Professor Ravi Sandhu

University of Texas at San Antonio

Executive Director and Founder, Institute for Cyber Security
Lutcher Brown Endowed Chair in Cyber Security
Professor of Computer Science, College of Sciences

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Degrees

Degree	Major	University	Year
Ph.D.	Computer Science	Rutgers University, New Jersey	1983
M.S.	Computer Science	Rutgers University, New Jersey	1980
M.Tech.	Computer Technology	Indian Institute of Technology, New Delhi	1976
B.Tech.	Electrical Engineering	Indian Institute of Technology, Bombay	1974

Academic Career

- **Univ. of Texas at San Antonio,** 2007 onwards: Full Professor and Endowed Chair (Cyber Security).
- **George Mason University,** 1995-2007: Full Prof., 1989-1995: Assoc. Prof. (Information Security).
- **Ohio State University,** 1983-1989: Assistant Professor, 1982-1983: Instructor (Computer Science).

Career Focus and Goals

My career has focused on high impact research, practice and education in cyber security starting with my doctoral thesis. Effective cyber security requires science, engineering, business, policy and people skills. My goal has been and is to instill this culture in the discipline and provide leadership in all elements.

Professional Recognition

- **Citations and Impact.** (Based on Google Scholar) 32,000+ citations. My h-index is 70 (70 papers with 70 or more citations each). Number 1 cited paper in access control with 7600+ citations. Number 1 non-cryptographer at Microsoft Academic Search in Security and Privacy, number 5 overall.
- **Frequent Keynote and Invited Speaker**. See www.profsandhu.com for details.
- **Society for Information Reuse and Integration Fellow, 2014**: For innovative work in computer and information security and outstanding service to SIRI.
- **ACM SIGSAC Outstanding Innovation Award, 2012.** "For seminal contributions to the theory and practice of access control, notably including role-based access control."
- **AAAS Fellow, 2008.** "For distinguished contributions to cyber security, including seminal role-based access control and usage control models, and for … leadership in research journals and conferences."
- **ACM SIGSAC Outstanding Contributions Award, 2008.**
- **IEEE Computer Society Technical Achievement Award, 2004.** "For outstanding and pioneering contributions to information security including innovation of the RBAC model and usage control."
- **IEEE Fellow 2002.** "For contributions to the field of information and system security."
- **ACM Fellow 2001.** "For technical contributions to the field of info. and system security, notably access control models and systems, and professional leadership in research journals and conferences."
- **Best Paper Awards.** IEEE Conf. on Information Privacy, Security, Risk and Trust (PASSAT 2012). NIST/NSA National Computer Security Conference (1992 and 1998).

University Recognition

- **University of Texas at San Antonio, 2015.** Charter member inductee of UTSA's Academy of Distinguished Researchers.

- **University of Texas at San Antonio, 2015. I**nductee of UTSA College of Science Academy for Outstanding Teaching Scholars.
- **University of Texas at San Antonio, 2007 onwards:** Lutcher Brown Endowed Chair in Cyber Security (Computer Science).
- **George Mason University 2001.** Outstanding research award.

Highly Cited Papers at Google Scholar Include:
Role-Based Access Control (RBAC)

- Role-Based Access Control Models, IEEE Comp., 29(2):38-47, 1996. 7600+ hits. #1 in access control.
- Proposed NIST Std. for RBAC. ACM TISSEC, 4(3):224-274, 2001. 3000+ hits.
- The NIST Model for Role-Based Access Control. 5th ACM RBAC:47-63, 2000. 1000+ hits.
- The ARBAC97 Model for Role-Based Admin. of Roles. ACM TISSEC, 2(1):105-135, 1999. 700+ hits.
- Configuring RBAC to Enforce MAC and DAC. ACM TISSEC, 3(2):85-106, 2000. 700+ hits.
- Role-Based Authorization Constraints Specification. ACM TISSEC, 3(4):207-226, 2000. 500+ hits
- Total 25+ RBAC papers with 100+ hits.

Usage Control

- The $UCON_{ABC}$ Usage Control Model, ACM TISSEC, 7(1):128-174, 2004. 900+ hits.
- Towards Usage Control Models: Beyond Traditional Access Control. ACM SACMAT 2002. 400+ hits.
- Usage Control: A Vision for Next Generation Access Control, MMM-ACNS 2003. 200+ hits.

Access Control Tutorials

- Access Control: Principles and Practice. IEEE Communications, 32(9): 40-48, 1994. 1200+ hits.
- Lattice-Based Access Control Models. IEEE Computer, 26(11): 9-19, 1993. 800+ hits.
- Database Security: Concepts, Approaches and Challenges. IEEE TDSC, 2(1): 2-19, 2005. 400+ hits.

Access Control Other Models

- Task-based Authorization Controls. 11th IFIP 11.3 Data and Application Sec.:262-275, 1997. 600+ hits.
- The Typed Access Matrix Model. 13th IEEE Security and Privacy (Oakland):122-136, 1992. 300+ hits.
- Toward a Multilevel Secure Relational Data Model, SIGMOD:50-59, 1991. 250+ hits.
- Transaction Control Expressions for Separation of Duties. 4th ACSAC:282-286, 1988. 200+ hits.
- Crypto. Implementation of a Tree Hierarchy for Access Control. IPL, 27(2):95-98, 1988. 200+ hits.
- The Schematic Protection Model, Journal of the ACM, 35(2):404-432, 1988. 150+ hits.

Research Highlights

- **Statistics:** 250+ papers (with 100+ co-authors), 30 USA patents, 22 PhD graduates, 45+ research grants.
- **Sponsors**: include NSF, NSA, NRO, NRL, AFOSR, NIST, DARPA, ARDA, AFOSR, Sandia, State Dept., DOE, IRS, RADC, FAA, Intel, Northrop Grumman, Lockheed Martin, ITT, Verizon.
- **Ongoing research initiatives include:** Access Control and Authorization Foundations, Attribute-Based Access Control, Relationship-Based Access Control, Security and Privacy in Cloud Computing, Internet of Things, Big Data and Secure Information Sharing Applications.
- **Earlier research**: My research on RBAC has been instrumental in establishing it as the preferred form of access control, including its acceptance as an ANSI/NIST standard in 2004. My earlier research on numerous access control models remains influential and state-of-the-art. My newer models such as UCON, group-centric secure information sharing and ABAC are gaining strong influence.

Professional Leadership Includes

- Editor-in-Chief, IEEE Transactions on Dependable and Secure Computing (TDSC), 2010-2013.
- Founding General Chair, ACM Conf. on Data and Applications Security and Privacy (CODASPY), 2011.
- Founding Editor-in-Chief, ACM Transactions on Information & Systems Security (TISSEC), 1997-2004.
- Chairman, ACM Special Interest Group on Security Audit and Control (SIGSAC), 1995-2003.
- Security Editor, IEEE Internet Computing, 1998-2004.
- Conference Founder: ACM CCS (1993), ACM SACMAT (1995), ACM CODASPY (2011).

- Conference Steering Committees: ACM CCS (1993-2003 Chair, 2003-2007 Member), ACM SACMAT (1995-2008 Chair), IEEE CSF (1992-2008 Member), ACM CODASPY (2010 onwards Chair).
- Conference Program Chair: IEEE CSF (1991, 1992), ACM CCS (1993, 1994, 2002), ACM SACMAT (1995, 2017), ACSAC (1996), IFIP WG 11.3 (1996), ACM CSAW (2007), ACM AsiaCCS (2011), ACM CODASPY (2012), NSS (2013), ARES (2013), CRISIS (2013).
- Conference Gen. Chair: IEEE: CSF (1993, 1994), ACM: CCS (1996), SACMAT (2001, 2002), CODASPY (2011, 2012, 2013, 2014).

Entrepreneurial and Consulting Career

- TriCipher Inc., 2000-2010, Chief Scientist and Co-Founder (Acquired by VMware in 2010).
- Consultant to numerous organizations including: McAfee, Trusted Information Systems, National Institute of Standards and Technology, Verizon, SETA Corporation, Argonne National Laboratory, Singapore Management University, Northrop Grumman, Integris Health.

Teaching Career

- Teach highly popular advanced graduate courses on Cyber Security Models and Systems at University of Texas at San Antonio
- I was the principal architect for the MS and PhD in Information Security and Assurance at George Mason University, where I personally developed and taught the core courses and multiple electives.
- I have presented short courses, tutorials and invited lectures all over the world including Asia, Australia, Europe, North America and South America.

Personal

- US Citizen, 1997. Born in India. Schooled at Doon School, IITs (Bombay and Delhi) and Rutgers University. Married with two sons.
- Fond of travel, diverse cultures and Bridge. Avid spectator of sports and current affairs.