

# Steven M. Bellovin

Percy K. and Vida L.W. Hudson Professor of Computer  
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## Education

**1982** Ph.D., University of North Carolina at Chapel Hill. Dissertation: *Verifiably Correct Code Generation Using Predicate Transformers*; advisor: David L. Parnas.

**1977** M.S., University of North Carolina at Chapel Hill.

**1972** B.A., Columbia University.

## Employment

**2017–now** Affiliate faculty membr, Columbia University Law School.

**2014–now** Percy K. and Vida L.W. Hudson Professor of Computer Science, Columbia University.

**2016** Technology Scholar, Privacy and Civil Liberties Oversight Board.

**2005–2014** Professor of Computer Science, Columbia University.

**2012–2013** Chief Technologist, Federal Trade Commission.

**2002–2004** Adjunct Professor of Computer Science, University of Pennsylvania.

**2005–2012** AT&T, consultant

**1998–2004** AT&T Fellow, AT&T Labs—Research.

**1987–1998** Distinguished Member of the Technical Staff, AT&T Bell Laboratories and AT&T Labs—Research.

**1982–1987** Member of the Technical Staff, AT&T Bell Laboratories.

**1977–1978** Instructor, Dept. of Computer Science, University of North Carolina at Chapel Hill.

## Honors

- 2016** ESORICS Outstanding Research Award
- 2016** EFF Pioneer Award (co-winner with the other authors of the “Keys Under Door-mats” paper)
- 2015** J.D. Falk Award (co-winner with the other authors of the “Keys Under Door-mats” paper)
- 2014** Elected to the Cybersecurity Hall of Fame
- 2006** Received the 2007 NIST/NSA National Computer Systems Security Award
- 2001** Elected to the National Academy of Engineering.
- 1998** Named an AT&T Fellow.
- 1995** Received the Usenix Lifetime Achievement Award (“The Flame”), along with Tom Truscott and Jim Ellis, for our role in creating Usenet.

## Books and Chapters

- Lynette I. Millett, Baruch Fischhoff, and Peter J. Weinberger, editors. *Foundational Cybersecurity Research: Improving Science, Engineering, and Institutions*. National Academies Press, 2017.
- Steven M. Bellovin. *Thinking Security: Stopping Next Year’s Hackers*. Addison-Wesley, Boston, 2016.
- Salvatore Stolfo, Steven M. Bellovin, Angelos D. Keromytis, Sara Sinclair, Sean Smith, and Shlomo Hershkop, editors. *Insider Attack and Cyber Security: Beyond the Hacker (Advances in Information Security)*. Springer, 2008.
- Seymour E. Goodman and Herbert S. Lin, editors. *Toward a Safer and More Secure Cyberspace*. National Academy Press, 2007.
- Stephen T. Kent and Lynette I. Millett, editors. *Who Goes There? Authentication Through the Lens of Privacy*. National Academies Press, 2003.
- John L. Hennessy, David A. Patterson, and Herbert S. Lin, editors. *Information Technology for Counterterrorism: Immediate Actions and Future Possibilities*. National Academies Press, 2003.
- William R. Cheswick, Steven M. Bellovin, and Aviel D. Rubin. *Firewalls and Internet Security; Repelling the Wily Hacker*. Addison-Wesley, Reading, MA, 2 edition, 2003.
- *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. National Academies Press, 2002.

- Stephen T. Kent and Lynette I. Millett, editors. *IDs—Not That Easy: Questions About Nationwide Identity Systems*. National Academies Press, 2002.
- Fred B. Schneider, editor. *Trust in Cyberspace*. National Academy Press, 1999.
- Network security issues. In Peter Denning and Dorothy Denning, editors, *Internet Besieged: Countering Cyberspace Scofflaws*. ACM Press, 1997.
- Network security issues. In A. Tucker, editor, *CRC Computer Science and Engineering Handbook*. CRC Press, 1996.
- Security and software engineering. In B. Krishnamurthy, editor, *Practical Reusable UNIX Software*. John Wiley & Sons, 1995.
- William R. Cheswick and Steven M. Bellovin. *Firewalls and Internet Security: Repelling the Wily Hacker*. Addison-Wesley, Reading, MA, 1 edition, 1994.

## Papers and Articles

- Steve Bellovin. Here's how to make sure Hawaii's missile warning fiasco isn't repeated. *Ars Technica*, January 21, 2018.
- Jonathan Bair, Steven Bellovin, Andrew Manley, Blake Reid, and Adam Shostack. Voluntary reporting of cybersecurity incidents. *Colorado Technology Law Journal*, 16(2), 2018. To appear.
- Steven Bellovin. Replacing social security numbers is harder than you think. *Vice Motherboard*, October 5, 2017.
- Steven M. Bellovin, Susan Landau, and Herbert S. Lin. Limiting the undesired impact of cyber weapons: Technical requirements and policy implications. *Journal of Cybersecurity*, 3(1), 2017.
- Sebastian Zimmeck, Hyungtae Kim, Steven M. Bellovin, and Tony Jebara. A privacy analysis of cross-device tracking. In *Usenix Security*, August 2017.
- Sebastian Zimmeck, Ziqi Wang, Lieyong Zou, Roger Iyengar, Bin Liu, Florian Schaub, Shomir Wilson, Norman Sadeh, Steven M. Bellovin, and Joel Reidenberg. Automated analysis of privacy requirements for mobile apps. In *Proceedings of NDSS '17*, February 2017.
- Steven M. Bellovin. Who are you? *IEEE Security & Privacy*, 15(6), November/December 2017.
- Steven M. Bellovin. Jurisdiction and the internet. *IEEE Security & Privacy*, 15(3), May–June 2017.
- Steven M. Bellovin. Further information on Miller's 1882 one-time pad. *Cryptologia*, 2017. To appear.

- Steven M. Bellovin. Mysterious checks from Mauborgne to Fabyan. *Cryptologia*, 2017. To appear.
- John Koh, Steven M. Bellovin, and Jason Nieh. Mitigating email attacks with easy email encryption. Draft, November 2016.
- Steven M. Bellovin and Adam Shostack. Input to the Commission on Enhancing National Cybersecurity, September 2016.
- Steven M. Bellovin. Comments on “Protecting the privacy of customers of broadband other telecommunications services”, July 2016.
- Steven M. Bellovin, Matt Blaze, Susan Landau, and Stephanie Pell. It’s too complicated: How the Internet upends *Katz, Smith*, and electronic surveillance law. *Harvard Journal of Law and Technology*, 30(1):1–101, Fall 2016.
- Steven M. Bellovin, Matt Blaze, and Susan Landau. Insecure surveillance: Technical issues with remote computer searches. *IEEE Computer*, 49(3):14–24, March 2016. An earlier version is available at <https://www.cs.columbia.edu/~smb/papers/rsearch.pdf>.
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- Steven M. Bellovin. Further information on Miller’s 1882 one-time pad. Technical Report CUCS-011-16, Department of Computer Science, Columbia University, November 25, 2016.
- Steven M. Bellovin. Vernam, Mauborgne, and Friedman: The one-time pad and the index of coincidence. In Peter Y. A. Ryan, David Naccache, and Jean-Jacques Quisquater, editors, *The New Codebreakers: Essays Dedicated to David Kahn on the Occasion of His 85th Birthday*. Springer, 2016.
- Steven M. Bellovin. Mysterious checks from Mauborgne to Fabyan. Technical Report CUCS-012-16, Department of Computer Science, Columbia University, November 28, 2016. Revised version.
- Harold Abelson, Ross Anderson, Steven M. Bellovin, Josh Benaloh, Matt Blaze, Whitfield Diffie, John Gilmore, Matthew Green, Susan Landau, Peter G. Neumann, Ronald L. Rivest, Jeffrey I. Schiller, Bruce Schneier, Michael A. Specter, and Daniel J. Weitzner. Keys under doormats: Mandating insecurity by requiring government access to all data and communications. *Journal of Cybersecurity*, 1(1), September 2015.
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- Steven M. Bellovin. The danger of ‘exceptional access’. *CNN.com*, November 18, 2015.
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- Steven M. Bellovin, Matt Blaze, and Susan Landau. Comments on proposed remote search rules, October 2014.
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- Steven M. Bellovin, Matt Blaze, Sandy Clark, and Susan Landau. Lawful hacking: Using existing vulnerabilities for wiretapping on the Internet. *Northwestern Journal of Technology & Intellectual Property*, 12(1), 2014.
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- Vasilis Pappas, Fernando Krell, Binh Vo, Vladimir Kolesnikov, Tal Malkin, Seung Geol Choi, Wesley George, Angelos Keromytis, and Steven M. Bellovin. Blind Seer: A scalable private DBMS. In *IEEE Symposium on Security and Privacy*, May 2014.
- Steven M. Bellovin, R. Bush, and D. Ward. Security Requirements for BGP Path Validation. RFC 7353, August 2014.

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- Steven M. Bellovin. Perceptions and reality. *IEEE Security & Privacy*, 8(5), September–October 2010.
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- Shaya Potter, Steven M. Bellovin, and Jason Nieh. Two person control administration: Preventing administration faults through duplication. In *LISA '09*, November 2009.



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- Hang Zhao and Steven M. Bellovin. Source prefix filtering in ROFL. Technical Report CUCS-033-09, Department of Computer Science, Columbia University, July 2009.
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- Yuu-Heng Cheng, Scott Alexander, Alex Poylisher, and Mariana Raykova Steven M. Bellovin. The Zodiac policy subsystem: a policy-based management system for a high-security MANET. Technical Report CUCS-023-09, Department of Computer Science, Columbia University, May 2009.
- Elli Androulaki and Steven M. Bellovin. An anonymous credit card system. In *Proceedings of 6th International Conference on Trust, Privacy & Security in Digital Business (TrustBus)*, September 2009. Longer version issued as Tech Report CUCS-010-09.
- Elli Androulaki and Steven M. Bellovin. An anonymous credit card system. Technical Report CUCS-010-09, Department of Computer Science, Columbia University, February 2009.
- Elli Androulaki and Steven M. Bellovin. Anonymous delivery of physical objects. In *Symposium on Privacy-Enhancing Technologies (PET)*, July 2009.
- Elli Androulaki, Binh Vo, and Steven M. Bellovin. Cybersecurity through identity management. In *Engaging Data: First International Forum on the Application and Management of Personal Electronic Information*, October 2009.
- Elli Androulaki and Steven M. Bellovin. A secure and privacy-preserving targeted ad-system. Technical Report CUCS-044-09, Department of Computer Science, Columbia University, October 2009. A revised version will appear at the 1st Workshop on Real-Life Cryptographic Protocols and Standardization.
- Mariana Raykova, Binh Vo, Tal Malkin, and Steven M. Bellovin. Secure anonymous database search. In *Proceedings of the ACM Cloud Computing Security Workshop*, November 2009.
- Steven M. Bellovin. Guidelines for Specifying the Use of IPsec Version 2. RFC 5406, February 2009.
- Steven M. Bellovin. The government and cybersecurity. *IEEE Security & Privacy*, 7(2), March–April 2009. (Ignore the part that says I work for Microsoft—I don't. . . The editor and I both missed that in the galleys.).

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- Maritza Johnson, Chaitanya Atreya, Adam Aviv, Mariana Raykova, Steven M. Bellovin, and Gail Kaiser. RUST: The reusable security toolkit, 2008. Draft.
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## Major Positions

- 2013–2015** Member, National Research Council study committee on FAA Next Generation Air Traffic Control System
- 2012–now** Member, National Research Council study committee on Cybersecurity Foundations
- 2010–now** Member, Computer Science and Telecommunications Board of the National Academies
- 2009–2012** Member, Technical Guidelines Development Committee of the Elections Assistance Commission
- 2008** Co-chair, Applied Cryptography and Network Security (ACNS)
- 2006** Chair, Steps Towards Reducing Unwanted Traffic in the Internet (SRUTI)
- 2005–2014** Member, Department of Homeland Security Science and Technology Advisory Committee
- 2004–2007** Member, National Research Council study committee on cybersecurity research needs.
- 2002–2004** Member, ICANN DNS Security and Stability Advisory Committee.
- 2002–2004** Security Area co-director, Internet Engineering Task Force (IETF).

- 2002** Chair, program committee, IEEE Symposium on Security and Privacy.
- 2002** Member, Information Technology sub-committee, National Research Council study committee on science and technology against terrorism.
- 2001–2003** Member, ACM Advisory Committee on Security and Privacy.
- 2001** Vice-chair, program committee, IEEE Symposium on Security and Privacy.
- 2001–2003** Member, National Research Council study committee on authentication technologies and their privacy implications.
- 2000–2002** Chair, IETF ITRACE working group.
- 2000** Co-chair, Usenix Security Symposium.
- 1999–2002** IETF representative, ICANN Protocol Supporting Organization
- 1999–2003** Co-chair, IETF SPIRITS working group.
- 1997–2001** Co-chair, IETF PINT working group.
- 1996–1998** Member, National Research Council study committee on information systems trustworthiness.
- 1996–2002** Member, Internet Architecture Board.
- 1996** Co-chair, Usenix Security Symposium.
- 1993–1995** Member, IETF IPng Directorate.

## **U.S. Patents**

- 9,392,423 Enhanced communication service for predicting and handling communication interruption
- 8,798,614 Enhanced communication service for predicting and handling communication interruption
- 8,676,916 Method and Apparatus for Connection to Virtual Private Networks for Secure Transactions
- 8,239,531 Method and Apparatus for Connection to Virtual Private Networks for Secure Transactions
- 8,145,793 System and Method for Distributed Content Transformation
- 8,107,479 Method and System for Telephony and High Speed Data Access on a Broadband Access Network
- 8,037,167 Method for Detecting Hosts behind Network Address Translators

7,907,517 Routing Protocols with Predicted Outage Notification

7,756,008 Routing Protocols with Predicted Outage Notification

7,676,224 Enhanced Communication Service for Predicting and Handling Communication Interruption (2010).

7,558,970 Full-Text Privacy-enhanced searches using encryption

7,227,843 Method for reducing congestion in packet-switched networks (2007).

7,051,365 Method and apparatus for a distributed firewall (2006).

7,035,410 Method and apparatus for enhanced security in a broadband telephony network (2006).

6,870,845 Method for providing privacy by network address translation (2005).

6,665,299 Method and system for telephony and high speed data access on a broadband access network (2003).

5,958,052 Method and apparatus for restricting access to private information in domain name systems by filtering information (1999).

5,870,557 Method for determining and reporting a level of network activity on a communications network using a routing analyzer and advisor (1999).

5,805,820 Method and apparatus for restricting access to private information in domain name systems by redirecting query requests (1998).

5,440,635 Cryptographic protocol for remote authentication (1995).

5,241,599 Cryptographic protocol for secure communications (1993).

Numerous other patent applications are pending.