OATS: Operational Amplifier Tutorial Simulation; a dynamic presentation

Sarah Sniderman, Concordia University, Canada; Gary Boyd, Concordia University, Canada; Geza Joos, Concordia University, Canada

Abstract: Operational Amplifiers are among the most important components used in analog electronic devices. They are complex and initially counter-intuitive in behaviour. Electrical engineering and electrotechnology students frequently need special tutorial help to understand them and configure them to work properly in various circuits. The main advantage of simulation programs for higher education in technical fields is that, when carefully designed, they can promote higher level instructional goals of prime meta-cognitive value, especially those involving the autonomous active construction and exploration of knowledge at a pace appropriate for the learners. Note, however, that such free exploration of knowledge at a responsive pace is not a quality inherent in multimedia instruction. High-level interactivity involves more than guided clicking through branched instruction. A truer understanding requires a learning environment which accommodates the testing, falsifying, validating, and elaboration of understandings.

The Munchhausen-Trick: Learning Internet by Internet

Ralph Sontag, TU Chemnitz, Germany; Dietrich Thie, TU Chemnitz, Germany

The Chemnitz University of Technology is the first one in Germany, which is able to offer an internet-based study about information and communication technology. The participants of the courses are able to collect fundamental and applicable knowledge about internet-related technologies using it - a problem comparable to the baron of Munchhausen, which drags himself at his tuft out of a marsh. After two introducing lessons the communication between learners and teachers is stricly internet-based. Stepwise the students are qualified to understand and maintain complex situations in management of ip-networks and servers. The knowledge can be proofed in a remote managed, but actually existing laboratory. Moreover we had to consider the very heterogenous working times of our participants. We prefer asynchronous communication with short turn-around-times in conjunction with online-tools like "virtual seminars", tests or experiments. The consequently platform-independent project uses open protocols and standardized document formats like HTML or XML.

In defence of ‘shovelware’: A powerful tool in staff development for online teaching and learning

Heather Sparrow, Edith Cowen University, Australia; Jan Herrington, Edith Cowen University, Australia; Tony Herrington, Edith Cowen University, Australia

A significant challenge for universities creating effective online learning environments is educating and empowering teaching staff. Those who are not confident using technology are frequently unconvinced about the benefits and are concerned that it will force unwanted changes on their current practices. This poster outlines a project which introduced a large number of variously experienced academic staff to online teaching, whilst maintaining or enhancing effective learning. The project included the simple conversion of print-based external units to an online mode, as one of several strategies of development. Whilst this process is often referred to derogatively as shovelware, some of the positive and immediate outcomes achieved will be described, and challenges will be made to extremely negative attitudes towards such conversions.

An Evaluation of Video Compression Schemes for Teleteaching Applications

Ognjen Stanovcic, Open Systems AG Zurich, Switzerland; Thomas Walter, Swiss Federal Institute of Technology Zurich, Switzerland; Bernhard Plattner, Swiss Federal Institute of Technology Zurich, Switzerland

Synchronous, interactive teleteaching is demanding with respect to required network bandwidth and short end-to-end delays. An uncompressed digital video, e.g., requires a data rate of 261 MBit/s. Video compression is a method to reduce required network bandwidth. Efficient video compression is almost lossless with respect to perceived video quality at the receiving site, but it is time intensive. In support of interactivity, however, response times must be short to allow participants to audio-visually communicate like being in the same room. This implies that the end-to-end communication delay should be less than 150 ms. This requirement puts a hard constraint on video compression since compression time is only one factor that adds to the overall end-to-end delay. We present a framework for the evaluation of video compression schemes. We define evaluation criteria such as compression delay and compression efficiency. The video compression schemes evaluated are Motion JPEG, MPEG, H.261 and H.263.

Multibook: making web based learning resources personal

Achim Steinacker, TU Darmstadt, Germany; Cornelia Seeberg, GMD IPSi, Germany; Ralf Steinmetz, GMD IPSI, Germany

Considering the amount of knowledge accumulated on the Web, the discussion of an effective use of the web resources becomes urgent. The main question is how to find the relevant information . In our web based teaching