

Curriculum Vitae

(January 2019)

B. Clifford Neuman

Education:

- Ph. D. Computer Science, June 1992, University of Washington
Thesis: The Virtual System Model, A Scalable Approach to Organizing Large Systems. Supervised by Professor Edward D. Lazowska
- M.S. Computer Science, May 1988, University of Washington
- S.B. Computer Science and Engineering June 1985, Massachusetts Institute of Technology
Thesis: Sentry, A Discretionary Access Control Server.
Supervised by Dr. David D. Clark

Employment:

- Senior Research Scientist, Information Sciences Institute, University of Southern California, 1991-Present.
- Associate Division Director, Computer Networks Division, Information Sciences Institute, University of Southern California, 2001-June 2005.
- Director, Center for Computer Systems Security, University of Southern California, 2002-Present.
- Associate Director, Informatics Program, University of Southern California, 2014-present.
- Associate Professor of Computer Science Practice, Department of Computer Science, University of Southern California, 2016-.
- Research Associate Professor, Department of Computer Science, University of Southern California, 2008-2016.
- Research Assistant Professor, Department of Computer Science, University of Southern California, 1992-2008.
- Chief Scientist, CyberSafe Corporation, 1992 – 2001.

- Pre-Doctoral Research Associate, Department of Computer Science, University of Washington, 1987-1991.
- Project Athena, Massachusetts Institute of Technology 1985-1986.
- Systems Programmer, EECS Computer Facility, Massachusetts Institute of Technology 1982-1985.

Advisory Boards:

- NTT Communications Security Advisory Board, 2003-2006.
- Eyematic Corporation, 1999-2001.
- Net Research Inc / BayBuilder, 2000-2001.

Courses taught:

- INF-523 Computer Systems Assurance, Spring 2016, Fall 2017, Fall 2018
- INF 524 Distributed Systems and Network Security, Summer 2015
- INF-526 Secure System Administration, Summer 2016, Spring 2017
- INF 527 Secure Systems Engineering, Fall 2015
- INF 529 Privacy and Security for Informatics, Spring 2016-2019
- CSci 530 Computer Security Systems (University of Southern California), Fall 2003-2018.
- CSci 555 Advanced Operating Systems (University of Southern California), Fall 1992-2003, 2006-2012, 2014.
- CSci599 Trusted Computing (University of Southern California), Spring 2007.
- CSci599 Hacking for Defense, Spring 2018, Spring 2019.
- CSci 451 Operating Systems (for University of Washington Extension), Spring 1987.

Tutorials taught:

Electronic Payment Systems, presented at:

- Usenix Workshop on Electronic Commerce, New York, July 1995.
- Usenix Workshop on Electronic Commerce, Oakland, CA, November 1996.
- Internet Society Symposium on Network and Distributed Systems Security, March 1998.
- Usenix Workshop on Electronic Commerce, Boston, MA, September 1998.
- Internet Society Symposium on Network and Distributed Systems Security, February 1999.

- 8th International World Wide Web Conference, Toronto, Canada May 1999.

Web Security and Beyond: Protecting your Electronic Commerce Application, presented at:

- Internet Society Symposium on Network and Distributed Systems Security, March 1998.
- Internet Society Symposium on Network and Distributed Systems Security, February 1999.

Research Interests:

Dr. Neuman conducts research in distributed computer systems with emphasis on scalability and computer security, especially for cyber-physical systems and critical infrastructure.

In his research, Dr. Neuman works to design and develop scalable information, security, and computing infrastructure for the Internet. He is the principal designer of the Kerberos system, an encryption based authentication system used among other things as the primary authentication method for Microsoft's Windows 2000, XP and many other systems. He has used Kerberos as a base for more comprehensive computer security infrastructure providing authorization, accounting, and audit.

Recent research includes managing computer security policies in federated and coalition environments, and using policy as a unifying element for integrating all security services including authorization, audit, and intrusion detection with systems and applications. This work extends the application of trusted computing to protect mutually suspicious entities from one another and forms the basis for the TrustView security architecture.

Most recently, Dr. Neuman has focused on security for cyber-physical systems, with an emphasis on protection of critical infrastructure, including the power grid. Recent publications discuss cross-domain threat propagation in such systems, and mitigation techniques applied in both the cyber and physical domains.

Dr. Neuman has designed systems for network payment which build upon security infrastructure to provide a secure means to pay for services provided over the Internet. The NetCheque and NetCash systems, which are suitable for micropayments (payments on the order of pennies where the cost of clearing a credit card payment would be prohibitive). NetCheque provides accounting for the flow of funds through the system whereas NetCash supports anonymous transactions.

He is the principal designer of the Prospero system which is used to organize and retrieve information distributed on the Internet. The Prospero system applies the Virtual System

Model to construct views of the information available on the network. Prospero is an embedded system that is used by several commercial products.

The Prospero Resource Manager (PRM) supports the management of computing resources in distributed systems. PRM provides multiple views of the available resources by supporting multiple resource managers, each controlling a subset of the resources in the system, independent of other managers of the same type. The functions of resource management are distributed across three types of managers: system managers, job managers, and node managers. The complexity of these management roles is reduced because each is designed to utilize information at an appropriate level of abstraction.

Awards

- InfoWorld Top Ten Technology Innovators, InfoWorld Magazine, February 2002.
- 2001 Usenix Software Tools User Group Award recipient for contributions to the development of Kerberos.
- DARPA Dynamic Coalitions Program 2003 award for excellence in academic research.

Memberships and Professional Activities:

Memberships

- Association for Computing Machinery (ACM) – Life member.
- Institute of Electrical and Electronic Engineers (IEEE) - Senior member
- IEEE Computer Society
- Internet Society (ISOC)
- Internet Engineering Task Force (IETF) - Participant
- Usenix Association

Program and General Chair

- Program Chair, Fourth Annual PKI R&D Workshop: “Multiple Paths to Trust”, Gaithersburg, MD. April 2005.
- General Chair, 2004 Internet Society Symposium on Network and Distributed System Security, San Diego, CA, February 2004.
- General Chair, 2003 Internet Society Symposium on Network and Distributed System Security, San Diego, CA, February 2003.

- Vice Program Chair, Security Track, International Conference on Distributed Computing Systems (ICDCS), Vienna Austria, 2002.
- Program Chair, 2002 Workshop on Accelerating Trustworthy Internetworking.
- General Chair, 2002 Internet Society Symposium on Network and Distributed System Security. San Diego, CA, February 2002.
- Program Chair, 4th ACM Conference on Computer and Communications Security, Zurich, Switzerland. April 1997.
- Program Chair, 4th Internet Society Symposium on Network and Distributed System Security, San Diego, CA, February 1997.
- Program Chair, 3rd Internet Society Symposium on Network and Distributed System Security, San Diego, CA, February 1996.

Editorial and Publication Advisory Boards

- Guest Editor, Journal of High Speed Networking, special issue on managing security policies, 2006.
- Contributed/Edited section of Report of the Workshop on Responding to the Unexpected, February 27, 2002, New York City.
- Editorial Board, International Journal of Electronic Commerce, June 1996 - Present.
- Editorial Board, ACM Transaction on Information and Systems Security, 1998 – 2001.

Program Committees

- Program Committee, 2015 Industrial Control Systems Security Workshop at ACSAC, December 2015, Los Angeles.
- Program Committee, 2015 IEEE International Conference on Intelligence and Security Informatics, May 2015. Baltimore MD, USA.
- Steering Group, 2013 Internet Society Symposium on Network and Distributed System Security, San Diego, CA, February 2014.

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