

Professor Ravi Sandhu

**Executive Director and Chief Scientist, Institute for Cyber-Security Research (ICSR) & Lutchter Brown Endowed Chair of Cyber-Security, University of Texas at San Antonio.
Also Chief Scientist and Co-Founder, TriCipher Inc.**

Contact

Ravi Sandhu,

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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

Career Focus and Goals

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

Professional Recognition

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 information and system security, notably access control models and systems, and professional leadership in research journals and conferences.”

Highly Cited Papers

The most cited paper in Access Control with 2000+ Google Scholar citations.

1. Role-Based Access Control Models, IEEE Computer, 29(2):38-47, Feb. 1996.

The second-most cited paper in Access Control with 500+ Google Scholar citations.

2. Proposed NIST Standard for RBAC. ACM TISSEC, 4(3):224-274, Aug. 2001.

Paper with 300+ Google Scholar citations.

3. The ARBAC97 Model for Role-Based Admin. of Roles. ACM TISSEC, 2(1):105-135, Feb. 1999.

Papers with 200+ Google Scholar citations.

4. The NIST Model for Role-Based Access Control. 5th ACM RBAC:47-63, July 2000.
5. Configuring RBAC to Enforce MAC and DAC. ACM TISSEC, 3(2):85-106, May 2000.
6. Access Control: Principles and Practice. IEEE Communications, 32(9): 40-48, Sept. 1994.
7. Lattice-Based Access Control Models. IEEE Computer, 26(11): 9-19, Nov. 1993.

Papers with 100+ Google Scholar citations.

8. Role-Based Access Control on the Web. ACM TISSEC, 4(1):37-71, Feb. 2001.
9. Framework for Role-Based Delegation Models. 16th ACSAC:168-176, Dec. 2000.
10. Role-Based Authorization Constraints Specification. ACM TISSEC, 3(4):207-226, Nov. 2000.
11. Role-Based Access Control. Adv. in Computers, 46:237-286, Academic Press 1998.
12. Task-based Authorization Controls. 11th IFIP Data and Application Security:262-275, Aug. 1997.
13. The Typed Access Matrix Model. 13th IEEE Security and Privacy (Oakland):122-136, May 1992.

Research Highlights

- **Statistics:** 170+ papers (with 50+ co-authors), 9 USA patents, 12 PhD graduates, 30+ research grants.
- **Research sponsors include**
 - Govt.: NSF, NSA, NRO, NRL, NIST, DARPA, ARDA, AFOSR, Sandia, DOE, IRS, RADC, FAA.
 - Industry: Intel Corporation, Northrop Grumman, Lockheed Martin, ITT.

- **Recent research initiatives include**
 - The PEI (policy, enforcement, implementation) layered models methodology for synthesizing secure systems (since 2006, although the roots of PEI trace back to the OM-AM paper of 2000).
 - Using PEI for innovative applications of modern trusted computing including secure information sharing, secure knowledge management and collaboration systems (since 2004).
 - Development and applications of the UCON usage control model (since 2002).
 - Continued development of administrative models for RBAC (since 1997).
 - Security for the semantic web (since 2007).
- **Role-Based Access Control (RBAC).** 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.
- **Earlier research.** My research on multilevel secure databases and on safety in access control remains state-of-the art even today. Other significant contributions include influential papers on lattice-based access control, access control hierarchies, separation of duties and task-based access control.

Professional Leadership Includes

- Founding Series Editor, Synthesis Lectures on Info. Security, Privacy & Trust, Morgan-Claypool, 2006-.
- 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 Computer and Communications Security Conference (CCS) in 1993.
- Conference Founder, ACM Symposium on Access Control Models and Technologies (SACMAT) in 1995 (known as ACM Workshop on Role-Based Access Control prior to name change in 2001).
- Conference Steering Committee Chairman: ACM SACMAT.
- Conference Steering Committee Member: ACM CCS, IEEE CSFW.
- Past Program Chairman: CCS, SACMAT, CSFW, ACSAC, IFIP WG 11.3.
- Past General Chairman: CCS, SACMAT, CSFW.

Academic Career

- **Univ. of Texas at San Antonio, 2007-: Founding Executive Director and Chief Scientist, Institute for Cyber-Security Research (ICSR) and Lutchter Brown Endowed Chair of Cyber-Security**
Tenured Full Professor in the Department of Computer Science, College of Science.
ICSR spans multiple Colleges including the Colleges of Science, Engineering and Business.
- **George Mason University, 1995 onwards: Full Professor, 1989-1995: Associate Professor**
Department of Information and Software Engineering, George Mason University, Fairfax, Virginia
Director and founder of the Laboratory for Information Security Technology, 1995 onwards
- **Ohio State University, 1983-1989: Assistant Professor, 1982-1983: Instructor**
Department of Computer and Information Science, Ohio State University, Columbus, Ohio

Entrepreneurial and Consulting Career

- TriCipher Inc., 2000 onwards, Chief Scientist and Co-Founder
- 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

- My teaching is focused on Cyber-Security courses at the graduate level.
- I have been a leader in curriculum development throughout my career, notably at the MS & PhD level.
- I have presented short courses, tutorials and invited lectures all over the world including Asia, Australia, Europe, North America and South America.