COMPUTER EDUCATION

Guest Editors' Introduction

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This issue of *Computer* addresses some of the major problems that face those who must educate—and employ—the computer scientists and engineers who will graduate over the next 5 to 10 years.

From the educator's point of view, perhaps no problem is so apparent as that of overcoming the dichotomy between computer science and computer engineering. As Dr. Michael Mulder so aptly puts it in the leadoff paper, the task of developing curricula that harmoniously integrate those two components of computing has been reminiscent of the battles of great prehistoric beasts in the tar pits: the fiercer and more passionate the struggle, the sooner the combatants are ensnared in the tar. So far at any rate, the student has had to choose between computer science or computer engineering—and of course both he and his employer have had to pay the price in terms of increased training requirements and delayed effectiveness.

Mulder's paper is an interim status report on the progress of the Computer Society's Model Curricula Subcommittee (on which he serves as chairman) toward the goal of developing such a balanced curriculum.

Once such curricula are designed, educators—particularly those in small to medium institutions with limited resources—face a different but equally vexing problem: how are the curricula to be implemented? This is the task being addressed by the Society's Regional Help Subcommittee. Chaired by Dr. David Rine, this subcommittee provides both information resources and direct guidance to those institutions requesting assistance in setting up computer science and engineering programs or departments. The announcement of the Regional Help Subcommittee Workshop scheduled for June of 1976 which appears in the Update section of this issue describes two recent programs—one at the University of Missouri (Columbia), the other at UC Irvine—in which the subcommittee has provided support.

Paralleling and supporting these efforts was a major curriculum survey undertaken in the fall of 1974 by the Society's Educational Survey Subcommittee. Chaired by Dr. Martha Sloan, this subcommittee polled computer science and electrical engineering departments throughout the U.S. Dr. Sloan's paper presents the results of the survey, including a profile of the typical department, and most frequent courses and texts employed.

A major report in this issue—one which has been under development for about two years—is that of the Computer Society's Task Force on Computer Architecture. Chaired by Dr. George Rossman, this body has prepared a detailed specification for a course of study in computer architecture that applies equally to students whose major interests are in computer engineering or computer science.

The intent in publishing these results, some of which are obviously interim in nature, is to stimulate more input from the information processing community. It is not necessarily meant to imply official endorsement by the IEEE Computer Society Governing Board.

Two special features round out this issue of *Computer*. The first is a report by Dr. Ramon Barquin on the current trends and characteristics of computer education in Latin America. Besides highlighting some of the problems that characterize high-technology education programs in developing regions, this paper suggests some interesting contrasts with the observations in Sloan's paper.

The other special feature is by Dr. John Grason and Dr. Dan Siewiorek, who describe their experiences in teaching computer engineering with a digital systems laboratory at Carnegie-Mellon University. As their paper describes, the "learning by doing" approach is an important component in educating students for either industrial or academic careers.

J. David Irwin is an associate professor and head of the Department of Electrical Engineering at Auburn University. Earlier, he was a member of technical staff at Bell Laboratories in Holmdel, New Jersey, and a member of the research staff at the University of Tennessee. He received the BEE from Auburn and the MS and Ph.D. in electrical engineering from the University of Tennessee. A member of the Computer Society's Education Committee and education editor for *Computer*, Dr. Irwin is co-author of the textbook *An Introduction to Computer Logic* (Prentice-Hall), and is a member of the American Society for Engineering Education. He is also an associate of the Institute for Noise Control Engineering, a member of the Alabama and National Societies of Professional Engineers, as well as a member of Sigma Xi, Phi Kappa Phi, Tau Beta Pi, Eta Kappa Nu, Pi Mu Epsilon, and Omicron Delta Kappa.

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