

Alexander (Alex) Varshavsky

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RESEARCH INTERESTS

I am interested in developing software infrastructure solutions for mobile and ubiquitous computing applications. My current research focuses on proximity-based authentication, location-aware systems and activity recognition.

EDUCATION

- | | |
|----------------|---|
| 2003 – Present | PH.D. COMPUTER SCIENCE
University of Toronto, Canada
Expected graduation: Aug 2008
Thesis: "Using Ambient Radio Environment to Support Practical Ubiquitous Computing"
Advisors: Prof. Eyal de Lara and Dr. Anthony LaMarca |
| 1999 – 2001 | M. SC. COMPUTER SCIENCE (MAGNA CUM LAUDE, GPA: 4.0/4.0)
Tel-Aviv University, Israel
Thesis: "Deriving Specialized Heap Analyses for Verifying Component-Client Conformance"
Advisor: Prof. Mooly Sagiv |
| 1995 – 1999 | B. SC. COMPUTER SCIENCE (CUM LAUDE, GPA: 4.0/4.0)
Israel Institute of Technology (Technion), Haifa, Israel |

JOURNAL PUBLICATIONS

[J1] [Alex Varshavsky](#), Eyal de Lara, Anthony LaMarca, Jeffrey Hightower and Veljo Otsason. "GSM Indoor Localization," *Pervasive and Mobile Computing Journal (PMC)*, vol. 3, no. 6, pp 698-720, Elsevier, 2007

REFEREED CONFERENCE PUBLICATIONS¹

- [C9] [Alex Varshavsky](#), Denis Pankratov, John Krumm and Eyal de Lara. "Calibree: Calibration-free Localization using Relative Distance Estimations," to appear in the Proceedings of the *Sixth International Conference on Pervasive Computing (Pervasive 2008)*, Sydney, Australia, 2008 (acceptance rate: 15%)
- [C8] [Alex Varshavsky](#), Adin Scannell, Anthony LaMarca and Eyal de Lara. "Amigo: Proximity-based Authentication of Mobile Devices," in the Proceedings of the *Ninth International Conference on Ubiquitous Computing (UbiComp 2007)*, Innsbruck, Austria, 2007 (acceptance rate: 19%)
- [C7] Dave Dearman, [Alex Varshavsky](#), Eyal de Lara and Khai Troung. "An Exploration of Location Error Estimation," in the Proceedings of the *Ninth International Conference on Ubiquitous Computing (UbiComp 2007)*, Innsbruck, Austria, 2007 (acceptance rate: 19%)
- [C6] [Alex Varshavsky](#), Anthony LaMarca, Jeffrey Hightower, Eyal de Lara. "The SkyLoc Floor Localization System," in the Proceedings of the *Fifth International Conference on Pervasive Computing and Communications (PerCom 2007)*, White Plains, NY, 2007 (acceptance rate: 14%)
- [C5] Timothy Sohn, [Alex Varshavsky](#), Anthony LaMarca, Mike Y. Chen, Tanzeem Choudhury, Ian Smith, Sunny Consolvo, Jeffrey Hightower, William G. Griswold, and Eyal de Lara. "Mobility Detection Using Everyday GSM Traces," in the Proceedings of the *Eighth International Conference on Ubiquitous Computing (UbiComp 2006)*, Irvine, CA, 2006 (acceptance rate: 13%)
- [C4] Mike Y. Chen, Timothy Sohn, Dmitri Chmelev, Dirk Haehnel, Jeffrey Hightower, Jeff Hughes, Anthony LaMarca, Fred Potter, Ian Smith, and [Alex Varshavsky](#). "Practical Metropolitan-Scale Positioning for GSM Phones," in the Proceedings of the *Eighth International Conference on Ubiquitous Computing (UbiComp 2006)*, Irvine, CA, 2006 (acceptance rate: 13%)
- [C3] Veljo Otsason, [Alex Varshavsky](#), Anthony LaMarca and Eyal de Lara. "Accurate GSM Indoor Localization," in the Proceedings of the *Seventh International Conference on Ubiquitous Computing (UbiComp 2005)*, Tokyo, Japan, 2005 (acceptance rate: 9%)
- [C2] [Alex Varshavsky](#), Brad Reid and Eyal de Lara. "A Cross-Layer Approach to Service Discovery and Selection in MANETs," in the Proceedings of the *Second International Conference on Mobile Ad-Hoc and Sensor Systems (MASS 2005)*, Washington, DC, 2005 (acceptance rate: 33%)
- [C1] Ganesan Ramalingam, [Alex Varshavsky](#), John Field, Deepak Goyal and Mooly Sagiv. "Deriving Specialized Program Analyses for Certifying Component-Client Conformance," in the Proceedings of the *Conference on Programming Language Design and Implementation (PLDI 2002)*, Berlin, Germany, 2002 (acceptance rate: 17%)

¹ UbiComp and Pervasive are the top conferences in the field of ubiquitous computing.

REFERRED WORKSHOP PUBLICATIONS

- [W6] Alex Varshavsky, Anthony LaMarca, Eyal de Lara. "Enabling Secure and Spontaneous Communication between Mobile Devices using Common Radio Environment," in the Proceedings of the *Eighth Workshop on Mobile Computing Systems and Applications (HotMobile 2007)*, Tucson, Arizona, 2007 (acceptance rate: 33%)
- [W5] Alex Varshavsky, Mike Chen, Eyal de Lara, Jon Froehlich, Dirk Haehnel, Jeffrey Hightower, Anthony LaMarca, Fred Potter, Timothy Sohn, Karen Tang, and Ian Smith. "Are GSM Phones THE Solution for Localization?" in the Proceedings of the *Seventh Workshop on Mobile Computing Systems and Applications (HotMobile 2006)*, Semiahmoo Resort, WA, 2006 (acceptance rate: 30%)
- [W4] Ian Smith, Mike Chen, Alex Varshavsky, Timothy Sohn and Karen Tang. "Algorithms for Detecting Motion of a GSM Phone," in the Proceedings of the *Workshop on Location Awareness and Community (LAC 2005)*, Paris, France, 2005
- [W3] Alex Varshavsky and Eyal de Lara. "Alleviating Self-Interference in MANETs," in the Proceedings of the *Fourth International Workshop on Wireless Local Networks (WLN 2004)*, Tampa, Florida, 2004 (acceptance rate: 41%)
- [W2] Alex Varshavsky, Baochun Li and Eyal de Lara. "Cross-Layer Flow Control in Lightly Loaded Multi-Hop Ad Hoc Networks," in the Proceedings of the *International Workshop on Network Design and Architecture (IWNA 2004)*, Montreal, Quebec, 2004 (acceptance rate: 70%)
- [W1] Elan Henis, Gadi Haber, Moshe Klausner, and Alex Varshavsky. "Feedback Based Post-Link Optimization for Large Subsystems," in Proceedings of the *Second Workshop on Feedback-Directed Optimization (FDO 1999)*, Haifa, Israel, 1999 (acceptance rate: 50%)

PATENTS

- [P1] Victoria Thio, Clark D. Jeffries, Alex Varshavsky, and Avi Zehavi. "Method and System for Determining and Graphically Representing Frame Classification Rule Relationships," Patent Number: 658299

PROFESSIONAL SERVICE

Program Committee Member:

- Workshop on Security and Privacy Issues in Mobile Phone Use (SPMU 2008)
- International Symposium on Location- and Context-Awareness (LoCA 2007)

Publicity Chair:

- International Conference on Mobile Systems, Applications and Services (MobiSys 2008)
- International Conference on Pervasive Computing (Pervasive 2008)
- Workshop on Mobile Computing Systems and Applications (HotMobile 2008)
- International Conference on Pervasive Computing (Pervasive 2007)

Session Chair:

- International Symposium on Location- and Context-Awareness (LoCA 2007)

Reviewer:

- UbiComp (2006, 2007), Pervasive (2007, 2008), Mobisys (2004, 2005, 2006), ICDCS (2006, 2007), Usenix (2006), IWQoS (2004), WMCSA (2004), WCNC (2005), RTAS (2005), ICWPC (2007), IWSSI (2007).
- Mobile Computing and Communication Review Magazine (MC²R), IEEE Pervasive Computing, Journal of Communications and Networks (JCN), IEEE Transactions on Mobile Computing (TMC).

SCHOLARSHIPS AND AWARDS

2007 - 2008	Bell University Labs Scholarship
2007 - 2008	Ontario Graduate Scholarship in Science and Technology (OGSST)
2005 - 2007	Natural Sciences and Engineering Research Council Scholarship (NSERC)
2004 - 2005	Ontario Graduate Scholarship (OGS)
2003 - 2004	Wolfond Wireless Award
2001 - 2002	Tel-Aviv University Award

TEACHING EXPERIENCE

Jan 2006 – May 2006 **University of Toronto, Toronto, Canada**
TEACHING ASSISTANT FOR CSC369: OPERATING SYSTEMS

I was responsible for preparing and delivering three lectures and marking assignments and exams.

Sep 2004 – Jan 2005, **University of Toronto, Toronto, Canada**
Sep 2006 – Jan 2007 **TEACHING ASSISTANT FOR CSC2228: TOPICS IN MOBILE AND PERVASIVE COMPUTING**

I delivered two lectures and provided feedback on students' summaries of recent research papers.

PROFESSIONAL EXPERIENCE

Aug 2006 – Aug 2007 **MatchPad Corporation**, Toronto, Canada
CHIEF SYSTEM ARCHITECT

I lead the design and development of MatchPad's core products, including its location technology, a thick client application for Windows Mobile enabled mobile devices and a web application.

Jan 2006 – Apr 2008 **Profilium Inc.**
SENIOR RESEARCHER

I invented, designed and developed fingerprinting-based location algorithms that were used in the core location engine. See more info at <http://www.profilium.com>

Jun 2005 – Oct 2005 **Intel Research Seattle Lab.**, Seattle, WA
SUMMER INTERN

As part of the PlaceLab team, I have developed an infrastructure for place learning, recognition and naming on a mobile phone. I also participated in the project that developed models for inferring user activity based on everyday GSM traces. See more info at <http://www.placelab.org/>.

Feb 2002 – Sep 2003 **Terida Systems Inc.**, Toronto, Canada
SENIOR SOFTWARE DEVELOPER/ANALYST

Designed and developed software for litigators and researchers. The project involved programming in Visual Basic, COM (version 1.0), C#, Java, Oracle 9i (version 2.0). See more info at http://www.terida.com/forsys_km.php

Nov 2000 – Jan 2002 **IBM Haifa Research Lab.**, Haifa, Israel
RESEARCH STAFF

I designed and developed a Rapid Application Development (RAD) plug-in for building end-to-end web applications in Eclipse. The accomplishment was an environment where users can build non-trivial web application without writing a single line of code. See more info at: <http://www.haifa.il.ibm.com/projects/systems/ple/rad/index.html>.

Jul 2000 - Nov 2000 **IBM Watson Research Lab.**, New York, U.S.A.
SUMMER INTERN

As part of the Canvas team, I developed techniques for annotating component software, designed and implemented tools for parsing Java programs, and developed tools for analyzing them for correctness using program analysis techniques. See more info at: <http://www.research.ibm.com/menage/canvas/>.

Nov 1999 - Jul 2000 **IBM Haifa Research Lab.**, Haifa, Israel
RESEARCHER (SOFTWARE DEPARTMENT)

I designed and developed tools for IBM Network processor. My responsibilities included designing an XML-based language for firewall rule representation and developing tools used by network administrators to create, view and sort those rules.

May 1997 - Nov 1999 **RESEARCHER (CODE OPTIMIZATION DEPARTMENT)**

As part of an FDPR project, I developed feedback-directed profiler/optimizer for executables for x86 processors on Windows NT. IBM uses the tool internally to optimize DB2 (see http://www.haifa.il.ibm.com/info/feature_ibm_researchers.html). The profiler/optimizer was written in C++. See more info at: http://www.haifa.il.ibm.com/projects/systems/cot/fdpr/fdpr_nt.html.

PERSONAL

Canadian Citizen

Fluent in English, Russian and Hebrew

REFERENCES

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