The Case for Technology in Developing Regions  
pp. 25-38  
Eric Breuer, Michael Demmer, Bowei Du, Melissa Ho, Matthew Kam, Sergiu Nedevschi, Joyojeet Pal, Rabin Patra, Sonesh Surana, and Kevin Fall

Reflection and Abstraction in Learning Software Engineering’s Human Aspects  
pp. 39-45  
Orit Hazzan and James E. Tomayko

A course designed to increase students’ awareness of the complexity of software development’s cognitive and social aspects can introduce them to reflective mental processes and to tasks that invite them to apply abstract thinking.

For the past three years, the authors have taught a Human Aspects of Software Engineering course at both the Technion-Israel Institute of Technology and the School of Computer Science at Carnegie Mellon University. This course aims to increase the students’ awareness of the problems, dilemmas, questions, and conflicts software engineering professionals could encounter during the software development process.

Project Numina: Enhancing Student Learning with Handheld Computers  
pp. 46-53  
Barbara P. Heath, Russell L. Herman, Gabriel G. Lugo, James H. Reeves, Ronald J. Vetter, and Charles R. Ward

A convergence of technologies is giving small computing platforms, such as the pocket PC, the ability to support telecommunications, audio and video applications, mathematical computations, word processing, electronic spreadsheets, and standard PDA functions. Wrapped into a single device, the handheld can replace all the traditional electronic hardware students commonly carry in their backpacks. Unfortunately, few high-quality educational applications are currently available for handhelds, especially in mathematics and science.

The authors’ extensive experience with commercially available and homegrown software suggests that using handhelds engages students more fully. Yet handheld technology also has many shortcomings. To address these deficiencies, they are developing a mobile learning environment designed to foster collaboration in a virtual learning community.

Toward an Electronic Marketplace for Higher Education  
pp. 66-75  
Magda Mourad, Gerard L. Hanley, Barbra Bied Sperling, and Jack Gunther

Digital content’s availability has created opportunities for universities and publishers to improve the marketplace.

So far, researchers have focused on perfecting a digital rights management system and content-protection schemes, but the real challenge lies in designing end-to-end systems that integrate with the changing needs of society and a dynamic business world.

As a first step toward designing such a system, IBM and the Multimedia Educational Resource for Learning and Online Teaching developed a framework that IBM designers used to build a prototype ed-marketplace, which IBM and MERLOT evaluated in a field test.

Stiquito for Robotics and Embedded Systems Education  
pp. 77-81  
James M. Conrad

Stiquito, a small hexapod robot, has been used for years in education. Most Stiquito robots built so far have been educational novelties because they could not be controlled by a programmable computer. Stiquito Controlled, a new self-controlled robot, uses a microcontroller to produce forward motion by coordinating the operation of its legs. Although the controller is sold programmed, educators and researchers can reprogram the board to examine other areas of robotics and embedded system design.