

# John Lane

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- EDUCATION
- ◇ **Johns Hopkins University**, Baltimore, MD.  
Ph.D. candidate in Computer Science, (expected graduation, Summer 2008)  
GPA: 3.9  
Lab: *Distributed Systems and Networks Lab*.
  - ◇ **Johns Hopkins University**, Baltimore, MD.  
MSE Computer Science, (2006)
  - ◇ **Cornell University**, Ithaca, NY.  
B.A. in Biology with a concentration in Neurobiology, (1992)  
Thesis title: *Amiloride Blocks SACs in Xenopus Oocytes*.
  - ◇ **Cambridge University**, Cambridge, England.  
Coursework in Mathematics, Physics, Computer Science, and Biology, (1990-1991)
  - ◇ **Scholarships and Honors**
    - Cornell Deans Scholar (1988-1992)
    - Phi Beta Kappa (1992)
    - Hughes Scholar (Summer 1991)
    - NSF Summer Research Grant (1990)
- RESEARCH INTERESTS
- ◇ **Survivable Systems**, Byzantine-resilient state machine replication, survivable wireless backbone, identification and classification of Byzantine behavior, fault-tolerant logical machine abstraction.
  - ◇ **Distributed Systems**, large-scale replication systems, wide-area messaging, wireless ad hoc networks, command and control systems.
  - ◇ **Overlay Networks**, reliable multicast, routing protocols, link-specific flow control and congestion control.
- RESEARCH PROJECTS
- ◇ PhD Qualifying Project: *Scalable Multi-Group Reliable Multicast*, Advisor: Dr. Andreas Terzis (2007)
  - ◇ PhD Qualifying Project: *Scaling Byzantine Fault-Tolerant Replication to Wide-Area Networks*, Advisor: Dr. Yair Amir. (2006)
  - ◇ DARPA Red Team: Lead developer for STEWARD, Survivable Technology for Wide-Area Replication; A DARPA sponsored team, with full access to the STEWARD source code, was unable to mount a successful attack against a fully deployed system, Advisor: Dr. Yair Amir. (2005)
  - ◇ Research project: Efficient Implementation of Maximum Entropy Model for NLP Tagging. Johns Hopkins University. Advisor: Dr. Jan Hajic. (Summer - Fall 2000)
  - ◇ High Performance, Low Memory FSA Minimization Software, achieved 5x lower memory usage than current IBM FSA software. Johns Hopkins University. Professor: Dr. Jan Hajic. (Spring 2000)

- COMP SCI PUBLICATIONS
- ◇ Yair Amir, Brian Coan, Jonathan Kirsch, and John Lane. Byzantine Replication Under Attack. *In Proceedings of the 38th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2008)*, Anchorage, June 2008.
  - ◇ Yair Amir, Brian Coan, Jonathan Kirsch, and John Lane. Customizable Fault Tolerance for Wide-Area Replication. *In Proceedings of the 26th IEEE International Symposium on Reliable Distributed Systems (SRDS 2007)*, pages 66-80, Beijing, China, 2007.
  - ◇ Yair Amir, Claudiu Danilov, Danny Dolev, Jonathan Kirsch, John Lane, Cristina Nita-Rotaru, Josh Olsen, and David Zage. STEWARD: Scaling Byzantine Fault-Tolerant Replication to Wide Area Networks, Technical Report CNDS-2006-2.
  - ◇ Yair Amir, Claudiu Danilov, Danny Dolev, Jonathan Kirsch, John Lane, Cristina Nita-Rotaru, Josh Olsen, David Zage. Scaling Byzantine Fault-Tolerant Replication to Wide Area Networks. *In the Proceedings of the IEEE International Conference on Dependable Systems and Networks (DSN 2006)*, pages 105-114, Philadelphia, June 2006.
  - ◇ Yair Amir, Claudiu Danilov, John Lane, Michal Miskin-Amir, Cristina Nita-Rotaru Enhancing Distributed Systems with Mechanisms to Cope with Malicious Clients, Technical Report CNDS-2005-4.
- OTHER SELECTED PUBLICATIONS
- ◇ Hsiao SS, Lane J, Fitzgerald P. Representation of orientation in the somatosensory system. *Behav Brain Res.* 2002 Sep 20;135(1-2):93-103. Review.
  - ◇ DiCarlo JJ, Lane JW, Hsiao SS, Johnson KO. Marking microelectrode penetrations with fluorescent dyes. *J Neurosci Methods.* 1996 Jan;64(1):75-81.
  - ◇ Lane JW, McBride DW Jr, Hamill OP. Ionic effects on amiloride block of the mechanosensitive channel in *Xenopus* oocytes. *Br J Pharmacol.* 1993 Jan;108(1):116-9.
  - ◇ Lane JW, McBride DW Jr, Hamill OP. Structure-activity relations of amiloride and its analogues in blocking the mechanosensitive channel in *Xenopus* oocytes. *Br J Pharmacol.* 1992 Jun;106(2):283-6.
  - ◇ Lane JW, McBride DW Jr, Hamill OP. Amiloride block of the mechanosensitive cation channel in *Xenopus* oocytes. *J Physiol.* 1991 Sep;441:347-66.
- SKILLS
- ◇ **Expertise:** Large-scale, high-performance distributed systems including replication systems, overlay networks, and group-communication systems
  - ◇ **Languages:** C, C++, Java, Haskell, Perl, ML, UML
  - ◇ **Applications:** AutoCAD, Adobe Illustrator, NeuroLucida, Alpha Omega Spike Sorter, Visual C++
  - ◇ **Hardware:** Servo and Stepper Motors, Servo Amplifiers, AD/DA/Digital IO IP Modules, IP carrier cards, Real Time Control and Data Collection
  - ◇ **Operating Systems,** QNX RTP, FreeBSD, OS X, Microsoft Windows
- WORK EXPERIENCE
- ◇ **Teaching Assistant,** Johns Hopkins University (2003 – present)  
Courses: Distributed Systems, Agent Based Simulation, Programming Languages, aiding in Advanced Distributed Systems – tutorials, office hours, some lectures, and grading

- ◇ **Sr. Programmer**, Krieger Mind Brain Institute, Johns Hopkins University (1998 – 2003)
  - Design and coding of real time data collection and stimulus control software using Windows/RTX and QNX RTP posix real time environments.
  - Driver programming for A/D, D/A, quadrature, and digital IO IP modules and IP carrier cards.
  - Data analysis using Haskell and design/coding of data analysis libraries.
  - Design of several tactile stimulators for neurophysiological experiments. These included a 36 motor system with linear stepper motors, servo motors, and rotary stepper motors.
- ◇ **Laboratory Technician**, Krieger Mind Brain Institute, Johns Hopkins University (1992 – 1997)
  - Neurophysiological data recording. Cortical and peripheral experiments.
  - Animal training, surgical procedures.
  - Figure generation, 3D brain reconstruction. Used AutoCAD, NeuroLucida, and Paradox to generate a full 3D reconstruction of electrode tracks and neural recording sites.
  - Designed Paradox Database System for storing neurophysiological data regarding neuron types, 3D coordinates of neurons. Automatic generation of maps of the brain with penetration and recording site locations.

REFERENCES    Dr. Yair Amir. Johns Hopkins University Computer Science Department, yairamir@cs.jhu.edu  
                  Dr. Paul Fitzgerald. National Institutes of Health, paulfj@mail.nih.gov