

Signal Processing for Next Generation Optical Links

Data communication over legacy multi-mode fibers has progressed to the point where simple amplitude modulation and detection of the optical signal does not provide acceptable bit error rate performance at the desired distances (300m for building backbone networks) and data rates (10Gb/s and above). Many options exist to increase the total throughput of the system, from wavelength division multiplexing (WDM) to more advanced modulation approaches on a single wavelength (multilevel signaling).

Although a WDM based solution has already been defined by the IEEE, a new effort is progressing around electronic dispersion compensation (EDC) - a technique that improves the link performance through enhanced receive electronics that are able to remove much of the deterministic impairments caused by the fiber. Once this solution is available, the steady increase in IC signal processing power, with decreasing cost, will eventually make it the lowest-cost solution.

This presentation will cover the key elements of this activity: a discussion of the multi-mode fiber model that is being developed to simulate the vast range of responses that the installed base can create, as well as a discussion of the equalization architectures that can be used to effectively compensate the ISI of the channel. The modeling of the multi-mode fibers is a problem that is unique to optical communications, while the equalization techniques that will be discussed are applicable to any ISI-challenged communication channel. Finally, the status of the IEEE 802.3aq Task Force, which is currently defining the requirements and specifications for EDC-enabled fiber optic links, will be discussed.

MSU IEEE Job Fair

Minnesota State University, Mankato
Wednesday, March 9, 2004
9AM-3PM

Employers and professionals: the MSU IEEE job fair is just around the corner!

The job fair is intended to give employers an intimate look at the potential which has been developing within the ECET department at MSU over the last four years. It is focused exclusively on giving employers direct contact with both graduate and undergraduate students with majors in Electrical Engineering and Technology and Computer Engineering and Technology.

The job fair is an effective way to gain company recognition among future graduates even if not currently hiring.

For details, please see the brochure at:

www.ewh.ieee.org/r4/southern_minnesota/

Pre-College Educator Award

The IEEE Educational Activities Board is currently accepting nominations for the 2005 Pre-College Educator Award. The award is given to teachers that foster students' interest in and encourage students to pursue careers in mathematics, science, technology, and engineering. The deadline for nominations is 30 April 2005. The winning teacher receives \$1,000 US and a brass and walnut plaque.

Each candidate must be nominated by one of the 307 IEEE Sections. To date, IEEE has awarded teachers from sections within Regions 8, 3, 2, and 1.

For further information on the IEEE Pre-College Educator Award or for instructions on how to submit a nomination, go to

<http://www.ieee.org/organizations/eab/EBAwards/awardprecollege-2004.htm>.

Signal Processing for Next Generation Optical Links

Featuring: Eric Borisch

Monday, March 21st, 6:30 pm
Mayo Medical Sciences Building
(321 3rd Avenue SW, Rochester)

► Pizza at 6:30; Meeting at 7:00 ◀

Sponsored by:

The Southern Minnesota Section IEEE Joint Chapter
Communications, Control Systems and Signal Processing

Eric Borisch is a Lead Engineer at JDS Uniphase in Rochester, MN where he focuses on the development of optical devices/components. Eric has a B.S. in Electrical Engineering from Case Western University and will be receiving a Master's degree in E.E. from Stanford University this June. He is an expert in communications theory, fiber optic communications, and multi-mode laser sources.

In 1998, Eric joined the Optical Interconnect Solutions group at IBM Rochester, where he helped bring the group's first VCSEL (Vertical Cavity Surface Emitting Laser) based transceiver to market. As a member of the TIA (Telecommunications Industry Association), Eric contributed to efforts to define characterization techniques and specifications of multi-mode fiber for use with VCSEL sources.

Following the acquisition of the group by JDS Uniphase in 2001, Eric continued to play a key role in the design and manufacture of optical transceivers for multi-gigabit applications. As a member of the ANSI T11 Fibre Channel Technical Committee, Eric is involved in high-speed optical links for storage applications, making key contributions to the physical layer and jitter measurement methodology standards.

Eric is currently involved in the development of the emerging IEEE 802.3aq standard for equalization-enhanced optical links. He is providing expertise in simulation, data acquisition, and analysis of multi-mode fibers to guide JDSU's input to the standard as well as the evaluation of potential solutions.

IEEE Launches Membership Portal

The IEEE has launched its new membership portal along with a members-only area called myIEEE.

The public site boasts the value and benefits of IEEE membership while showcasing the availability of additional membership opportunities, such as Societies, Affinity Groups and the Standards Association. Links to member-benefit information are consolidated into drop-down menus on the top navigation bar. Also included are a "Featured Benefit" module, member profiles, membership-related announcements and more.

Members who login to the myIEEE area with their IEEE Web account will see personalized information, such as their grade, section affiliation and additional active memberships. A new feature called "Service Advisor" uses a member's technical interest profile to offer recommendations for IEEE membership offerings, conferences and publications. Links to the most commonly-used membership-management functions are included in a single module for easy access.

The portal is accessible from the Membership menu on the left navigation bar of the main IEEE Web site. The URL is

<http://www.ieee.org/myieee>.



Software Engineering Conference

15-21 May, 2005

Software permeates every aspect of our society—at home and at work, in business and for pleasure, to support our daily chores, and to plan and manage our future. We increasingly expect it to be available, reliable, safe, secure, and usable, despite our own mobility, unpredictability, and changing needs.

The development of such software poses increasing challenges for software engineering teams, who are themselves distributed, perhaps mobile, have varied skills, and often speak varied languages. The discipline of software engineering must address these challenges through the development and refinement of new techniques, practices, and tools that build upon sound engineering principles. Moreover, the ubiquity of software means that the discipline of software engineering is also extending. A software engineering team must think of software not only as a mathematical description or a product, but also as a service, a commodity, or even as a user experience.

ICSE is the premier software engineering conference, providing a forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, experiences, and concerns in the field of software engineering.

ICSE-2005 will be held in the USA's heartland, St. Louis Missouri, in the elegant setting of the Adams Mark Hotel on the Mississippi riverfront and in the shadow of a monumental engineering feat, the St. Louis Arch. The conference will offer an exciting program of events, including keynote talks by leaders in the field, invited presentations along specialized themes, tutorials, workshops, and presentations of technical papers on innovative research, the cutting edge of practice, and new developments in software engineering education. It will also explicitly reach out to other disciplines that impact upon or benefit from software engineering, and to local communities that can benefit from and contribute to the field. The main program will be complemented by an array of social events, providing further opportunities for informal networking.

For more information, visit the conference web site:

<http://www.cs.wustl.edu/icse05/Home/index.shtml>



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Each empty white square in the grid contains one of the numbers 1, 2, 3,..., 8. Each of the horizontal and vertical equations must be true and each number must be used exactly once. Courtesy of Erich Friedman.

<http://www.stetson.edu/~efriedma/puzzle.html>

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