Tyler R. Harter
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Interests

Primary: File Systems, Storage, Operating Systems

Secondary: Databases, Networking, Programming Languages/Compilers

Education

- **University of Wisconsin-Madison** — Madison, WI
  Graduate School (Computer Science) — 3.929 GPA
  Undergrad School (Bachelor of Science in Computer Science and Math) — 3.945 GPA
- **University of Wisconsin-La Crosse** — La Crosse, WI
  28 credits (general education) — 4.0 GPA
- **Western Technical College** — La Crosse, WI
  41 credits (mostly CS, taken during high school) — 4.0 GPA

Work Experience

- **ADvanced Systems Laboratory (ADSL)** — Madison, WI
  Graduate Research Assistant — Current
  - Working with Professors Andrea Arpaci-Dusseau and Remzi Arpaci-Dusseau
  - Doing storage-system research and I/O workload analysis

- **Google Inc.** — Mountain View, CA
  Software Engineering Intern — Summer 2011
  - Wrote a Django backend for a proprietary Google storage system
  - Provided ORM (Object Relational Model) access to scalable storage

- **Qualcomm Inc.** — San Diego, CA
  Radio Frequency Software Intern — Summer 2010
  - Maintained a database for project planning and modem test management
  - Added issue tracking functionality and optimized query performance
  - Created dashboard with test coverage visualizations and project health indicators

- **University of Wisconsin-Madison** — Madison, WI
  Undergraduate Research Assistant — Summer 2009
  - Worked with Professor Remzi Arpaci-Dusseau
  - Analyzed I/O behavior of various applications
  - Presented findings at Argonne National Labs

- **Dairyland Power Cooperative** — La Crosse, WI
  Operation Control Systems Intern — Summers 2006-2008
  - Created real-time SCADA interfaces for remote substation control
  - Maintained a hardware inventory database

- **Camp Daniel (Volunteer)** — Athelstane, WI
  Camp Counselor for Mentally Disabled Campers — Summers 2007-2009
  - Provided 24-hour a day care for people with various mental disabilities
  - Volunteered for one week during each of three summers

Publications

Tyler Harter, Chris Dragga, Michael Vaughn, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau.
A File is Not a File: Understanding the I/O Behavior of Apple Desktop Applications.
Proceedings of the 23rd ACM Symposium on Operating Systems Principles (SOSP '11).

Awards and Honors

- U.S. Patent 7,613,619: Method for identifying allergens...

- Guri Sohi Fellowship (2010-2011 Academic Year)

- Best Paper Award (SOSP 2011)

Skills

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

Operating Systems: Linux, Mac OS X, Windows

Miscellaneous: Django, DTrace, Alloy, Soot, JLex, JavaCup, JavaCC, LaTeX, Ploticus, Various DBMS's

Other 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 very 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 the child care program.
- 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.
- Designed a journalling/copy-on-write hybrid system intended to be a substitute for regular ARIES management of memory and implemented a basic prototype. ARIES is typically preferred over copy-on-write because the latter technique (1) leads to data fragmentation, and (2) does not allow for fine-grained concurrent access. The prototype is designed to work with flash, so the first problem becomes less important. The prototype only selectively uses copy-on-write when concurrency is not affected, so the second problem also disappears. This allows the prototype to write one third of the data that ARIES would write for some workloads.