# THEOPHILUS A. BENSON

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## EDUCATION

**Ph.D. in Computer Science,** University of Wisconsin, Madison, WI — September 2006 – Present
- Research Interests: Network Management, Wireless Protocol Design.
- Advisor: Aditya Akella
- Cumulative GPA: 3.9/4.00

**B.S. in Computer Science,** Tufts University**,** Medford, MA — September 2000-May 2004
- Cumulative GPA: 3.44/4.00, Major GPA: 3.8/4.00
- Graduated Cum Laude, Dean's List

**Grants/Awards**

**University of Wisconsin** Advanced Opportunity Fellow – candidates for the scholarship are nominated by the department

## PUBLICATIONS

- Theophilus Benson, Aditya Akella, Dave Maltz**, "***Unraveling the Complexity of Network Management***"**, USENIX Networked Systems Design and Implementation (NSDI), 2009
- Theophilus Benson, Aditya Akella, Dave Maltz**, "***A Case for Complexity Models in Network Design and Management***"**, Technical Report TR1643, University of Wisconsin, Madison, July 2008
- Pratap Ramamurthy, Theophilus Benson, Jittapat Bunnag, Aditya Akella, Suman Banarjee, Almir Mutapcic, Gireesh Shrimali, "*Coordinated configuration of uncoordinated wireless networks: A win-win approach based on bargaining*", ACM MobiCom 2008 Poster.

## PATENTS

Theophilus Benson, Sambit Sahu, Anees Shaikh. "Method and apparatus for enabling proactive failure prediction in network devices through functional representation of network configuration" Pending.

## IMPACT

**WiscCap:** A tool that I developed to help network operators visualize routing configuration and policies within their networks. The tool is currently being used by 10 networks. Of the 10 networks, 5 are big 10 universities with over 25,000 users, 3 are private enterprise, and the last 2 are medium sized universities.

## WORK EXPERIENCE

**Research Assistant,** University Of Wisconsin, Madison, WI — January 2007 - Present
- Created a set of models/metrics to capture the complexity involved in configuring and managing an enterprise network
- Conducted an empirical study on the usage of access-lists, Virtual Lans, and routing protocols to achieve network wide policies.
- Conducted an empirical study on the location and duration of micro-bursts (congestion) in over 30 data centers
- Designed an arrival process model of traffic patterns observed in data centers

**System Research Intern,** Microsoft Research, Redmond, WA — May 2008- Present
- Added a module to a Microsoft product that captures distributed dependencies between applications and automatically performs root-cause analysis on problems experienced by users.
- Currently gathering and analyzing data on the problems detected

**System Research Intern,** IBM Research, Hawthorne, NY — Summer 2007
- Designed and implemented a suite of tools for proactive fault management in enterprise networks
- Developed a framework and models for performing root cause analysis of configuration errors on network devices.

## TECHNICAL SKILLS

**Programming:** Java, PHP, PERL, SQL, C++, Bash, XML, XML schemas, SOAP, SSL, CSS, HTML, Visual Basic, JavaScript, Bash.

**Application:** CENTOS, Debian, Apache, Eclipse, Ant, make, gdb, Weka, cvs,svn,

## PROFESSIONAL SERVICES

**Program Committee,** *FIND 2008 Student Initiative*, National Student Foundation
**INFOCOM 2008,** Reviewer
**Application Reviewer,** *Graduate Admission Committee 2007*, University of Wisconsin, Madison, WI

## REFERENCES

**Aditya Akella,** Assistant Professor, University of Wisconsin, Madison
**Remzi H. Arpaci-Dusseau,** Associate Professor, University of Wisconsin, Madison
**Albert Greenberg,** Principal Researcher, Microsoft Research, Redmond
**Anees Shaikh,** Manager, IBM Research T.J. Watson