

Tyler R. Harter
1320 Spring Street, Apt F.
Madison, WI 53715

608.397.4374 (phone)
tylerharter@gmail.com
<http://www.tylerharter.com>

Education

- **University of Wisconsin-Madison** Madison, WI
Computer Science/Mathematics Double Major - Senior 3.975 GPA
- **University of Wisconsin-La Crosse** La Crosse, WI
General Education Courses (28 credits) 4.0 GPA
- **Western Technical College** La Crosse, WI
Programming (27 credits) & GE (14 credits) Courses Taken During High School 4.0 GPA

Work Experience

- **UW-Madison** Madison, WI
Undergrad Research Assistantship with Professor Remzi Arpaci-Dusseau June 2009 - present

Our ongoing research involves doing application studies on the programs in Apple Computer's iLife and iWork software suites. Our purpose is to understand the nature of the file system workloads that are induced by common user actions performed in these applications. To gain this understanding, we have automated a large variety of tasks likely to be performed by users and collected traces by instrumenting relevant system calls with the help of the DTrace tracing framework. One of our more interesting findings is that the use of higher level APIs often leads to file system behavior of applications that is unlike the behavior one would expect if the applications' programmers had instead used the Unix syscalls directly.

- **Dairyland Power Cooperative** La Crosse, WI
Computer Support Intern June 2006 - Aug. 2008
 - Created dynamic displays that provide real-time voltage readings and other data to dispatchers
 - Taught users how to perform various computer related tasks and supported their workstations
 - Documented various computer support tasks
 - Maintained a hardware inventory database
 - Helped represent the Operations Control Systems department at a booth in Dairyland Power's 2007 and 2008 annual meetings
- **Camp Daniel (Volunteer)** Athelstane, WI
Camp Counselor for Mentally Disabled Campers
 - Provided 24-hour a day care for people with various mental disabilities
 - Volunteered for one week during each of the previous three summers

Skills

Languages: C, C++, Java, VB.NET, Perl, Awk, PHP, HTML, CSS, JavaScript, ActionScript, SQL

Operating Systems: Linux, Mac OS X, Windows

Miscellaneous: DTrace, Alloy, Soot, JLex, JavaCup, JavaCC, LaTeX, Ploticus, Various DBM Systems

Projects

- Created a system that parses the .class files of a Java program with the help of Soot and creates a model (aka a “core instance” in the Alloy community) of the Java program in MIT’s Alloy Analyzer, allowing users to check the truthfulness of first order logic statements about the Java program.
- Wrote a software program for Rite-Hite of Milwaukee that was used to optimize the design of a product for which Rite-Hite is pursuing patent protection.
- Created a mass-mailing program for notifying inventors of their upcoming patent maintenance fees. The program targeted certain inventors and generated individual letters tailored to them and their particular inventions. The data used to generate the letters was purchased from the U. S. Patent & Trademark Office.
- Created a program that lets users do super fast patent searches by prefetching the patents it believes the user will want to look at next. The program sells for \$300 at www.fasterpatents.com, and several satisfied searchers have purchased it.
- Developed a multi-computer barcode scanning system for a church in La Crosse that lets parents swipe a special ID card at any computer to check their kids in or out of children’s church.
- Designed my own programming language, RPS, and implemented a lightweight interpreter for it that runs in an applet (tylerharter.com). The purpose of the language is to make it easy to write programs that play rock-paper-scissors. RPS sports useful primitives for things like choices (rock, paper, or scissors) and results (win, lose, or tie) and a simple, forgiving syntax that makes coding easier for non-programmers. Users can make their programs play hundreds of rounds against other programs within seconds. Unless one of the programs is random, the program that is best at recognizing patterns in the other program’s choices should win most often.

UW-Madison CS/Math Course Work

Course	Title	Grade
COMP SCI 252	- Intro to Computer Engineering	(A)
COMP SCI 352	- Digital System Fundamentals	(A)
COMP SCI 354	- Machine Organization & Programming	(A)
COMP SCI 367	- Intro to Data Structures	(A)
COMP SCI 520	- Intro to Theory of Computing	(AB)
COMP SCI 536	- Intro to Programming Languages & Compilers	(A)
COMP SCI 537	- Intro to Operating Systems	(A)
COMP SCI 540	- Intro to Artificial Intelligence	(A)
COMP SCI 564	- Database Management Systems	<i>in progress</i>
COMP SCI 640	- Intro to Computer Networks	(A)
COMP SCI 699	- Directed Study (Advanced OS Lab)	(A)
COMP SCI 706	- Analysis of Software Artifacts	(A)
COMP SCI 707	- Mobile & Wireless Networking	<i>in progress</i>
MATH 221	- Calculus & Analytic Geometry 1	(A)
MATH 222	- Calculus & Analytic Geometry 2	(A)
MATH 234	- Calculus & Analytic Geometry 3	(A)
MATH 240	- Intro to Discrete Mathematics	(A)
MATH 340	- Elementary Matrix & Linear Algebra	(A)
MATH 371	- Basic Concepts of Math	(A)
MATH 421	- Theory of Single Variable Calculus	(A)
MATH 541	- Modern Algebra	<i>in progress</i>
MATH 551	- Elementary Topology	<i>in progress</i>