*, February 1979, London, UK, pp. 86-101.
3. R.M.F. Goodman and A.D. Green, "Microprocessor- Controlled Permutation Decoding of Block Error-Correcting Codes," *Proceedings of the IERE International Conference on Microprocessors in Automation and Communications*, No. 41, September 1978, Canterbury, UK, pp. 365-376.
2. R.M.F. Goodman and W.H. Ng, "Soft-Decision Threshold Decoding of Convolutional Codes," *Proceedings of the IERE International Conference on Digital Processing of Signals in Communications*, No. 37, September 1977, Loughborough, UK, pp. 535-546.
1. R.M.F. Goodman and A.D. Green, "Microprocessor-Controlled Soft-Decision Decoding of Error-Correcting Block Codes," *Proceedings of the IERE International Conference on Digital Processing of Signals in Communications*, No. 37, September 1977, Loughborough, UK, pp. 337-349.

Ph.D. Thesis

R.M.F. Goodman, "Variable Redundancy Coding for Adaptive Error Control," Ph.D. Thesis, Natural Science, University of Kent at Canterbury, U.K., 279 pp, 1976.

Published Abstracts of Talks

38. O. Holland and R. Goodman, "Consciousness and Adaptive Model-Based Predictive Controllers for Mobile Robots," *Proceedings of the International Conference on Towards a Science of Consciousness*, Skovde, Sweden, August 2001.
37. R.M. Goodman, "The Electronic Nose – from Chips to Systems," Invited Talk, *Proceedings of the Ninth IEE International Conference on Neural Networks (ICANN99)*, Edinburgh, Scotland, UK, September 1999.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

36. R.M. Goodman, "A Code in the Nose," *Proceedings of the Symposium held to celebrate the 60th Birthday of Professor Paddy Farrell, Communications and Coding*, Eds. M. Darnell and B. Honary, John Wiley and Sons, ISBN 0 471 98336 5, 1998, pp. 237-238.
35. R.M. Goodman, "The Intelligent Active Skin," Invited Talk, *Program in Neural Networks and Machine Learning : themed week in the Applications of Neural Computing*, The Newton Institute, Cambridge, UK, November 1997.
34. R.M. Goodman, "The Electronic Nose," *Program in Neural Networks and Machine Learning : themed week in the Applications of Neural Computing*, The Newton Institute, Cambridge, UK, November 1997.
33. R.M. Goodman, "Learning the Rules of J.S. Bach," Invited Talk, *Proceedings of Neural Networks for Computing*, Snowbird, Utah, USA, 1994.
32. J.A. Cortese and R.M. Goodman, "A Statistical Analysis of Neural Computation," *Proceedings of the 1994 IEEE International Symposium on Information Theory*, Trondheim, Norway, June 27-July 1, 1994.
31. R.M. Goodman, "A Learning Algorithm for Multi-Layer Perceptrons with Hard-Limiting Hidden Units," *Proceedings of Neural Networks for Computing*, Snowbird, Utah, USA, 1993.
30. R. M. Goodman, "Real Time Network Management," Bellcore Symposium on Applications of Neural Networks to Telecommunications, October 1992.
29. R.M. Goodman, "Fuzzy Control Systems using Rule-Based Networks," Invited Talk, *Proceedings of Neural Networks for Computing*, Snowbird, Utah, USA, 1992.
28. R.M. Goodman and P. Smyth, "Sparse Markov Models," *Proceedings of Neural Networks for Computing*, Snowbird, Utah, USA, 1991.
27. R.M. Goodman and C.M. Higgins, "Incremental Rule-Based Learning," *Proceedings of the 1991 IEEE International Symposium on Information Theory*, Budapest, Hungary, June 1991.
26. R.M. Goodman and H.K. Greenspan, "Texture Classification using Information Theory," *Proceedings of the 1991 IEEE International Symposium on Information Theory*, Budapest, Hungary, June 1991.
25. R.M. Goodman, J. Miller and P. Smyth, "Objective Functions for Neural Network Classifier Design," *Proceedings of the 1991 IEEE International Symposium on Information Theory*, Budapest, Hungary, June 1991.
24. R.M. Goodman and M. Sayano, "Adaptive Vector Quantization for Image Compression," *Proceedings of the 1991 IEEE International Symposium on Information Theory*, Budapest, Hungary, June 1991, Budapest, Hungary, June 23-28, 1991.
23. M. Sayano and R.M. Goodman, "Single Phased Burst Error Correcting Array Codes," *Proceedings of the 1991 IEEE International Symposium on Information Theory*, Budapest, Hungary, June 1991, Budapest, Hungary, June 1991.
22. R.M. Goodman and P. Smyth, "On Practical Applications of the ITRULE Algorithm" *Proceedings of the 1990 IEEE International Symposium on Information Theory*, San Diego, California, USA, 1990.

Rodney M. Goodman

Curriculum Vitae

April 3, 2025

21. R.M. Goodman and M. Sayano, "ECC for Multi-Valued Random Access Memories," *Proceedings of the 1990 IEEE International Symposium on Information Theory*, San Diego, California, USA, 1990.
20. R.M. Goodman, J.W. Miller and P. Smyth, "The Information Provided by a Linear Threshold Function with Binary Weights," *Proceedings of the 1990 IEEE International Symposium on Information Theory*, San Diego, California, USA, 1990.
19. R.M. Goodman, J.W. Miller and P. Smyth, "Hybrid Rule-Based Neural Network Classifiers," *Proceedings of Neural Networks for Computing*, Snowbird, Utah, USA, April 1990.
18. R.M. Goodman and M. Sayano, "On-Chip ECC for Multi-Level Random Access Memories," *Proceedings of the 1989 IEEE Information Theory Workshop*, Cornell University, June 1989.
17. R.M. Goodman, J.W. Miller, and P. Smyth, "An Information Theoretic Approach to Modeling Neural Network Expert Systems," *Proceedings of the 1989 IEEE Information Theory Workshop*, Cornell University, June 1989.
16. R.M. Goodman and Tzi-Dar Chiueh, "An Exponential Capacity Neural Associative Memory Chip with Applications," *Proceedings of Neural Networks for Computing*, Snowbird, Utah, April 1989.
15. J.T. Coffey, P. Farrell and R.M.F. Goodman, "Low Complexity Decoding of General Linear Block Codes," *Proceedings of the 1988 IEEE International Symposium on Information Theory*, Kobe City, Japan, June 1988.
14. R.M.F. Goodman and P. Smyth, "An Information Theory Model for Rule-Based Expert Systems," *Proceedings of the 1988 IEEE International Symposium on Information Theory*, Kobe City, Japan, June 1988.
13. R.M.F. Goodman and P. Smyth, "An Information Theoretic Approach to the Formulation of Decision Trees," *Proceedings of the 1986 IEEE International Symposium on Information Theory*, University of Michigan, Ann Arbor, Michigan, USA, October 1986.
12. M. Blaum, R.M.F. Goodman and R.J. McEliece, "The Effect of Soft Error Scrubbing on Single Error Protected RAM Systems," *Proceedings of the 1986 IEEE International Symposium on Information Theory*, University of Michigan, Ann Arbor, Michigan, USA, October 1986.
11. R.M.F. Goodman and A.F.T. Winfield, "Forth Primitive Pairs Profiled," *Proceedings of the 7th Annual FORML Conference*, Asilomar, California, USA, November 1985.
10. R.M.F. Goodman, C. Heegard and T. Fuja, "Some Linear Sum Codes for Computer RAMs," *Proceedings of 1985 IEEE International Symposium on Information Theory*, Brighton, UK, June 1985.
9. R.M.F. Goodman and A.J. McAuley, "Bit Serial Integer Arithmetic for VLSI Public-Key-Cryptosystems" *Proceedings of 1985 IEEE International Symposium on Information Theory*, Brighton, UK, June 1985.
8. R.M.F. Goodman and A.J. McAuley, "Electronic Publishing and Copyright Protection," *Proceedings of 1985 IEEE International Symposium on Information Theory*, Brighton, UK, June 1985.

Rodney M. Goodman
Curriculum Vitae
April 3, 2025

7. R.M.F. Goodman and A.F.T. Winfield, "Asymptotically Maximum Likelihood Sequential Decoders," *Proceedings of 1985 IEEE International Symposium on Information Theory*, Brighton, UK, June 1985.
6. R.M.F. Goodman, A.F.T. Winfield and D. Pountain, "Forth 79 Profiled," *Proceedings of the 1985 Rochester Forth Conference*, Rochester University, New York, USA, June 1985.
5. R.M.F. Goodman and M. Abdul-Wahab, "A Fast Soft Decision Sequential Decoder," *Proceedings of the 1983 IEEE International Symposium on Information Theory*, St. Jovite, Quebec, Canada, September 1983.
4. A.J. McAuley and R.M.F. Goodman, "Modifications to the Trapdoor-Knapsack Public Key Cryptosystem," *Proceedings of the 1983 IEEE International Symposium on Information Theory*, St. Jovite, Quebec, Canada, September 1983.
3. R.M.F. Goodman, G.L. Lorden, and R.J. McEliece, "Lifetime Analyses of Coded VLSI Random Access Memories," *Proceedings of the 1983 IEEE International Symposium on Information Theory*, St. Jovite, Quebec, Canada, September 1983.
2. R.M.F. Goodman and A.J. McAuley, "Degradeable Public Key Cryptosystems for Multi-Destination Addressing and Broadcast," *Proceedings of the 1982 IEEE International Symposium on Information Theory*, Les Arcs, France, June 1982.
1. R.M.F. Goodman and A.F.T. Winfield, "Soft-Decision Direct Mapping Decoding of Convolutional Codes," *Proceedings of the 1979 IEEE International Symposium on Information Theory*, Grignano, Italy, June 1979.