NICOLAS NICOLAOU, PH.D.

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EDUCATION

09/2006 – 05/2011 **University of Connecticut**, Storrs, CT
Doctor of Philosophy, Computer Science & Engineering
Thesis: *Trade-Offs In Implementing Consistent Distributed Storage*
Advisor: Dr. Alexander A. Shvartsman

01/2004 – 05/2006 **University of Connecticut**, Storrs, CT
Master of Science, Computer Science & Engineering
Advisor: Dr. Alexander A. Shvartsman

09/1999 – 05/2003 **University of Cyprus**, Nicosia, Cyprus
Bachelor of Science, Computer Science
Thesis: *Robot as a Museum Guide*
Thesis Advisor: Dr. Symeon Retalis

RESEARCH INTERESTS

- Distributed Systems
    With focus on implementations of atomic and survivable storage systems
- Design and Analysis of Fault-tolerant Parallel and Distributed Algorithms
- Security and Evaluation of Voting Technologies
    With focus on practical examination of voting technologies
- Protocol design in Ad-Hoc Mobile & Sensor Networks

AWARDED GRANTS

- ΠΕΝΕΚ/0609/31. ***Seeking Fastness in Multiple-Writer Multiple-Reader Atomic Register Implementations,*** Cyprus Research Promotion Foundation, 2010-2011: €32040 (highest score within its topic area)

<u>EXPERIENCE</u>

09/2011 – present   **Visiting Lecturer**
Department of Computer Science, University of Cyprus

2004 – 2011   **The Dependable and Distributed Systems (DDS) Laboratory**
(http://www.cse.uconn.edu/DDS/)
Research Assistant, Computer Science & Engineering Department, University of Connecticut
- Study and analyze problems in distributed and parallel systems
- Devise, analyze and implement efficient algorithms for fundamental problems in distributed and parallel systems
- Derive and prove lower and upper bounds for problems in distributed and parallel systems
- Implement, simulate and emulate distributed and parallel algorithms in single processor simulators and real-time planetary scale networks
- Prepare and publish research articles

2007 – 2011   **The Voting Technology Research (VoTeR) Center**
(http://voter.engr.uconn.edu/)
Research Assistant, Computer Science & Engineering Department, University of Connecticut
- Lead, Coordinate, and Supervise graduate assistants (team leader) to accomplish research tasks
- Prepare reports for the State of Connecticut and research articles
- Examine, analyze and evaluate the hardware and software of current technologies used in elections for inefficiencies and errors
- Investigate, derive and implement exploits for voting machines that may affect the integrity of the elections
- Analyze and manipulate the machine (firmware) code of AccuVote-Optical Scan (AVOS) terminals to expedite the collection of data for audit procedures
- Design and implement tools for audit automation
- Prepare audit reports and research articles

2000 – 2003   **DKZ Enterprises LTD**
Administrator/Programmer, Nicosia, Cyprus
- Develop, analyze and test "Internet Kiosk" applications.
- Consult company on hardware and software purchases
- Install, administer and monitor the company's network and computer infrastructure
- Troubleshoot, and resolve problems with the hardware and software of company's and client's machines.

TEACHING INTERESTS

- Sequential, Distributed and Parallel Algorithms
- Distributed Systems
- Fault Tolerant Computing
- Theory of Computation
- Networks
- Operating Systems
- Web Technologies
- Systems Security
- Data Structures
- Programming (C, C++, Java, HTML, Web Scripting)

TEACHING EXPRERIENCE

- Spring 2011: Instructor, EPL131- Principles of Programming I, University of Cyrpus
  (Course Webpage: http://www.cs.ucy.ac.cy/courses/EPL131/)
- Spring 2011: Instructor, EPL032 – Problem Solving and Program Design, University of Cyprus
  (Course Management System: Blackboard)
- Fall 2011: Instructor, EPL211 – Theory of Computation, University of Cyprus
  (Course Webpage: http://www.cs.ucy.ac.cy/~nicolasn/epl211/)
- Fall 2011: Instructor, EPL003 – Introduction to Computer Science, University of Cyprus
  (Course Webpage: http://www.cs.ucy.ac.cy/~nicolasn/epl003/)
- Fall 2006: Teaching Assistant, CSE123C-Introduction to Computing with C++, University of Connecticut
- Spring 2006: Teaching Assistant, CSE230-Software Engineering, University of Connecticut
- Spring 2005: Teaching Assistant, CSE259-Algorithms and Complexity, University of Connecticut,
- Fall 2003: Teaching Assistant, EPL033-C Programming Language for Civil Engineers, University of Cyprus

SUPERVISING EXPRERIENCE

MSc Students
- Master Thesis Co-Advisor
    o Marilena Demeti
- Master Thesis Examination Committee Member
    o Margarita Antonaki
    o Constantina Spanoudi

BS Students
- Bachelor Thesis Co-Advisor
    o Maria Stylianou

REFEREED PUBLICATIONS
(authors are listed in alphabetic order except if marked by *)

JOURNAL PAPERS

ACCEPTED/ APPEARED

*Peng Xie, Zhong Zhou, Nicolas Nicolaou, Andrew See, Jun-Hong Cui, and Zhijie Shi: ***Efficient Vector-Based Forwarding for Underwater Sensor Networks,*** in EURASIP Journal on Wireless Communications and Networking, vol. 2010, Article ID 195910, 13 pages, 2010.

Tigran Antonyan, Seda Davtyan, Sotiris Kentros, Aggelos Kiayias, Laurent Michel, Nicolas Nicolaou, Alexander Russell and Alexander A. Shvartsman: ***State-Wide Elections, Optical Scan Voting and the Pursuit of Integrity***, in IEEE Trans. on Information Forensics and Security (Special Issue on Electronic Voting), Volume 4, No 4, pages 597-610, IEEE, December 2009.

Chryssis Georgiou, Nicolas C. Nicolaou, and Alex A. Shvartsman: ***Fault-Tolerant SemiFast Implementations of Atomic Read/Write Registers***, in Journal of Parallel and Distributed Computing (JPDC), Volume 69, No 1, pages 62-79, Elsevier, January 2009.

UNDER SUBMISSION

Kishori M. Konwar, Peter M. Musial, Nicolas C. Nicolaou, Alexander A. Shvartsman: ***Implementing Atomic Data through Indirect Learning in Dynamic Networks***, under submission.

Chryssis Georgiou, Nicolas Nicolaou, and Alexander A. Shvartsman: ***On the Robustness of (Semi)Fast Quorum-Based Implementations of Atomic Shared Memory***, under submission.

REFEREED CONFERENCE/WORKSHOP PAPERS

Chryssis Georgiou, Nicolas Nicolaou, Alexander Russell, Alexander Shvartsman: ***Towards Feasible Implementations of Low-Latency Multi-Writer Atomic Registers,*** in E-Proceedings of the 10th IEEE International Symposium on Network Computing and Applications (IEEE NCA11), Boston, USA, 2011.

Tigran Antonyan, Nicolas Nicolaou, Alexander Shvartsman and Therese Smith: ***Determining the Causes of AccuVote Optical Scan Voting Terminal Memory Card Failures,*** in Online Proceedings of Electronic Voting Technology Workshop/Workshop of Trustworthy Elections (EVT/WOTE'10), Washington DC, USA, 2010.

Burkhard Englert, Chryssis Georgiou, Peter Musial, Nicolas Nicolaou, and Alexander A. Shvartsman: ***On the Efficiency of Atomic Multi-Reader, Multi-Writer Distributed Memory***, in Proceedings of the 13th International Conference on Principles of Distributed Systems (OPODIS 2009), pages 240-254, Nimes, France, 2009.

Chryssis Georgiou, Sotirios Kentros, Nicolas Nicolaou, and Alexander A. Shvartsman: ***Analyzing the Number of Slow Reads for Semifast Atomic Read/Write Register Implementations***, in the Proceedings of the 21st International Conference on Parallel and Distributed Computing and Systems (PDCS 2009), pages 229-236, Cambridge, MA, 2009.

Sotiris Kentros, Aggelos Kiayias, Nicolas Nicolaou and Alexander A. Shvartsman: ***At-Most-Once Semantics in Asynchronous Shared Memory***, in Proceedings of the 22nd International Symposium on Distributed Computing (DISC 2009), pages 258-273, Elche, Spain, 2009.

Tigran Antonyan, Seda Davtyan, Sotiris Kentros, Aggelos Kiayias, Laurent Michel, Nicolas Nicolaou, Alexander Russell and Alexander Shvartsman: ***Automating Voting Terminal Event Log Analysis***, in Online Proceedings of Electronic Voting Technology Workshop/Workshop of Trustworthy Elections (EVT/WOTE'09), Montreal, Canada, 2009.

Seda Davtyan, Sotiris Kentros, Aggelos Kiayias, Laurent Michel, Nicolas Nicolaou, Alexander Russell, Andrew See, Narasimha Shashidhar, Alexander A. Shvartsman: ***Taking Total Control of Voting Systems: Firmware Manipulations on an Optical Scan Voting Terminal***, in Proceedings of the 24th Annual ACM Symposium on Applied Computing (SAC '09), pages 2049-2053, March 9-12, Honolulu, Hawaii, 2009.

Chryssis Georgiou, Nicolas Nicolaou, and Alexander A. Shvartsman: ***On the Robustness of (Semi)Fast Quorum-Based Implementations of Atomic Shared Memory***, in Proceedings of the 22nd International Symposium on Distributed Computing (DISC 2008), pages 289-304, Arcachon, France, 2008.

Seda Davtyan, Sotiris Kentros, Aggelos Kiayias, Laurent Michel, Nicolas Nicolaou, Alexander Russell, Andrew See, Narasimha Shashidhar, Alexander A. Shvartsman: ***Pre-Election Testing and Post-Election Audit of Optical Scan Voting Terminal Memory Cards***, in Proceedings of the 2008 Electronic Voting Technology Workshop (EVT '08), July 28–29, San Jose, 2008.

Kishori M. Konwar, Peter M. Musial, Nicolas C. Nicolaou, Alexander A. Shvartsman: ***Implementing Atomic Data through Indirect Learning in Dynamic Networks***. in Proceedings of 6th IEEE International Symposium on Network Computing and Applications (IEEE NCA 2007), pages 223-230, 2007.

* Nicolas C. Nicolaou, Andrew G. See, Peng Xie, Jun Hong Cui, Dario Maggiorini: ***Improving the Robustness of Location-Based Routing for Underwater Sensor Networks***, in Proceedings of IEEE OCEANS'07, Aberdeen, Scotland, pages 1-6, 2007.

Chryssis Georgiou, Nicolas C. Nicolaou, Alexander A. Shvasrtsman, ***Fault-Tolerant SemiFast Implementations of Atomic Read/Write Registers***: in Proceedings of the eighteenth annual ACM symposium on Parallelism in Algorithms and Architectures (SPAA '06), Cambridge, Massachusetts, USA, p.281-290, 2006.

Kishori K. Konwar, Piotr Musial, Nicolas C. Nicolaou, Alexander A. Shvartsman: ***Using Indirect Learning to Improve Operation Liveness of a Consistent Data Service for Dynamic Networks***. Technical Report MIT-CSAIL-TR-2006-070, MIT CSAIL, October 2006.

REFEREED SHORT PAPERS

Nicolas Nicolaou: **Seeking Fast Operations in MWMR Atomic Register Implementations**, in Proceedings of Young Researcher Forum of the 36th International Symposium on Mathematical Foundations of Computer Science (MFCS 2011), page 18, Warsaw, Poland, 2011.

Sotiris Kentros, Aggelos Kiayias, Nicolas Nicolaou and Alexander A. Shvartsman: **Brief Announcement: At-Most-Once Semantics in Asynchronous Shared Memory**, in Proceedings of the 21st Annual Symposium on Parallelism in Algorithms and Architectures (SPAA09), pages 43-44, Calgary, Canada, 2009.

Chryssis Georgiou, Nicolas C. Nicolaou, Alexander A. Shvasrtsman: **Brief Announcement: On the Robustness of (Semi) Fast Quorum-Based Implementations of Atomic Shared Memory**, in Proceedings of the 27th ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC 2008), pages 425-425, 2008.

Chryssis Georgiou, Nicolas C. Nicolaou, Alexander A. Shvasrtsman: **Brief Announcement: Fault-Tolerant SemiFast Implementations of Atomic Read/Write Registers**, in Proceedings of the 20th International Symposium on Distributed Computing (DISC 2006), pages 537-539, 2006.

HONORS & AWARDS

- 2009: Public Service Award, Secretary of the State of Connecticut
- 2008/09: Pre-Doctoral Fellowship (total $4000), Department of Computer Science & Engineering, University of Connecticut

CONFERENCE COMMITTEES

- DISC 2010: Organization Committee Member

EDITORIAL RESPONSIBILITIES

- Distributed Computing journal, Ad Hoc Reviewer
- Journal of Parallel and Distributed Computing, Ad Hoc Reviewer
- Transactions of Information Forensics and Security, Ad Hoc Reviewer
- Symposium on Principles of Distributed Computing (PODC), Ad Hoc Reviewer, 2011, 2004
- International Symposium on Distributed (DISC), Ad Hoc Reviewer, 2010, 2007
- Conference on Distributed Computing Systems (ICDCS), Ad Hoc Reviewer, 2005
- SIRROCCO, Ad Hoc Reviewer, 2009
- International Conference On Principles Of Distributed Systems (OPODIS), Ad Hoc Reviewer, 2011, 2008, 2005, 2004
- Workshop on Wireless and Mobile Ad-Hoc Networks (WMAN), Ad Hoc Reviewer, 2005
- Intl. Conference on High Performance and Communications (HPCC), Ad Hoc Reviewer, 2011

AFFILIATIONS AND MEMBERSHIPS

- 2010 – Present: IEEE, Member
- 2009 – Present: Association for Computing Machinery (ACM), Member
- 2009 – 2010: ΥΠΕ (Upsilon Pi Epsilon) Beta Chapter of Connecticut Honor Society at the University of Connecticut, Chief Organization Officer (President)

PROFESSIONAL AND COMMUNITY SERVICE

- 2002: Student Representative, School of Applied Sciences, University of Cyprus
- 1997 – 1999: Army Service/ Officer of the Cyprus National Guard

TECHNOLOGY SKILLS

Programming Languages
- C and C++
- Java
- ASP
- PHP
- HTML
- JavaScript
- Visual Basic
- BASH shell Scripting
- TCL (Basic)
- XML
- CSS
- OpenGL
- JQuery (Basic)
- Python (Basic)

Databases
- Oracle (Designer, Forms Builder, Reports Builder, SQL)
- Microsoft Access
- MySQL

Operating Systems
- Microsoft Windows (any version)
- Mac OSX
- UNIX (Solaris)
- Linux (Ubuntu, Debian, Fedora)

Other
- Simulators (NS2, OPNET)
- Software development packets (.Net, NetBeans, Eclipse)
- Webpage development packets (.Net, Adobe Dreamweaver)
- Graphics (Photoimpact, Photoshop, Fireworks, Flash)
- Video and audio editing/ production (iMovie, Windows Movie Maker, Camtasia Studio, Audacity, Macromedia Director, Adobe Premiere)
- Document development (Latex, Microsoft Office)
- Learning Management Systems – Installation (Moodle) and Use (Moodle, Blackboard)
- Content Management Systems – Installation and Use (Mediawiki, Wordpress, Drupal, Joomla)

LANGUAGE SKILLS

- Greek: Native
- English: Advanced (oral/written)
- French: Basic (oral/written)

REFERENCES

- **Dr. Alexander A. Shvartsman**, Professor (Major Advisor)
  Computer Science & Engineering Department,
  University of Connecticut,
  Storrs, CT, USA
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  aas@cse.uconn.edu

- **Dr. Chryssis Georgiou**, Assistant Professor (Advisory Committee, Collaborator)
  Department of Computer Science
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  Nicosia, Cyprus
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- **Dr. Alexander Russell**, Professor (Advisory Committee, Collaborator)
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- **Dr. Aggelos Kiayias**, Associate Professor (Advisory Committee, Collaborator)
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