

Computer Science Seminar Series, 2011

National Capital Region

A Full System x86 Teaching Simulator

Speaker: Prof. Michael Black
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1:00PM-2:00PM, NVC 325

Abstract

This presentation introduces a new graphical computer simulator developed for computer organization students. Unlike other teaching simulators, this simulator faithfully models a complete personal computer, including an i386 processor, physical memory, I/O ports, floppy and hard disks, interrupts, timers, and a serial port. It is capable of running PC software such as FreeDOS, Windows, and Minix, and can run as a Java applet. Graphical user interfaces allow students to view and modify the processor, memory, disks, and hardware devices at runtime. The simulator includes a processor development utility that allows students to design their own datapath and control units, and run their custom processor alongside the x86 processor. Labs will be presented where students use the simulator to write x86 assembly programs, device drivers, hardware controllers; and design both simple and pipelined processors.

Biography

Michael Black is an Assistant Professor in the Department of Computer Science at American University. His research interests are in computer architecture and parallel computing. He has recently published papers on processor design, pedagogical operating systems, and mobile phone grid computing. Prof. Black received his Ph.D. in Electrical Engineering at the University of Maryland, College Park, and was a Fulbright Scholar to India. He is a member of the IEEE and ACM.