DOUGLAS C. SZAJDA

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Research Interests

- Design, development, and analysis, of experimental systems and protocols for networking, security, and distributed computations.

Education

- **Postdoctoral Research Associate (Computer Science)**, University of Maryland Institute for Advanced Computer Studies, July 1999 – July 2001.
- **M.CS. (Master of Computer Science)** University of Virginia, August 1999.
  Project: *Testing the Isotach Prototype Hardware Switch Interface Unit*
  Adviser: Paul Reynolds
- **Ph.D. (Mathematics)** University of Virginia, May 1992.
  Thesis: *Spectral Theory of a Class of Unitary Pseudodifferential Operators*
  Adviser: Thomas L. Kriete, III
- **M.S. (Mathematics)** University of Virginia, May 1988
- **B.S. (Mathematics)** Lafayette College, May 1984
  Phi Beta Kappa, Magna Cum Laude

Academic Positions

- **Associate Professor of Computer Science**, University of Richmond, Richmond, Virginia, March 2006 – present.
- **Assistant Professor of Computer Science**, University of Richmond, Richmond, Virginia, August 2001 – February 2006.
- **Postdoctoral Research Associate (Computer Science)**, Institute for Advanced Computer Studies, University of Maryland, College Park, Maryland, July 1999 – July 2001.
- **Assistant Professor of Mathematics**, Department of Mathematics, Washington and Lee University, Lexington, Virginia, July 1994 – June 1997, July 1992 – June 1993.
- **Visiting Assistant Professor of Mathematics**, Department of Mathematics, St. Olaf College, Northfield, Minnesota, July 1993 – June 1994.

Industrial Positions

- **Consulting member of High-Performance Computing Laboratory**, Parabon Computation, Inc., Fairfax, Virginia, June 2000 – December 2000.
  Duties included the design, implementation, and analysis of applications for the Parabon Frontier™ large-scale distributed computing platform.
- **Expert Witness**, Skadden, Arps, Slate, Meagher & Flom, LLP, September 1999 – April 2001.
  Duties included preparing expert reports and testifying as expert witness for the defense in AVESTA vs. System Management Arts patent infringement suit.

Patents

- A. Agrawala, U. Shankar, D. Szajda, R. Larsen, *Method, System, and Computer Program Product for Positioning and Synchronizing Mobile Wireless Nodes*, United States Patent No. 7,224,984, issued May 29, 2007.

Grants

- D. Szajda, B. Lawson and W. Owen. *RUI: Ensuring Computation Integrity in Distributed Volunteer Computing Platforms.* National Science Foundation proposal number IIS-0524239 (Cyber Trust program). Three years (Sept. 1, 2005 – August 31, 2008), $401,193. Awarded funding for three years of salary supplement, four undergraduate students per summer session, two undergraduate students per academic semester, travel funding (student and faculty), and equipment to populate project lab.

Refereed Articles

- D. Szajda, M. Pohl, J. Owen, and B. Lawson, *Toward a Practical Data Privacy Scheme for a Distributed Implementation of the Smith-Waterman Genome Sequence Comparison Algorithm*, Proceedings of the 2006 ISOC Network and Distributed System Security Symposium (NDSS 2006), pages 253-265, San Diego, CA, February 2006.
- D. Szajda, B. Lawson, J. Owen, *Toward an Optimal Redundancy Strategy for Distributed Computations*, Proceedings of the 2005 IEEE International Conference on Cluster Computing (Cluster 2005), Boston, MA, September 2005.
- D. Szajda, J. Owen, B. Lawson, A. Charlesworth, E. Kenney, *An Alternate Multiplicity-2 Task Assignment Scheme for Distributed Computations.* In Scheduling and Resource Management for Parallel and Distributed Systems (SRMPDS 05) in conjunction with The 2005 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 05), pages 59-65, Las Vegas, NV, June 2005.
- D. Szajda, B. Lawson, J. Owen, *Hardening Functions for Large Scale Distributed Computations*, Proceedings of the 2003 IEEE Symposium on Security and Privacy, p. 216-224, Berkeley, CA, May 2003.
- D. Szajda, *Absolute continuity of a class of unitary operators*, Houston Journal of Mathematics, Vol. 27, no. 1, p. 189-202, Spring 2001.
- A. Agrawala, R. Larsen, D. Szajda, *Information Dynamics: An information-centric approach to system design*, Proceedings of the International Conference on Virtual Worlds and Simulation, January 2000, San Diego, California.

Non-Refereed Conference Proceedings, White Papers, and Technical Reports

- J. Owen, B. Lawson, and D. Szajda, *A Nonparametric Analysis for Smith-Waterman Alignment Scores*, Proceedings of the American Statistical Association, Biometrics Section [CD-ROM], Alexandria, VA, to appear June 2007.
- D. Szajda, *The Design and Implementation of the Parabon Exhaustive Regression Engine*, Parabon Computation, Inc. Technical Report.
- A. Agrawala, R. Larsen, U. Shankar, D. Szajda, *Dynamic Control of Emergent Behavior in E-Commerce Ecologies*, white paper prepared for the TASK Kickoff Meeting as part of the DARPA Agent Based Computing program, October 3-5, 2000, Charleston, South Carolina.
- D. Szajda, S. Hawkin, A. Agrawala, *Clock Synchronization in Cyclone Networks*, University of Maryland, Department of Computer Science Technical Report #CS-TR-4228

- D. Szajda, *Testing the Isotach prototype hardware switch interface unit*, University of Virginia, Department of Computer Science Technical Report #CS-99-27

Invited Talks, Colloquiums, and Seminars

- *Enhanced Data Privacy for the Smith-Waterman Sequence Comparison Algorithm*, invited talk to D. Evans' cryptography class, University of Virginia, March 2005.
- *Enhanced Data Privacy for a family of Genetic Sequence Comparison Algorithms*, invited talk to D. Evans' graduate computer security seminar, University of Virginia, April 2004.
- *I Keep Trying to Get Out, But they Keep Pulling Me Back: One Computer Scientist's Failed Attempt to Avoid Mathematics*, colloquium, Washington and Lee University, November, 2003.
- *Information Dynamics*, invited presentation, ANNIE (Artificial Neural Networks in Engineering) 2000, St. Louis, Missouri, November 2000.
- *Degrees of normality of composition operators*, invited presentation, special session: "Composition operators on spaces of analytic functions", American Mathematical Society regional meeting, College Station, Texas, October 1993.
- *Spectral theory of a class of unitary pseudodifferential operators*, Southeastern Analysis Meeting, University of Tennessee, Knoxville, Tennessee, March 1992.
- *Function algebras and the weak-star density of polynomials*, a year-long seminar, University of Virginia, Charlottesville, Virginia, 1989 – 1990.

Teaching Experience

- University of Richmond
  Computer Networks, Computer Security, Wireless Networks, Introduction to Computing (Java), Algorithms, Core course, Calculus I-II.
- University of Maryland
  Computer Architecture, Operating Systems (team taught with A. Agrawala), Computer Networks
- Washington and Lee University
  Calculus I,II, III, Linear Algebra, Vector Analysis, Complex Analysis, Statistics, Differential Equations, Partial Differential Equations, Applied Cryptography
- St. Olaf College
  Calculus I,II, III, Linear Algebra, Real Analysis, Principles of Mathematics, Finite Mathematics
- University of Virginia
  Calculus I, II, III, Statistics, C++

Other Professional Activities

- General Chair (the conference chair), ISOC Network and Distributed System Security Symposium. Appointed to three year term beginning February 2007.
- Program Committee, Internation Conference on Distributed Computing Systems (ICDCS), Security Track, (program determined January 2007).
- Program Committee, ISOC Network and Distributed System Security Symposium, 2007 (program determined October 2006).

- Works-in-Progress Chair, USENIX Security Symposium, 2006.
- Steering Committee, ISOC Network and Distributed System Security Symposium. Appointed to three year term beginning summer 2005.
- Publications Chair, ISOC Network and Distributed System Security Symposium, 2005, 2006, 2007
- Tutorial Chair, ISOC Network and Distributed System Security Symposium, 2004
- Member IEEE Computer Society

Programming Languages and Operating Systems

- C, C++, Java, Perl, Python, Fortran, Basic
- Unix, Windows, Mac OS X