

# Matthew S. Rogge

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## PROFILE

Enthusiastic, articulate problem solver with a strong academic background. Achievements in research, teaching, and industry demonstrate an ability to understand, innovate, and contribute in both theoretical and practical realms. Seeking a work environment where novel solutions to technical challenges are created by applying theoretical concepts and creative thinking.

## EDUCATION

Stanford University 1998 to Present

**M.S. Electrical Engineering**, December 2002

**Ph.D. Electrical Engineering**, Expected March 2004

*Stanford Graduate Fellow – Twelve quarter full tuition fellowship*

University of Missouri, Columbia 1993 to 1997

**B.S. Electrical Engineering, B.S. Computer Engineering**, December 1997

*Summa cum Laude GPA: 3.99/4.0, Ranked First in Graduating Class*

*University of Missouri Curator's Scholar - Full tuition undergraduate award*

## RESEARCH EXPERIENCE

**Research Assistant**, Stanford University December 1998 to Present

Photonics & Networking Research Laboratory

*Member of the HORNET (Hybrid Opto-Electronic Ring Network) Project: a scalable, efficient packet-switched metropolitan area ring network. A novel architecture with tunable transmitters and wavelength routing, HORNET inexpensively provides any-to-any connections and scales to Terabit per second capacities.*

- Developed media access control and reservation protocols for HORNET
- Designed and implemented HORNET testbed
  - ♦ Built tunable transmitter subsystem
  - ♦ Designed and fabricated advanced printed circuit boards
  - ♦ Implemented protocols with programmable logic in Verilog/VHDL
  - ♦ Integrated high speed electronics with optical components and subassemblies
- Authored research proposals for funding from both government agencies and industrial partners, including detailed budgets and timelines
- Published in peer-reviewed journals and conferences, and trade magazines
- Presented research results, progress reports, and technical overviews
- Reviewed manuscripts for IEEE Journal of Lightwave Technology and IEEE Photonics Technology Letters

## TEACHING EXPERIENCE

**Laboratory Teaching Assistant**, Stanford University Spring 2001, Spring 2003

EE392L-Optical Communications Lab

*Received highest possible evaluation scores in end-quarter reviews*

- Developed projects for potential students – mentored and evaluated performance
- Led laboratory experiments and discussions
- Taught students device characterization skills and measurement techniques
- Encouraged students to relate theoretical results to experimental lab data

**Learning Center Math Tutor**, University of Missouri, Columbia 1995 to 1997

- Tutored College Algebra and Calculus [I, II, and III] to groups of one to fifteen students
- Led a twice-weekly review session for the campus ROTC program - Calculus [I, II, and III]

# Matthew S. Rogge (continued)

## INDUSTRY EXPERIENCE

**System Design Consultant**, Sanera Systems, Sunnyvale, CA      September 2000 to October 2003  
{McData Corporation acquired Sanera in October 2003}

*Co-inventor on two patent submissions related to switch architectures and design*

- Collaborated with colleagues to design and implement high port count, enterprise class data center switch  
*As the first employee, worked on all early stages of product development, from initial design to field trials*
- Created schematic verification method using Perl scripts  
*Discovered and corrected numerous schematic errors before board tape-out, saving thousands of dollars in change orders and board re-spins*
- Led the optical interface specification and design effort  
*Created fully-functional first revision boards with standards compliant optics [data rates ranging from 1 to 10 Gigabits per second]*
- Debugged complex boards and systems, including power-up, regression testing, and failure analysis  
*Stabilized hardware to allow software and quality assurance testing and development*

## TECHNICAL SKILLS

- Programming: VHDL/Verilog, Perl, C, MATLAB, Java, Assembly, HTML, Visual BASIC
- Network and subsystem modeling through simulation
- Hands-on, system-level work with Wavelength Division Multiplexing (WDM) components, networking concepts, high-speed digital electronics, and RF electronics
- Dense, multi-layer, high-speed Printed Circuit Board design
- Proficient use of test and measurement equipment for characterization of devices and systems

## PERSONAL

- Married with two children
- Hobbies include enjoying nature (camping/hiking), football, and digital photography
- Student Member of the IEEE (Laser & Electro-Optics and Communication Societies)
- Student Member of the National Society of Professional Engineers

## REFERENCES

Provided Upon Request

## SELECT PUBLICATIONS

See <http://www.rogges.com/professional/> for a complete listing  
*[More than 20 conference and journal publications]*

Submitted for Publication, Under Review:

[1] M. S. Rogge, Y-L Hsueh, and L. G. Kazovsky, "**A Novel Passive Optical Network with Dynamic Wavelength Allocation**," *IEEE Optical Fiber Communications Conference (OFC 2004)*, Los Angeles, CA, March 2004.

Published:

[1] M. S. Rogge, K. Shrikhande, C. Tosetti, H. Bae and L. G. Kazovsky, "**Circuits over HORNET (CoHo) – Guaranteed Bit Rates over a Packet-based Metro Network**," *IEEE Globecom 2003*, San Francisco, December, 2003.

[2] I. M. White, M. S. Rogge, K. Shrikhande and L. G. Kazovsky, "**Design of a control-channel-based media-access-control protocol for HORNET**," *OSA Journal of Optical Networking*, pp. 460-473, December, 2002.