

Jonathan R. Stanton

Department of Computer Science
George Washington University
Academic Center, Suite 704
801 22nd Street NW
Washington, DC 20052

jstanton@gwu.edu
<http://www.cnds.jhu.edu/~jonathan/>
Phone: (202) 994-9741 (Office)
Fax: (202) 994-4875

RESEARCH INTERESTS

Distributed systems, network protocols, distributed security.

EDUCATION

2002	Ph.D. in Computer Science	The Johns Hopkins University, <i>Practical Wide Area Group Communication.</i> Adviser: Prof. Yair Amir.
1998	M.S.E. in Computer Science	The Johns Hopkins University.
1995	B.A. in Mathematics	Cornell University.

WORK EXPERIENCE

Academic

Sept. 2002 – present	Assistant Professor. George Washington University.
Sept. 2001 – Aug. 2002	Assistant Research Professor. Johns Hopkins University.
Sept. 1996 – Aug. 2001	Research Assistant. Johns Hopkins University.
July 1995 – Aug. 1996	Teaching Assistant. Johns Hopkins University.
Sept. 1994 – May 1995	Teaching Assistant. Cornell University.
May 1994 – Sept. 1994	Instructor. Cornell University.

Non-Academic

Sept. 2000 – present	Co-Founder and Officer. Spread Concepts LLC.
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GRANTS

- Co-PI, “A Cost-Benefit Approach to Fault Tolerant Communication and Information Access,” DARPA BAA 00-01, \$944,015, May 2000 – April 2003 (with Yair Amir (Co-PI) and Baruch Awerbuch (Co-PI)).
- Co-PI, “High Performance, Robust and Secure Group Communications,” DARPA BAA 99-33, \$1,350,824 of which \$450,000 is co-funded by the NSA, May 2000 – April 2003 (with Yair Amir (Co-PI), Baruch Awerbuch (Co-PI), and Gene Tsudik as a sub-contractor from UC Irvine).

RESEARCH AND PUBLICATIONS

My research focuses on designing, exploring, and building scalable, high-performance, reliable distributed systems that take advantage of wide-area networks. I am one of the creators of the Spread system that is described below. I have also worked on custom network protocols and sophisticated flow-control models for application-level overlay networks.

Released Software

- Spread – I am the chief architect of the Spread wide-area group messaging toolkit (<http://www.spread.org/>). Currently, Spread is believed to have thousands of users in commercial, research, and teaching environments. Several popular applications use Spread, such as the Apache-SSL secure web server, a distributed logging service for the Apache and thttpd web servers, the native database replication in Postgres, and the Zope application server. Spread is part of FreeBSD and is included in some Linux distributions. We have recorded over 2500 distinct downloads from our web site. Spread has an active developer and user community from around the world.

Refereed Conference Proceedings

“Flow Control for Many-to-Many Multicast: A Cost-Benefit Approach,” Yair Amir, Baruch Awerbuch, Claudiu Danilov, and Jonathan Stanton, *To appear in Proceedings of Fifth IEEE Conference on Open Architectures and Network Programming, New York, New York, June 28-29, 2002.*

“Framework for Authentication and Access Control of Client-Server Group Communication Systems,” Yair Amir, Cristina Nita-Rotaru, and Jonathan Stanton, *Third International Networked Group Communications Workshop, London, UK. November 7-9, 2001, Published in LNCS 2233, 120-128.*

“Exploring Robustness in Group Key Agreement,” Yair Amir, Yongdae Kim, Cristina Nita-Rotaru, John Schultz, Jonathan Stanton, and Gene Tsudik, *21th IEEE International Conference on Distributed Computing Systems (ICDCS), Phoenix, Arizona, April 16-19, 2001, 399-408.*

“A Low Latency, Loss Tolerant Architecture and Protocol for Wide Area Group Communication,” Yair Amir, Claudiu Danilov, and Jonathan Stanton, *International Conference on Dependable Systems and Networks (ICDSN) (previously FTCS-30), New York, New York, June 25-28, 2000, 327-336.*

“Secure Group Communication in Asynchronous Networks with Failures: Integration and Experiments,” Yair Amir, Giuseppe Ateniese, Damian Hase, Yongdae Kim, Cristina Nita-Rotaru, Theo Schlossnagle, John Schultz, Jonathan Stanton, and Gene Tsudik, *20th IEEE International Conference on Distributed Computing Systems (ICDCS), Taipei, Taiwan, April 10-13, 2000, 330-343.*

Technical Reports

“Practical Wide-Area Database Replication,” Yair Amir, Claudiu Danilov, Michal Miskin-Amir, Jonathan Stanton, and Ciprian Tutu, *Technical Report CNDS-2002-1, submitted to a conference.*

“Robust Contributory Key Agreement in Secure Spread,” Yair Amir, Yongdae Kim, Cristina Nita-Rotaru, John Schultz, Jonathan Stanton, and Gene Tsudik, *submitted to a journal.*

“The Spread Wide Area Group Communication System,” Yair Amir and Jonathan Stanton, *Technical Report CNDS-98-4.*

Professional Service

- Member of the Program Committee for the *IEEE International Conference on Distributed Computing Systems*, Vienna, Austria July 2002.
- Member of the Program Committee for the *Second International Workshop on Cooperative Internet Computing*, Hong Kong August 2002.
- Reviewer for DISC 1998, FTCS 1999, ICDCS 2000, 2001, IPDPS 2002, Journal of Parallel and Distributed Computing, Computer Communications special issue on Network Security.
- Served on Graduate Admissions Committee for Johns Hopkins Computer Science Department in 1998.

PRESENTATIONS AND LECTURES

Workshops

- Invited Speaker at the Spread Workshop June 2001.
- Invited Panelist at IEEE ICDCS April 2001 Workshop on Applied Reliable Group Communication.

Conference Lectures

- Networked Group Communication Workshop, London, November 2001.
- International Conference on Dependable Systems and Networks, New York City, July 2000.
- International Conference on Distributed Computing Systems, Taipei, March 2000.

Other Presentations

- Fault Tolerant Networks PI meeting, San Diego, January 2002.
- Johns Hopkins Information Security Institute Open House, Baltimore, October 2001.
- Dynamic Coalition PI meeting, Colorado Springs, July 2001.

TEACHING

George Washington University.

- Instructor for Distributed Operating Systems, Fall 2002.

Johns Hopkins University.

- Instructor for Distributed Systems, Fall 2001.
- Co-instructor for Distributed Systems, Fall 1999, Fall 2000.

Distributed Systems is a senior undergraduate and graduate course with 40 students. It covers the theory of distributed algorithms, how distributed systems are built and used today, and includes programming assignments and a final project.

- Teaching Assistant for Parallel Algorithms, Spring 1996.
- Teaching Assistant for Computer Architecture, Fall 1995.
- Volunteer intercollegiate debate coach for Cornell University and Towson University from Fall 1995 until Spring 1997.

Cornell University.

- Teaching Assistant for Introduction to Programming, Fall 1994, Spring 1995.
- Instructor in basic computer and web use as well as author of instructional materials, Summer 1994.
- Assistant Instructor for Introduction to Debate in the Communications Department, Fall 1993.

SKILLS

C, Java, HTML, Pascal, Perl, Bash, Unix, Linux, Macintosh, MS-DOS, MS-Windows.

INTERESTS

Skiing, Science Fiction, Backpacking.

REFERENCES

Yair Amir, Associate Professor
Department of Computer Science
Johns Hopkins University
3400 North Charles Street
Baltimore, MD 21218
(410) 516-4803
yairamir@cs.jhu.edu

Gene Tsudik, Associate Professor
School of Information and Computer Science
University of California, Irvine
Irvine, CA 92697-3425
(949) 824-3410
gts@ics.uci.edu

Gerry Masson, Professor
Founding Director Information Security Institute
Department of Computer Science
Johns Hopkins University
3400 North Charles Street
Baltimore, MD 21218
(410) 516-7013
masson@cs.jhu.edu

Baruch Awerbuch, Professor
Department of Computer Science
Johns Hopkins University
3400 North Charles Street
Baltimore, MD 21218
(410) 516-8038
baruch@cs.jhu.edu

Ben Laurie, Technical Director
A.L. Digital Ltd.
The Stores
2 Bath Road
London, W4 1LT
ENGLAND
44 (20) 8735 0686
ben@algroup.co.uk

Luís E. T. Rodrigues, Associate Professor
Departamento de Informática
University of Lisbon
Bloco C5 Campo Grande
1749-016 Lisboa
PORTUGAL
351 217 500 613 Ext: 28118
ler@di.fc.ul.pt