

Konrad Lorincz

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Education

Harvard University **Cambridge, MA**
Ph.D. candidate in Computer Science *2002 – Present*
Thesis advisor: Dr. Matt Welsh. Oral qualification exam title: “MoteTrack: A Robust, Decentralized Approach to RF-Based Location Tracking”

Harvard University **Cambridge, MA**
M.S. in Computer Science *May 2004*
Advisor: Dr. Matt Welsh.

University of Virginia **Charlottesville, VA**
B.S. in Computer Science *May 2001*
Major1: Computer Science; Major 2: Computer Engineering; Minor: Physics
Cumulative GPA: 3.7; Computer Science GPA: 3.9
Thesis advisor: Dr. Jorg Liebeherr. Thesis title: “HyperCast: Super-Scalable Many-to-Many Multicast Protocol”

Selected Research Projects

MoteTrack **Cambridge, MA**
Primary Investigator *2004 – Present*
Designed, implemented and deployed a robust, decentralized RF-based location tracking system for motes. With just 25 beacon nodes deployed throughout one floor, the system achieves a 50th-percentile and 80th-percentile location-tracking accuracy of 1 meters and 1.7 meters respectively when diversifying the radio signal over 16 frequencies. In addition, MoteTrack can tolerate the failure of up to 60% of the beacon nodes without severely degrading accuracy. MoteTrack is used by several institutions including: Boston University, Crossbow, and Antotech. (<http://www.eecs.harvard.edu/~konrad/projects/motetrack>)

CodeBlue **Cambridge, MA**
Project Member *2004 – Present*
Integrating location tracking for CodeBlue. CodeBlue explores applications of wireless sensor network technology to a range of medical applications, including pre-hospital and in-hospital emergency care, disaster response, and stroke patient rehabilitation.

HyperCast: Super-Scalable Many-to-Many Multicast Protocol **Charlottesville, VA**
Project Member *2000 – 2001*
Part of the HyperCast Design Team - designed and implemented an application layer multicast protocol in Java using good OO techniques. HyperCast is a very modular protocol, achieved through the heavy use of inheritance and interfaces. To evaluate the system, I performed large-scale experiments on a distributed system composed of over 100 computers and successfully scaled the protocol to multicast groups with 10,000 nodes. (<http://www.cs.virginia.edu/~hypercast>)

 Publications

“MoteTrack: A Robust, Decentralized Approach to RF-Based Location Tracking”, Konrad Lorincz and Matt Welsh. To appear in Proceedings of the International Workshop on Location and Context-Awareness (LoCA 2005) at Pervasive 2005, May 2005.

“Sensor Networks for Emergency Response: Challenges and Opportunities”, Konrad Lorincz, David J. Malan, Thaddeus R. F. Fulford-Jones, Alan Nawoj, Antony Clavel, Victor Shnayder, Geoff Mainland, Steve Moulton, and Matt Welsh. In IEEE Pervasive Computing, Special Issue on Pervasive Computing for First Response, Oct-Dec 2004.

“A Robust, Decentralized Approach to RF-Based Location Tracking”, Konrad Lorincz and Matt Welsh. Technical Report TR-19-04, Harvard University, 2004.

“HyperCast: A Super-Scalable Many-to-Many Multicast Protocol for Distributed Internet Applications”, Konrad Lorincz. School of Engineering and Applied Science, University of Virginia (Undergraduate Thesis), May 2001.

 Invited Talks

“MoteTrack: A Robust, Decentralized Approach to RF-Based Location Tracking”, Konrad Lorincz and Matt Welsh. Presented at the Crossbow Workshop. Cambridge, MA, December 14, 2004.

“MoteTrack: A Robust, Decentralized Approach to RF-Based Location Tracking”, Konrad Lorincz and Matt Welsh. Presented at Boston University Computer Science Seminar, September 10, 2004.

 Posters

“MoteTrack: Robust, Decentralized Approach to RF-Based Location Tracking”, Konrad Lorincz and Matt Welsh. Poster presented at the Harvard Industrial Partnership (HIP), October 2004.

 Appointments

Harvard University <i>Graduate Research Assistant</i>	Cambridge, MA <i>2003 – Present</i>
Harvard University <i>Teaching Fellow – Computer Networks, CS 143</i>	Cambridge, MA <i>Fall 2003</i>
University of Washington <i>Teaching Assistant – Computer Programming I, CSE 141</i>	Seattle, WA <i>Spring 2002</i>
University of Washington <i>Teaching Assistant – Software Engineering, CSE 403</i>	Seattle, WA <i>Winter 2002</i>
University of Washington <i>Teaching Assistant – Computer Programming II, CSE 142</i>	Seattle, WA <i>Fall 2001</i>
University of Virginia	Charlottesville, VA

Research Assistant – HyperCast project

Summer 2000

University of Virginia

Software Developer – CiteMaker Bibliography Generator

Charlottesville, VA

1999 – 2000

University of Virginia

Teaching Assistant – Introduction to Computer Science, CS 101

Charlottesville, VA

Fall 1998 and Spring 1999

Other Fun Projects

Large Software Development Project

Developed the software for a Nomadic Scout Robot by working in a team of nine people. This was done in an Advanced Software Engineering class. Please see website at <http://www.cs.virginia.edu/~kel9m/cs340-website>

Tetris

Evaluated the benefits of Java generic types through the development of a Tetris game that takes advantage of the GJ generic types extension.

VideoPoker2000

Developed a fairly complex Video Poker Game in Visual C++ (using MFC). Can be downloaded at <http://www.people.virginia.edu/~kel9m/Programs/VideoPoker2000.zip>

Computer Skills

Programming Languages and Operating Systems

Java, NesC, C/C++ (Visual C++/ MFC), Perl, Pascal, SQL.
Windows, UNIX, Linux.

Networking Experience

TCP/IP, UDP, Ethernet, Multicast, XML, Socket Level Programming,
Multithreaded Programming.

Awards and Honors

Louis T. Rader Award – best undergraduate research in Computer Science for the 2000-2001 academic year

Intermediate Honors – recognized for outstanding academic achievement

Golden Key National Honor Society

National Society of Collegiate Scholars

Winner of the 1995 Ethel B. Collins Memorial Trophy – Best High School Chess Player (NJ vs. NY Invitational Scholastic Match)

Obtained 14th place at the 1989 National Chess Tournament in Romania