# Richard Ernest Newman

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## EDUCATION

Ph. D. Computer Science, 1986. University of Rochester, Rochester, NY.
M. S. Computer Science, 1983. University of Rochester, Rochester, NY.
B. A. Mathematics, 1981. New College, Sarasota, FL.

## HONORS

**University Superior Accomplishment Award for Faculty Service**, University of Florida, 1995-1996.

**Superior Accomplishment Award**, Academic Affairs, University of Florida, 1996.

**Teaching Improvement Program Award**, College of Engineering, University of Florida, 1995.

**ACM Teacher of the Year**, CISE Department, 1994-1995.

**Distinguished Service Key**, Alpha Phi Omega National Service Fraternity, 1991.

**Faculty of the Year**, CIS Department, 1989-1990.

**Member**, Upsilon Pi Epsilon Computer Science Honorary Fraternity, 1989-present.

## PATENTS

**S. Schrum, L. W. Yonge III, and R. Newman, Efficient Datagram Segmentation and Reassembly for Packet-Switched Networks, application no 20170034067, filed July 27, 2015.**

**S. Schrum, L. W. Yonge III, S. Katar, H. Zhu, and R. Newman, Slotted Message Access Protocol for Powerline Communication Networks, application no. 20150372996, filed December 24, 2015.**

**S. Katar, L. W. Yonge III, and R. Newman, Attenuation level based association in communication networks, application no. 20130038424, filed February 14, 2013.**

**R. Newman and P. R. Rajkotia, Enhanced acknowledgement and retransmission mechanism no. 9,432,251, August 30, 2016**

**L. W. Yonge III, S. Katar, and R. Newman, Managing communications over a shared medium, no. 9,385,966, July 5, 2016**

**S. Schrum and R. Newman, Packet ordering based on delivery route changes in communication networks no. 9,059,932, June 16, 2015**

**S. Katar, L. W. Yonge III, and R. Newman, Network association of communication devices based on attenuation information no. 9,021,278, April 28, 2015**

**S. Katar, L. W. Yonge III, and R. Newman, Secure client authentication and service authorization in a shared communication network no. 9,003,492, April 7, 2015**

**S. Schrum and R. Newman, Discovery of conventional devices and bridges in hybrid communication networks no. 8,897,169, November 25, 2014**

**S. Schrum and R. Newman, Multiple delivery route packet ordering no. 8,824,477, September 2, 2014**

**R. Newman and L. W. Yonge III, Establishing shared information in a network, no. 8,751,810, June 10, 2014**

R. Newman, S. Schrum, and L. W. Yonge III, Hybrid networking master passphrase, no. 8,745,695, June 3, 2014

L. W. Yonge III, S. Schrum, and R. Newman, Hybrid networking simple-connect setup using proxy device, no. 8,745,137, June 3, 2014

L. W. Yonge III, S. Schrum, and R. Newman, Hybrid networking simple-connect setup using forwarding device, no. 8,743,903, June 3, 2014

L. W. Yonge III, S. Katar, and R. Newman, Managing communications over a shared medium, no. 8,503,480, August 6, 2013

R. Newman and L. W. Yonge III, Establishing shared information in a network, no. 8,261,079, September 4, 2012

R. Newman and L. W. Yonge III, Establishing shared information in a network, no. 7,664,955, February 16, 2010

## INTERESTS

Security: Cloud security, cross-domain policy implementation, access control models, cryptography, cryptanalysis, cryptographic protocols, cryptocurrencies, anonymity, information hiding, traffic analysis and TAP, cross-layer security, anomaly detection, adaptive security, biometric authentication, image-based authentication, usability

Networks: protocols (link, medium access, network, transport, application layers), protocol analysis, performance, traffic modeling, simulation, architecture, topology, quality of service, heterogenous LANs error correction, error modeling, latency, network security, user-level security in consumer systems

Distributed Systems: Blockchain, security, peer-to-peer systems, distributed storage systems, communication architecture and protocols, distributed conferencing, groupware, protocols for concurrent data access, concurrent editing, distributed operating systems, digital currency

## EMPLOYMENT

Senior Technical Fellow, IC2, Gainesville, FL, July 2022 - present.

Senior Vice President for Data Science and Security, Terraview Gmbh, Zurich, Switzerland, Nov 2020-Mar 2022.

Assistant Professor, Computer & Information Science & Engineering Department, University of Florida, Gainesville, FL, 1986-2021.

Advisory Board, Terraview PTE. LTD., Singapore, 2020-present.

Expert Witness, Patent infringement and validity issues in security, networking, and distributed systems, clients include Citrix and Juniper Systems, 2006-present.

Cryptology Instructor, Johns Hopkins University Center for Talented Youth (CTY), Lancaster, PA (2017); Saratoga Springs (2018).

Board of Directors, Security and Audit Analysis, Fair Warning, Inc. (prev. EpicTide), St. Petersburg, FL, 2004-2012.

Consultant, Medium access and PHY protocol analysis and development, and security protocols for poweline communications, QualComm (prev. Atheros, prev. Intellon Corporation), Ocala, FL, 1999-2015.

Senior Scientist, Unistry Associates, Inc., Havertown, PA, 1995-1999.

Consultant, network security areas, Raytheon Systems Company, St. Petersburg, FL, 1997

Associate Director, Space Communication Technology Center, Digital Signal Handling and Satellite Networking Technical Area, Computer and Information Science Department, University of Florida, Gainesville, FL, 1991-1997

## PROFESSIONAL ACTIVITIES

### International Level

**Member ACM Self-Assessment Committee, 1991-1995.**

**Guest Co-Editor International Journal on Computer Science, Special Issue on Powerline Communications, 2003.**

**Reviewer:**

**IEEE Transactions on Software Engineering,**

**IEEE Transactions on Communications,**

**IEEE Transactions on Computers,**

**IEEE Transactions on Parallel and Distributed Computing,**

**IEEE Transactions on Man and Cybernetics,**

**IEEE Communications Magazine,**

**International Journal on Computer Science,**

**Journal of the ACM,**

**Software Practice and Experience,**

**Information Processing Letters,**

**Theoretical Computer Science.**

**West Publishing, University Video Communications, Prentice-Hall.**

**Program Committee Member:**

**IEEE International Symposium on Powerline Communications, 2005-2011**

**IEEE International Symposium on Powerline Communications, 2006 (also publications chair)**

**New Security Paradigms Workshop, 2003**

**IEEE Conference on Local Area Communication Networks, (LCN2003, LCN2002, LCN2001), November, 2001, 2002, 2003.**

**SPIE Conference on Mathematics of Data/Image Coding, Compression and Encryption, 1998, 1999, 2000.**

**program committee, IEEE Symposium on Security & Privacy, 1996.**

**5th International Data Engineering Conference, PARBASE 90.**

**International Conference on Parallel Processing, 1988, 1989.**

**Session Chair:**

**IEEE International Symposium on Powerline Communications, 2005**

**LCN2002, LCN2001.**

**SPIE Conference on Mathematics of Data/Image Coding, Compression and Encryption, 1998, 1999, 2000.**

**SOQUE International Symposium on Lasers, 1997.**

### State Level

**State of Florida, State University System Course Numbering System, Faculty Discipline Committee for Computer Science: Chair 1992-1995; Member 1990-1992.**

### University Level

**Chair**

**UF Division 3 Superior Accomplishment Awards Committee, 1997-1998.**

**UF Networking and Telecommunications Standing Committee of the Council on Information Technology and Services, 1992-1996.**

**Member**

**UF University-wide Superior Accomplishment Awards Committee, 1999-2000.**

**UF Division 3 Superior Accomplishment Awards Committee, 1996-1997.**

**UF Student-Athlete Recruitment Committee, 1995-2000.**

**UF Council on Information Technology and Services, 1993-1995.**

**UF-University of Utrecht Exchange Program Committee, 1989-1999.**

**Faculty Host/Mentor**

**TRUE (Teaching Research Update Experience) Program, University of Florida, 1994-1996, 1998.**

**SSTP (Summer Science Technology Program), University of Florida, 1995-1997, 1998-2000.**

**SRAP, University of Florida, 1995.**

**Career Shadowing Day, 1995, 1996.**

**Minority Mentor Program, University of Florida, 1987-1989.**

**Advisor**

**Bitcoin Club 2017-2020 (founding advisor).**

**Theta Tau National Engineering Professional Fraternity, 1995-2001 (founding advisor).**

**Aikido Club, University of Florida, 1987-1998.**

**Alpha Phi Omega service fraternity, Tau chapter, University of Florida, 1987-1997.**

**College Level**

**Member**

**College of Engineering Admissions Committee 2014-2020.**

**College of Engineering ABET Committee, 2002-2012.**

**College of Engineering TIP Award Committee, 1995.**

**College of Engineering Curriculum Committee, 1991-1995.**

**College of Engineering Graduate Council Fellowship Committee, 1990.**

**College of Engineering Blue Ribbon Committee for core curriculum, 1987-1988.**

**Department Level**

**Chair**

**Colloquium Committee, CISE Department, 1991-1992, 1994-1997.**

**Computer Engineering Subcommittee of the Curriculum Committee, CIS Department, 1992-1995.**

**Social Committee, CIS Department, 1990-1993.**

**Curriculum Committee, CIS Department, 1990-1992.**

**Subcommittee for graduate curriculum, CIS Department, 1986-1987.**

**Library committee, CIS Department, 1986-1988.**

**Member**

**Curriculum Committee, CIS Department, 1992-1995, 2000-2020.**

**Comprehensive Exam Committee, CISE Department, 1997-2020.**

**Colloquium Committee, CISE Department, 1997-1999.**

**Facilities Committee, CISE Department, 1995-2000.**

**Undergraduate Computer Engineering Joint Committee, CIS and EE Departments, 1991-2019.**

**Advisor**

**Undergraduate Coordinator, CISE Department, 2014-2020.**

**WICSE Shadowing Program, CISE Dept., 2017-2020.**

**CIS Student Association, 1989-1991.**

**Graduate Coordinator, CIS Department, 1988-1990.**

## PROFESSIONAL ASSOCIATIONS

**Association for Computing Machinery (ACM) Institute of Electricians and Electrical Engineers (IEEE Computer Society) National Education Association United Faculty of Florida (UFF)**

## JOURNAL PUBLICATIONS

1. **J. Woo, R. Fatima, C.J. Kibert, R. Newman, A. Shojaei, Y. Tian, "Applying blockchain technology for building energy performance measurement, reporting, and verification (MRV) and the carbon credit market: A review of the literature," Building and Environment vol. 205, November, 2021. https://doi.org/10.1016/j.buildenv.2021.108199**

2. **Panoat Chuchaisri and Richard Newman, "Fast Response PKC-Based Broadcast Authentication in Wireless Sensor Networks," ACM Mobile Networks and Applications 17:4, pp. 508-525, August 2012.**

3. **InKwan Yu and Richard Newman, "TCP slow start with fair share of bandwidth", Computer Networks 55:17, pp. 3932-3946, 1 Dec. 2011.**

4. **Srinivas Katar, Manjunath Krishnam, Richard Newman, and Haniph Latchman, "Harnessing the potential of Power Line Communications using HomePlug AV Standard," RF Design Magazine, August 2006.**

5. **Lin, Yu-Ju, Haniph Latchman, Srinivas Katar and Richard Newman, Comparative Performance Study of Wireless and Powerline Networks, IEEE** *Communications Magazine* **41:4, pp. 54-63, April, 2003.**
   **http://www.cise.ufl.edu/ nemo/papers/CommMag2003.pdf**

6. **Pavlidou, F.-N., Haniph Latchman, A. J. Han Vinck, and Richard Newman, "Powerline Communications and Applications,"** *International Journal on Communication Systems* **16:5, pp. 357-361, May, 2003.**

7. **Lee, Minkyu, Richard Newman, Haniph Latchman, Srinivas Katar, and Larry Yonge, "HomePlug 1.0 Powerline Communication LANs - Protocol Description and Performance Results,"** *International Journal on Communication Systems* **16:5, pp. 447-473, 2003.**
   **http://www.cise.ufl.edu/ nemo/papers/IJCS2003.pdf**

8. **Yeh, Jyh-haw, Randy Chow, and Richard Newman, "Key Assignment for Enforcing Access Control Policy Exceptions in Distributed Systems,"** *Information Sciences Journal* **Vol. 152, pp. 63-88, June 2003.**
   **http://www.cise.ufl.edu/ nemo/papers/ISJ2003.pdf**

9. **Johnson, Theodore and R. E. Newman-Wolfe, "A Comparison of Fast and Low Overhead Distributed Priority Locks,"** *Journal of Parallel and Distributed Computing* **32:1, 1996, pp. 74-89.**

10. **Klostermeyer, W. F., R. E. Newman-Wolfe, K. Luo and Y. C. Chow, "DAG Compression for Improving Response after Deadlock Resolution,"** *Congressus Numerantium* **81, Dec. 1991, pp. 209-218.**

11. **Luo, C. K., W. Klostermeyer, R. E. Newman-Wolfe and Y. C. Chow, "Optimal Deadlock Resolutions in Edge-disjoint Reducible Wait-for Graphs,"** *Information Processing Letters* **38, 28 June 1991, pp. 307-313.**

12. **Woo, Tai-Kuo, Stanley Y. W. Su and Richard Newman-Wolfe, "Resource Allocation in a Partionable Bus Network Using a Graph Coloring Algorithm,"** *IEEE Transactions on Communications* **39:12, Dec. 1991, pp. 1794-1801.**

13. **Newman-Wolfe, R. E. and S. L. Davis, "Sequences, Schedules, and Initialization of Unsynchronized Networks,"** *Congressus Numerantium* **76, Dec. 1990, pp. 63-68.**

14. **Bermudez, M. E., R. E. Newman-Wolfe and G. Logothetis, "Parallel Construction of SLR(1) and LALR(1) Parsers,"** *International Journal of Parallel Programming* **v. 19, no. 3, June 1990, pp. 163-184.**

15. **Paturi, R., Joel I. Seiferas, J. Simon and R. E. Newman-Wolfe, "Milking the Aanderaa Argument,"** *Information and Computation*, **vol. 88, no. 1, pp. 88-104, Sept. 1990.**

16. **Newman-Wolfe, R. E., R. Dutton and R. Brigham, "Connecting Sets in Graphs - A Domination Related Concept,"** *Congressus Numerantium* **vol. 67, pp. 67-76, 1988.**

17. **Newman-Wolfe, R. E., "Bounds for the Towers of Hanoi Problem with Multiple Work Pegs," accepted for publication by** *The Computer Journal*.

**REFEREED CONFERENCE PUBLICATIONS**

1. **Stephen Kirkman and Richard Newman, "CYCLOPS: A Blockchain-based Policy System and Formal Policy Model for Consumer Data Movement", FTC 2021 - Future Technologies Conference 2021, 28-29 October 2021, Vancouver, BC**

2. **J. Woo, R. Fatima, C.J. Kibert, R. Newman, A. Shojaei, Y. Tian, "A New Blockchain Digital MRV (Measurement, Reporting, and Verification) Architecture for Existing Building Energy Performance," in proceedings of IEEE/ACM BRAINS 2020: 2nd Conference on Blockchain Research & Applications for Innovative Networks and Services, Paris, France, Sep 28, 2020 - Sep 30, 2020**

3. **Stephen Kirkman and Richard Newman, "A Trust Model for the Cloud: Results from a Survey", FTC 2019 - Future Technologies Conference 2019, 24-25 October 2019 San Francisco, CA pp. 475-496**

4. **Stephen Kirkman and Richard Newman, "InterCloud: A Data Movement Policy DApp for Managing Trust in the Cloud," 5th Annual Conf. on Computational Science and Computational Intelligence (CSCI'18), Dec 13-15, 2018, Las Vegas, NV.**

5. **Stephen Kirkman and Richard Newman, "A Cloud Data Movement Policy Architecture Based on Smart Contracts and the Ethereum Blockchain", First IEEE Workshop on Blockchain Technologies and Applications (BTA) 2018, Orlando, FL**

6. **Stephen Kirkman and Richard Newman, "Using Smart Contracts and Blockchains to Support Consumer Trust Across Distributed Clouds," 13th International Conference on Grid, Cloud, and Cluster Computing (GCC'17: July 17-20, 2017, Las Vegas, USA)**

7. **Stephen Kirkman and Richard Newman, "Bridging the Cloud Trust Gap: Using ORCON Policy to Manage Consumer Trust Between Different Clouds," 1st IEEE International Conference on Edge Computing (EDGE 2017), June 25 - June 30, 2017, Honolulu, Hawaii, USA.**

8. **Panoat Chuchaisri and Richard Newman "Multi-Resolution Elliptic Curve Digital Signature," Proceedings of IEEE Local Commmunication Networks (LCN 2012), November 2012, Tampa, USA, pp. 93-101.**

9. **Panoat Chuchaisri and Richard Newman "Fast Response PKC-Based Broadcast Authentication in Wireless Sensor Networks," Proceedings of IEEE CollaborateCom 2010, September 2010, Chicago, USA.**

10. **Mahendra Kumar and Richard Newman, "J3: High Payload Histogram Neutral JPEG Steganography," Proceedings of Eighth International Conference on Privacy, Security and Trust (PST2010), August, 2010, Ottowa, CA.**

11. Piyush Harsh and Richard E. Newman, "Recovering from mDNS Domain Failures," Proceedings of ICOMP'10, July 12-15, 2010, Las Vegas, USA.

12. Piyush Harsh, Richard E. Newman, and Randy Chow, "Gray Networking: a step towards next generation computer networks," Proceedings of ACM SAC2010, Sierre, Switzerland, March 22-26, 2010.

13. Piyush Harsh and Richard E. Newman, "Efficient Distributed Search for Multicast Session Keywords," Proceedings of ICOMP'09, Las Vegas, USA, July 13-16, 2009.

14. Piyush Harsh and Richard E. Newman, "Using Geo-Spatial Session Tagging for Smart Multicast Session Discovery," Proceedings of ACM SIGAPP SAC 2009, Honolulu, Mar. 2009.

15. Richard Newman and Ira S. Moskowitz, "Practical Covert Channel Implementation through a Timed Mix-Firewall," IEEE NSP'08, Austin, Dec. 2008.

16. Piyush Harsh and Richard E. Newman, "mDNS - A Proposal for Hierarchical Multicast Session Directory Architecture", proceedings of ICOMP 2008, Las Vegas, 2008. Science.

17. Piyush Harsh and Richard E. Newman, "An Overlay Solution to IP-Multicast Address Collision Prevention," to appear in IASTED International Conference on Internat and Multimedia Systems and Applications (EuroIMSA 2008), March 17-19, 2008, Innsbruck, Austria.

18. Piyush Harsh and Richard E. Newman, "Usability and Acceptance of an Image-based Authentication System," IEEE International Carnahan Conference on Security Technology, October 8-11, 2007, Ottawa, ON.

19. Richard Newman, Ira S. Moskowitz, and Mahendra Kumar, "J2: Refinement of a Topological Image Steganographic Method," IASTED Conference on Network and Information Security (CNIS 2007), September 24-26, 2007, Berkeley, CA, pp 28-32.

20. Seung Chul Han, In Kwan Yu, Ye Xia, and Richard E. Newman, "A Node Selection Algorithm for Many-to-many Mapping in Peer-to-peer Networks," IEEE Second International Conference on Internet and Web Applications and Services (ICIW07), May 13-19, 2007, Mauritius.

21. Richard E. Newman, Larry Yonge, Sherman Gavette, and Ross Anderson, "HomePlug AV Security Mechanisms," to appear in IEEE ISPLC 2007, Pisa, Italy, March 26-28, 2007.

22. Yu-Ju Lin, Richard E. Newman, and Haniph Latchman, "A New TCP and UDP Network Benchmark Suite," to appear in 10th ACM Communications and Networking Simulation Symposium (CNS 07), Norfolk, VA, March 25 - 29, 2007.

23. Srinivas Katar, Brent Mashburn, Richard Newman, and Haniph Latchman, "Allocation Requirements for Supporting Latency-Bound Traffic in HomePlug AV Networks," IEEE GlobeCom, San Francisco, 27 Nov. - 1 Dec. 2006.

24. Mahendra Kumar and Richard Newman, "STRBAC - An Approach towards Spatio-Temporal Role-Based Access Control," IASTED Conference on Network and Information Security (CNIS 2006), Cambridge, MA, October 9-11, 2006.

25. Richard E. Newman, Larry Yonge, Sherman Gavette, and Ross Anderson, "Protecting Domestic Powerline Communications," in proceedings of Symposium on Usable Privacy and Security (SOUPS 2006), Pittsburgh, PA, July 12-14, 2006, pp. 122-132.

26. Srinivas Katar, Brent Mashburn, Kaywan Afkhamie, Haniph Latchman, and Richard Newman, "Channel Adaptation Based on Cyclo-stationary Noise Characteristics in PLC Systems," in proceedings of IEEE International Symposium on Power Line Communications (ISPLC 2006), Orlando, FL, March 26-29, 2006, pp. 16-21

27. Srinivas Katar, Manjunath Krishnam, Brent Mashburn, Kaywan Afkhamie, Richard Newman, and Haniph Latchman, "Beacon Schedule Persistence to Mitigate Beacon Loss in HomePlug AV Networks," in proceedings of IEEE International Symposium on Power Line Communications (ISPLC 2006), Orlando, FL, March 26-29, 2006, pp. 184-188.

28. Hossein Asghari, Richard Newman, and Haniph Latchman, "Bandwidth-efficient Forward-Error-Correction Coding for High Speed Powerline Communications," in proceedings of IEEE International Symposium on Power Line Communications (ISPLC 2006), Orlando, FL, March 26-29, 2006, pp. 350-355.

29. Ira S. Moskowitz and Richard E. Newman, "Timing Channels, Anonymity, Mixes, and Spikes," in proceedings of IASTED Conference on Advances in Computer Science and Technology (ACST 2006), January 23-25, 2006, Puerto Vallarta, Mexico, pp. 251-256.

30. Ira S. Moskowitz and Richard E. Newman, "Multiple Access Covert Channels," in proceedings of IASTED Conference on Network and Information Security (CNIS 2005), Nov. 14-16, 2005, Phoenix, AZ, pp. 182-188.

31. Richard E. Newman, Piyush Harsh, and Prashant Jayaraman, "Security Analysis of and Proposal for Image Based Authentication," in proceedings of IEEE International Carnahan Conference on Security Technology, Oct. 10-13, 2005, Las Palmas, Canary Islands, Spain, pp. 141-144.

32. Kaywan H. Afkhamie, Haniph Latchman, Larry Yonge, Tim Davidson, and Richard Newman, "Joint Optimization of Transmit Pulse Shaping, Guard Interval Length, and Receiver Side Narrow-band Interference Mitigation in the HomePlugAV OFDM System," (invited paper) in proceedings of IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2005), New York, NY, June 6-8, 2005.

33. Yu-Ju Lin, Haniph A. Latchman, Jonathan C.L. Liu and Richard Newman, "Periodic Contention-Free Multiple Access For Power Line Communication Networks," IEEE 19th International Conference on Advanced Information Networking and Applications (AINA'05) Volume 2, March 28-30, 2005, Taiwan, pp. 315-318.

34. Srinivas Katar, Richard Newman, Haniph Latchman, and Larry Yonge, "Efficient MAC Framing and ARQ for High-Speed PLC Systems," in proceedings of IEEE International Symposium on Power Line Communications (ISPLC 2005), Vancouver, Canada, April 2005, pp. 27-31.

35. Afkhamie, K. H., S. Katar, L. Yonge, and R. Newman, "An Overview of the upcoming HomePlug AV Standard," proceedings of International Symposium on Powerline Communications (ISPLC 2005), Vancouver, BC, 2005, pp. 400-404.

36. Yu-ju Lin, Haniph Latchman, Jonathan Liu, and Richard Newman, "Periodic Contention-free Multiple Access for Broadband Multimedia Powerline Communication Networks," in proceedings of IEEE International Symposium on Power Line Communications (ISPLC 2005), Vancouver, Cananda, April 2005.

37. Haniph A. Latchman, Kaywan H. Afkhamie, Srinivas Katar, Richard Newman, Brent Mashburn, and Larry Yonge, "High Speed Multimedia Home Networking Over Powerline," National Cable and Telecommunications Association (NCTA) National Show, San Francisco, CA, April 3-5, 2005.

38. Richard E. Newman, Vipan N. Reddy, and Ira S. Moskowitz, "Anonymity and Covert Channels in Simple Timed Mix-firewalls," in proceedings of WPET 2004, May 2004, Toronto, Canada, pp. 1-16. published in LNCS 3424, D. Martin and A. Serjantov, eds., Springer

39. Ira S. Moskowitz, Richard E. Newman and Paul F. Syverson, "Quasi-anonmymous Channels," in proceedings of CNIS 2003, December 2003, NY, NY, pp. 126-131.

40. Ira S. Moskowitz, Richard E. Newman, Daniel P. Crepeau and Allen R. Miller, "Covert Channels and Anonymizying Networks," proceedings of ACM Workshop on Privacy in Electronic Society (WPES), October 30, 2003, Washington, DC, pp. 79-88.

41. Serjantov, Andrei and Richard E. Newman, "On the Anonymity of Timed Pool Mixes," IFIP International Information Security Conference, 2nd Bi-Annual Working Conference on Privacy and Anonymity in Networked and Distributed Systems (I-NetSec03), 26-28 May, 2003, Athens, Greece.

42. Newman, Richard E., Ira S. Moskowitz, Paul Syverson and Andrei Serjantov, "Metrics for Traffic Analysis Prevention," Workshop on Privacy Enhancing Technologies, 26-28 March, 2003, Dresden, Germany

43. Newman, R., Lee, M. K., S. Katar, H. Latchman and L. Yonge, "Field Performance Comparison of IEEE 802.11b and HomePlug 1.0", 27th Annual IEEE Conference on Local Computer Networks, Nov. 6, 2002 - Nov. 8, 2002, Tampa, Florida, pp. 598-599.

44. Onbilger, Oguz Kaan, R. Chow and R. Newman, "Remote Digital Signing with Mobile Agents," The Second International Workshop for Asian Public Key Infrastructures (IWAP 2002), October 30-November 01, 2002, Taipei, Taiwan, pp. 123-130.

45. Newman, Richard, Ira Moskowitz, Li-Wu Chang and Murali M. Brahmadesam, "A Spatial Steganographic Embedding Undetectable by JPEG-Compatibility Steganalysis," Int'. Workshop on Information Hiding IH 2002, October, 2002, the Netherlands, pp. 258-277.

46. Moskowitz, I. S., L. Chang and R. E. Newman, "Capacity is the Wrong Paradigm", ACM New Security Paradigms Workshop, September 23-26, 2002, Virginia Beach, VA, USA, pp. 114-126.

47. Onbilger, Oguz Kaan, R. Newman and R. Chow, "A Distributed and Compromise-tolerant Mobile Agent Protection Scheme," International Conference on Intelligent Agents, Web Technologies and Internet Commerce - IAWTIC2001, July 2001, Las Vegas, pp. 394-400.

48. Lee, Chung-Wei, Jonathan C.L. Liu, Randy Chow, and Richard Newman, "Altruistic QoS Routing with Multimedia Dispersion," International Conference on Multimedia and Exposition, July 2001, Japan.

49. Lee, Chung-Wei, Jonathan C.L. Liu, Randy Chow, and Richard Newman, "An Altruistic QoS Routing for Multimedia Communications," International Symposium on Intelligent Multimedia, Video & Speech Processing, Hong Kong, May 2-4, 2001.

50. Richard Newman, "Key Distribution for a MLS Network Architecture," *Proceedings of the SPIE Conference on Mathematics of Data/Image Coding, Compression, and Encryption III,* San Diego, CA, July 2000, pp. 29-43.

51. Newman, R., B. Bouldin, P. Broccard, T. Coscenza, S. Farago, M. Hoyt, K. Nolan, M. Sanders, T. Swanson and J. Winner, "Use of LSP in Securing Wireless LAN Communications," *Proceedings of the SPIE Conference on Mathematics of Data/Image Coding, Compression, and Encryption III,* San Diego, CA, July 2000, pp. 44-55.

52. **Lee, C. W., R. Chow and R. Newman, "A QoS Routing Model for Active Networks,"** *Proc. 5th International Conference on Computer Science and Informatics*, **Washington, D.C., February, 2000.**

53. **Newman, R., M. V. Hoyt, T. Swanson, P. Broccard, M. Sanders and J. Winner, "Design of LAN-Lock, A System for Securing Wireless Networks,"** *Proceedings of the Fifteenth Annual Computer Security Applications Conference*, **pp. 170-177, Phoenix, AZ, Dec. 6-10, 1999.**

54. **Jyh-haw Yeh, Randy Chow, and Richard Newman, "A Dynamic Interdomain Communication Path Setup in Active Network,"** *Proceedings of the First International Working Conference on Active Networks*, **pp. 274-284, Berlin, Germany, June 30-July 2, 1999.**

55. **Newman, R. and O. Onbilger, "Analysis of Multidimensional Rotation Cryptosystems,"** *Proceedings of the SPIE Conference on Mathematics of Data/Image Coding, Compression, and Encryption,* **Denver, CO, July 1999.**

56. **Newman, R., L. Dyson and O. Sabina, "Authentication and Key Exchange for Mobile Groupware Users,"** *Proceedings of the SPIE Conference on Mathematics of Data/Image Coding, Compression, and Encryption,* **3456, San Diego, CA, July 1998.**

57. **Yeh, S., R. Chow and R. Newman, "Key Assignment for Enforcing Access Control Policy Exceptions,"** *Proceedings of the International Symposium on Internet Technology*, **pp. 54-59, Taipei, Taiwan, April 1998.**

58. **Eksioglu, O., R. Newman and R. Chow, "The Design and Implementation of Packet-Level Access Control Security Scheme (PASS),"** *Proceedings of the International Symposium on Internet Technology*, **pp. 266-271, Taipei, Taiwan, April 1998.**

59. **Newman, R. E., R. Chow and J. Lin, "Efficient Link Access Protocols for High Delay Shared Laser Links,"** *Proceedings of the SOQUE International Symposium on Lasers*, **New Orleans, LA, December 1997.**

60. **Yeh, S., R. Chow and R. Newman, "Interdomain Access Control with Policy Routing,"** *Proceedings of the 6th IEEE Workshop on Future Trends in Distributed Computing*, **pp. 46-52, Tunis, Tunisia, October 1997.**

61. **Venkatraman Balaji R. and R. E. Newman-Wolfe, "Capacity Estimation and Auditability of Network Covert Channels,"** *Proceedings of the IEEE Symposium on Security and Privacy*, **pp. 186-198, Oakland, CA, May 8-10, 1995.**

62. **Venkatraman Balaji R. and R. E. Newman-Wolfe, "Performance Analysis of a Method for High Level Prevention of Traffic Analysis Using Measurements from a Campus Network,"** *Proceedings of the IEEE/ACM Tenth Annual Computer Security Applications Conference*, **pp. 288-297, Orlando, FL, December 5-9, 1994.**

63. **Venkatraman, Balaji R., Hyun Park and R. E. Newman-Wolfe, "Simulation of a SMDS Network,"** *Proceedings of Summer Computer Simulation Conference,* **La Jolla, CA, July 18-20, 1994.**

64. **Acharya, Madhu K., Bharati Bhalla, R. E. Newman-Wolfe, Haniph Latchman and Randy Chow, "A Flow Model for Computer Network Traffic Using Real-time Measurements," in** *Proceedings of the Second International Conference on Telecommunication Systems, Modeling and Analysis,* **pp. 141-149, Nashville, TN, March 1994.**

65. **Venkatraman Balaji R. and R. E. Newman-Wolfe, "Transmission Schedules to Prevent Traffic Analysis,"** *Proceedings of the IEEE/ACM Ninth Annual Computer Security Applications Conference*, **pp. 108-115, Orlando, FL, December 6-10, 1993.**

66. **Harathi, Krishna, Padmashree Krishna, Richard E. Newman-Wolfe and Randy Y. C. Chow, "A Fast Link Assignment Algorithm for Satellite Communication Networks,"** *Proceedings of the Twelfth Annual International Phoenix Conference on Computers and Communication*, **pp. 401-408, Phoenix, AZ, March 23-26, 1993.**

67. **Acharya, Madhu K., R. E. Newman-Wolfe, Haniph Latchman, Randy Chow and Bharati Bhalla, "Hierarchical Traffic Characterization of a Local Area Network,"** *Proceedings of the International Conference of Computer Networks: Current Status - Future Goals*, **pp. FT7-FT15, Ahmedabad, India, December 10-11, 1992.**

68. **Ward, Christopher, Saqib Khan, Yuan-Chieh Chow and Richard Newman-Wolfe, "Performance of a Routing Switch Using Transputers,"** *Proceedings of International Simulation Technology Conference, SIMTEC 92*, **pp. 118-132, Clear Lake, TX, November 4-6, 1992.**

69. **Newman-Wolfe, R. E. and Balaji R. Venkatraman, "Performance Analysis of a Method for High Level Prevention of Traffic Analysis,"** *Proceedings of the IEEE/ACM Eighth Annual Computer Security Applications Conference*, **pp. 123-130, San Antonio, TX, November 30-December 4, 1992.**

70. **Acharya, Madhu K., R. E. Newman-Wolfe, Haniph A. Latchman, Randy Chow and Bharati Bhalla, "Real-time Hierarchical Traffic Characterization of a Campus Area Network,"** *Proceedings of the Sixth International Conference on Modeling Techniques and Tools for Performance Evaluation*, **pp. 113-128, Edinburgh, Scotland, September 16-18, 1992.**

71. **Newman-Wolfe, R. E., M. Webb and M. Montes, "Implicit Locking in the Ensemble Object-Oriented Concurrent Graphics Editor,"** *Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW 92*, **pp. 265-272, Toronto, Ont., November 1-4, 1992.**

72. **Newman-Wolfe, R. E. and M. Montes, "Conference Access Control in DCS,"** *Proceedings of GroupWare '92*, **pp. 433-437, San Jose, CA, August 3-5, 1992.**

73. **Woo, Tai-Kuo and Richard Newman-Wolfe, "Huffman Trees as a Basis for a Dynamic Mutual Exclusion Algorithm for Distributed Systems,"** *Proceedings of the 12th IEEE International Conference on Distributed Computing Systems*, **pp. 126-133, Yokohama, Japan, June 9-12, 1992.**

74. **Alvarez-Del-Pino, Felipe, Randy Chow, Saleem F. Hussaini, Haniph A. Latchman, Yann-Hang Lee, Gowdgere K. Madhusudan, Richard Newman-Wolfe and Balaji R. Venkatraman, "Performance Analysis and Traffic Characterization of an Ethernet Campus Network to Identify and Develop Possible SMDS Applications and Scenarios,"** *Proceedings of IEEE Southeastcon '92*, **pp. 389-391, Birmingham, April 12-15, 1992.**

75. **Venkatraman, B. R., R. E. Newman-Wolfe and R. Chow, "Measurements and Characterization of Traffic in a University Environment,"** *Proceedings of the 30th Annual ACM Southeast Conference*, **pp. 45-52, Raleigh, NC, April 8-10, 1992.**

76. **Soon Lye Lim and Richard E. Newman-Wolfe, "Relationships between Network Parameters and the Performance of Distributed Adaptive Routing Algorithms Using Learning Automata in Packet-Switched Datagram Networks,"** *Proceedings of IEEE Conference on Knowledge-Based Systems, SPIE OE/Aerospace Sensing Symposium*, **pp. 117-125, Orlando, April 20-24, 1992.**

77. **Luo, K. C., W. Klostermeyer, Y. C. Chow and R. E. Newman-Wolfe, "An Optimal Distributed Algorithm for Failure-Driven Leader Election in Bounded-Degree Networks,"** *Proceedings of the 3rd IEEE Workshop on Future Trends in Distributed Processing*, **pp. 136-141, Taipei, Taiwan, April 1992.**

78. **Newman-Wolfe, R. E. and B. R. Venkatraman, "High Level Prevention of Traffic Analysis,"** *Proceedings of the Seventh Annual Computer Security Applications Conference*, **pp. 102-109, San Antonio, December 2-6, 1991.**

79. **Newman-Wolfe, R. E. and H. Pelimuhandiram, "The MACE Fine-grained Concurrent Text Editor,"** *Proceedings of ACM/IEEE Conference on Organizational Computing Systems, COCS 91*, **pp. 240-254, Atlanta, November, 1991.**

80. **Newman-Wolfe, R. E., C. Ramirez, H. Pelimuhandiram, M. Montes, M. Webb and D. L. Wilson, "A Brief Overview of the DCS Distributed Conferencing System,"** *Proceedings of the Summer Usenix Conference*, **pp. 437-452, Nashville, TN, June 1991.**

81. **Luo, K. C., Y. C. Chow and R. E. Newman-Wolfe, "Near-optimal Heuristics for Scheduling on Task-dependent Machines,"** *Proceedings of the Second IEEE Symposium on Parallel and Distributed Processing*, **pp. 842-847, December 1990.**

82. **Luo, K. C., Y. C. Chow and R. E. Newman-Wolfe, "An Efficient Broadcast Protocol in Networks with Changing Topologies,"** *Proceedings of the Second IEEE Workshop on Future Trends in Distributed Computing Systems*, **pp. 88-93, September 1990.**

83. **Luo, K. C., Y. C. Chow and R. E. Newman-Wolfe, "An Efficient Algorithm for Reconfiguration of Large-Scale Point-to-Point Satellite Computer Networks with Maximum Connectivity,"** *Proceedings of the Ninth Annual International Phoenix Conference on Computers and Communication*, **pp. 194-201, March 1990.**

84. **Woo, T. K., Stanley Y. W. Su and Richard Newman-Wolfe, "Enhancing the Performance of a Dynamically Partitionable Bus Network Using a Graph Coloring Algorithm,"** *Proceedings of the 1990 ACM Computer Science Conference*, **pp. 29-36, Wash. D. C., Feb. 19-22, 1990.**

85. **Bermudez, M., G. Logothetis and R. E. Newman-Wolfe, "Parallel Generation of LR Parsers,"** *Proceedings of the International Conference on Parallel Processing* **Vol. III, pp. 151-155, St. Charles, IL, Aug. 1988.**

86. **Newman-Wolfe, R. E. and A. Mirkis, "Use of Blackboards in Software Project Information Management,"** *Proceedings of ACM SECON 88*, **pp. 708-713, Apr. 20-22, 1988.**

87. **McLochlin, C., C. Ward, Y. C. Chow, R. E. Newman-Wolfe, J. N. Wilson, and T. B. Hughes, "Optimizing the Delay and Reliability of Low Altitude Satellite Network Topologies",** *Proceedings of the IEEE Military Communications Conference, MILCOM87*, **pp. 417-422, Washington, D.C., October 19-22, 1987.**

88. **McLochlin, C., C. Ward, Y. C. Chow, R. E. Newman-Wolfe, J. N. Wilson and T. B. Hughes, "Determining the Delay and Reliability of Low Altitude Satellite Network Topologies Using Simulation,"** *Proceedings of ACM SIGSIM and IEEE Computer Society Symposium on the Simulation of Computer Networks*, **pp. 28-35, Colorado Springs, CO, August 1-4, 1987.**

89. **Newman-Wolfe, R. E., "A Protocol for Wait-Free Atomic Multi-Reader Shared Variables,"** *Proceedings of the 1987 ACM Symposium on the Principles of Distributed Computing*, **pp. 232-247, Vancouver, BC, Canada, August 1987.**

90. **Newman-Wolfe, R. E., "A Partitioning Problem Arising in the Design of Small Universal Emulators,"** *Proceedings of the 24th Annual Allerton Conference on Communication, Control, and Computing*, **pp. 807-811, Monticello, IL, October 1986.**

91. **Newman-Wolfe, R. E., "Economical Atomic Multi-Reader Shared Registers,"** *Proceedings of the 24th Annual Allerton Conference on Communication, Control, and Computing*, **pp. 1073-1078, Monticello, IL, October 1986.**

**Unrefereed Conferences and Technical Reports**

1. **Piyush Harsh and Richard Newman, "A Hierarchical Multicast Session Directory Service Architecture," IETF RFC, best practices, Nov. 16, 2009-May 20, 2010.**

2. **Ira S. Moskowitz, Richard E. Newman, Daniel P. Crepeau and Allen R. Miller, "A Detailed Mathematical Analysis of a Class of Covert Channels Arising in Certain Anonymizying Networks," Technical Report NRL/MR/5540–03-8691, Naval Research Laboratory, Code 5543, Washington, DC 20375-5320, August 1, 2003, 37 pages.**

3. **W. F. Klostermeyer, R. E. Newman-Wolfe, K. Luo and Y. C. Chow, "DAG Compression for Improving Response after Deadlock Resolution," Southeast International Conference on Combinatorics, Graph Theory and Computing, Baton Rouge, LA, Feb. 1991.**

4. **M. E. Bermudez, R. E. Newman-Wolfe and G. Logothetis, "Parallel Computation of Top-Down Context-Free Parsers," Southeast International Conference on Combinatorics, Graph Theory and Computing, Baton Rouge, LA, Feb. 1991.**

5. **R. E. Newman-Wolfe and S. L. Davis, "Sequences, Schedules, and Initialization of Unsynchronized Networks," Southeast International Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, Feb. 1990.**

6. **R. E. Newman-Wolfe, S. L. Davis and Y. C. Chow, "Initialization of Dynamic Laser Networks," Proceedings of the Society for Optical and Quantum Electronics** *Lasers '89 Conference*, **New Orleans, LA, Dec. 3-8, 1989.**

7. **R. Chow, C. McLaughlin, C. Ward and R. E. Newman-Wolfe, "Link Assignment and Routing in Low Altitude Satellite Networks,"** *Proceedings of SPIE Symposium on Innovative Science and Technology*, **Los Angeles, CA, Jan. 1988.**

8. **R. Paturi, Joel I. Seiferas, J. Simon and R. E. Newman-Wolfe, "Milking the Aanderaa Argument," University of Rochester TR-266, Nov. 1988.**

9. **R. E. Newman-Wolfe, R. Dutton and R. Brigham, "Connecting Sets in Graphs - A Domination Related Concept," presented at the Southeast International Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, 1988.**

10. **R. E. Newman-Wolfe and A. Mirkis, "Use of Blackboards in Software Project Information Management," SERC-TR-6F, UF CIS Department, Dec. 1987.**

11. **R. E. Newman-Wolfe, "Communication Issues in Parallel Computation," dissertation, University of Rochester, August 1987, appears as TR-200, University of Rochester Computer Science Department, December, 1986.**

12. **R. E. Newman-Wolfe, "Observations on Multi-Peg Towers of Hanoi," TR-187, University of Rochester Computer Science Department, July 1986.**

13. **R. E. Newman-Wolfe, "Outside Path Partitions," Proceedings of the 1986 Open House, TR-184, University of Rochester Computer Science Department, pp. 9-14, April 1986.**

14. **R. E. Newman-Wolfe (editor), Proceedings of the 1986 Open House, TR-184, University of Rochester Computer Science Department, April 1986.**

15. **R. E. Newman-Wolfe, "A Set Theoretic Problem: A Solution for the Hypercube and its Applications," TR-171, University of Rochester Computer Science Department, October 1985.**