EDUCATIONAL ACTIVITIES: HELPING CAREERS FLOURISH

DOUG ZUCKERMAN

STEFANO BREGNI

Our world and its technology are in a constant state of flux. This is particularly evident for the communications and networking field. Society's needs change, technological innovation is ongoing, and businesses embrace new technologies to serve their customers while achieving business goals. All these significantly impact researchers, engineers and practitioners as they work to maintain professional viability in an ever more competitive job market. "Keeping up" is the key phrase in today's world. The Communications Society recognizes this, and through its educational activities strives to help its members and others "keep up" with the technologies and skills necessary to establish, maintain and grow one's career. This month, I am pleased to share the President's Column with Prof. Stefano Bregni, ComSoc's Director of Education, who will cover ComSoc's educational activities, aimed at helping careers flourish.

Stefano Bregni is Associate Professor at Politecnico di Milano, where he teaches telecommunications networks and transmission networks. He was born in Milano, Italy, in 1965. In 1990, he graduated in telecommunications engineering at Politecnico di Milano. Since 1991, he has worked on SDH and network synchronization issues, with special regard to clock stability measurement, first with SIRTI S.p.A (1991-1993), and then with the CEFRIEL consortium (1994-1999). In 1999, he joined Politecnico di Milano as a tenured Assistant Professor.

He has been a Senior Member of the IEEE since 1999, and has been a Distinguished Lecturer of the IEEE Communications Society since 2004. In the IEEE Communications Society, he is Director of Education, Chair of the Transmission, Access and Optical Systems (TAOS) Technical Committee, and a voting member of the GLOBECOM/ICC Technical Content (GITC) committee. He has been the Symposia Chair of IEEE GLOBECOM 2009 and Symposium Chair in eight other ICC/GLOBECOM conferences. He was also TPC Vice-Chair of the IEEE Optical Network Design and Modeling 2005 conference (ONDM 2005). He is Editor of the IEEE ComSoc *Global Communications Newsletter* and Associate Editor of the *IEEE Communications Surveys and Tutorials* Journal. He was a tutorial lecturer in the IEEE conferences ICC 2000, GLOBECOM 2002, GLOBECOM 2003, and GLOBECOM 2005. He served on ETSI and ITU-T committees on digital network synchronization.

Stefano is the author of about 70 papers, mostly in IEEE conferences and journals, and of the books *Synchronization of Digital Telecommunications Networks* (Chichester, UK: John Wiley & Sons, 2002; translated and published in Russian by MIR Publishers, Moscow, 2003), and *Sistemi di Transmissione PDH e SDH - Multiplazione* (*PDH and SDH Transmission Systems Multiplexing*) (Milano, Italy: McGraw-Hill, 2004). His current research interests focus mainly on traffic modeling and optical networks

BACKGROUND AND MISSION

In 2008, the Vice-President for Technical Activities Andrzej Jajszczyk established an ad-hoc working group to review and suggest ways to strengthen the IEEE Communications Society's educational activities. All members agreed that Education is an important area, which the Communications Society should further develop as a service to all members. A list of possible activities to pursue was also identified. Then, based upon the recommendation of Andrzej and approval by the Board of Governors, the President Doug Zuckerman appointed Stefano Bregni Director of Education and asked him to set up a revitalized Education Board (June 2008).

The mission of the Education Board, in short, is to set strategic directions for all educational activities of the Communications Society, to coordinate ComSoc educational efforts with those of IEEE and other Societies, but especially to improve the quality and variety of ComSoc education products and services. The aim is to provide better educational products and services to ComSoc members, demonstrate value to non-members so that they may decide to join the Society, and hopefully also derive some revenue from the educational activities.

EARLY STEPS

In line with the committee's recommendation, ComSoc's new Education Board was formed during 2008. The first activity plan was drafted and approved by the Board of Governors. A list of tasks was defined and priorities were identified, also with the help of the ComSoc Technical Activities ad-hoc group and the Society's Operations Review Committee. One of the first tasks was to update the Society's Policies & Procedures and the Bylaws to set the stage for the overall educational activities program. The amendments were all approved by the Board of Governors.

The Education Board includes experienced members that are well known for their continued commitment to serving the Communications Society and for their long record of scientific and organizational achievements. The Board includes four Members at Large: Celia Desmond (past ComSoc President and Vice-President for Technical Activities), Mike Devetsikiotis (ComSoc Distinguished Lecturer), Abbas Jamalipour (ComSoc Distinguished Lecturer and GITC member), and John Thompson (GITC member and Technical Program Co-Chair of ICC 2007). The Education Board also includes representatives from other ComSoc Boards: Fred Bauer, Raouf Boutaba, and Merrily Hartmann (Directors of Conference Development, Publications, and Operations, respectively), Shri Goyal (Director of Membership Programs Development), Harvey Freeman (IEEE TAB representative to the IEEE Educational Activities Board), and John Pape (staff, ComSoc Marketing Head).

Within the Education Board, two Working Groups have been set up, entrusted with specific tasks. One, led by Celia Desmond and including Irena Atov and Gustavo Giannattasio, has the responsibility to a) address coordination between

ComSoc and IEEE educational programs, and b) to establish contacts with other Societies to learn good ideas and integrate cross-organizational efforts. Celia's group also covers educational products and services especially tailored to the Society's Wireless Communication Engineering Technologies (WCET) certification program. The other group, led by Mike Devetsikiotis and including Fabrizio Granelli, Charalambos Skianis and others, focuses on exploring platforms for next-generation virtual collaboration and on proposing ways to improve educational content (e.g., live virtual sessions) and to facilitate participation by student branches and from disadvantaged areas.

In the next paragraphs, some of the most important initiatives run by the Communications Society in the area of Education are outlined. All work is ongoing and under development; thus, readers are invited to check the indicated web sites for updates and further information.

EDUCATIONAL PROGRAMS

Coordination with IEEE: First, it is very important to coordinate ComSoc's educational activities with those of IEEE and, whenever possible, of other Societies. To this aim, Harvey Freeman represents the Technical Activities Board in the IEEE Educational Activities Board and is familiar with other Societies' and Councils' coordination efforts with IEEE.

Moreover, the Communications Society actively contributes to IEEE Expert Now, the online program of interactive learning courses offered by IEEE, which includes the best IEEE educational tutorials and workshops originally featured in IEEE conferences from around the world. Several of our online courses, already part of ComSoc's Tutorials Now^{TM} program, have been or are being repackaged as part of the IEEE Expert Now portfolio. We are currently considering ways to further develop this cooperation.

The Tutorials Now^{TM} Online Program: The flagship online educational program of the IEEE Communications Society is the Tutorials Now^{TM} program, launched about six years ago. The program presents a series of engaging tutorials previously given at major ComSoc conferences and appropriately repackaged and recorded off-line by the lecturer. The portfolio of tutorials covers the hottest topics in all areas of communications and networking, from classic subjects to state-of-the-art and emerging technologies.
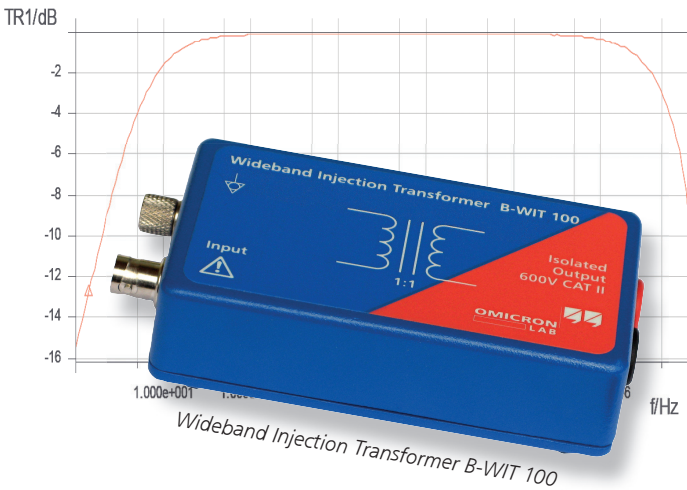
About 90 tutorials are available to date in the Tutorials Now^{TM} program. From two to five hours in length, they present the original visuals and voice-over by the lecturer. The tutorials are available for purchase to everyone, with discounts for ComSoc members. However, companies may sponsor and offer free titles online for a three-month period. All lecturers are recognized international experts. This program really demonstrates the global nature of the Communications Society and its vocation to disseminate information worldwide.

Financial data reported for the last several years has shown that the Tutorials Now^{TM} program has been not only an excellent service to our community, but also a source of revenue for the Communications Society. We intend to further develop this program.

A key goal of the Education Board is to further enrich the portfolio of Tutorials Now^{TM} courses, keeping the set of topics

fresh and timely. In 2008, for example, we launched a first trial to record live tutorials given at IEEE GLOBECOM 2008 (managed by Joel Basco) for subsequent inclusion in the Tutorials Now™ program. We believe that live tutorials, although not as polished and "perfect" as those recorded in the calm of a lecturer's home, may nonetheless be highly attractive and even didactically effective, because of the live atmosphere captured in the room. This ongoing trial has given promising results.

More recently, the working group led by Celia Desmond and in particular Gustavo Giannattasio, who is making an outstanding effort in this task, has worked on acquiring and developing new tutorials by leading experts worldwide, specifically designed to cover WCET program topics. The first tutorials of this type are already offered in the Tutorials Now™ catalogue. Several others are under preparation and will be offered soon.

Webinars: IEEE ComSoc Webinars are free (corporate-sponsored), online, multimedia panel sessions open to all members. They feature an audio plus slide show downstream and a text channel upstream (for questions and answers). They focus on technologies, products, and services of interest to ComSoc members. Typically, webinars last up to two hours and may cover three or four presentations, with a moderator introducing speakers and facilitating questions and answers. The moderator, usually a senior ComSoc volunteer, takes responsibility for organizing and running each webinar, including working with sponsors, recruiting speakers and working with ComSoc staff on the logistics for the live event. Viewers and panelists participate from the convenience of their desks, without traditional conference expense or travel. Moreover, free webinar platforms have been tested, even in public trials, to allow chapters to organize and offer online courses using similar technology.

Distinguished Lecturers Online: The Distinguished Lecturers Online Program is a Membership Development program, stemming from the well-known Distinguished Lecturer Program (managed by Shri Goyal, Director of Membership Programs Development). Although it is not managed by the Education Board, it is worthwhile to point it out here, as yet another excellent example of the educational effort of the IEEE Communications Society. Selected lectures given by ComSoc Distinguished Lecturers are offered for free to everyone on the ComSoc web site, as a service to the community and to present a sample of ComSoc's offerings to non-members (who are encouraged to become members).

Other Efforts to Improve Educational Products and Services: One of the priorities determined in our plan is to improve the quality of tutorials and other educational products offered by ComSoc. To this purpose, for example, we are collecting relevant data about tutorials at ComSoc's major conferences (namely, attendance, appreciation by the attendees, etc.). Also, we plan to define a standard evaluation form for tutorials given at ComSoc conferences. Feedback is always sought on all our educational programs. John Thompson and Abbas Jamalipour are working on these tasks.

Exploring Ways of Virtual Collaboration for E-Teaching: The Working Group led by Mike Devetsikiotis is exploring environments for virtual collaboration, aiming at identifying new ways to offer online education, in particular for programs such as Tutorials Now™ or Distinguished Lecturers Online. Emphasis is given to the goal of facilitating participation by student branches and from disadvantaged areas, to disseminate knowledge truly globally.

For example, in a first trial organized by Mike and Gustavo, free seminars have been offered to the Chapters of Region 9 (Latin America), experimenting with a platform for virtual collaboration (2009). Another trial, currently under consideration by this working group, consists of setting up a virtual laboratory of internetworking aimed at students in the popular virtual world Second Life, where IEEE already owns two islands.

To Probe Further: For more information and updates, browse the following web sites:
- IEEE ComSoc Tutorials Now™:
  http://www.comsoc.org/tutorialsnow/
- IEEE ComSoc Distinguished Lecturers Online:
  http://www.comsoc.org/socstr/memprog/dislec/tut.html
- IEEE ComSoc certification for Wireless Communication Engineering Technologies:
  http://www.comsoc.org/cert/
- IEEE ComSoc Webinars:
  http://ww2.comsoc.org/webinars