Computer Science Colloquium

Twenty-first Series - Fall 2004

CS DEPARTMENT   School of Science & Technology   Sonoma State University
Prospective Students   People   Current Classes   Catalog & Schedule   Advising   Facilities   **EVENTS**
Clubs   Jobs   Other
COLLOQUIUM

Thursdays noon to 12:50 in Darwin 108 on the SSU Campus
Open to the Public

September 9	**ORACLE WORKFLOW - A GRAPHICAL PROGRAM FLOW SYSTEM** Eric Levinson RiverDeep, San Rafael This talk will focus on the Oracle Workflow system. Oracle Workflow is a graphical, database driven, notification programming environment. The administrator has the ability to change runtime variable during execution, as well as progress the processes, or even skip and retry processes. The system also allows for event driven programming, and has a SMTP gateway to allow users to interact with processes through Email. This talk will focus on the Workflow Builder application and will cover some PL/SQL programming techniques for utilizing this system.
September 16	**TOTAL INFORMATION AWARENESS** Philip Zimmermann PGP Corporation, Palo Alto Before 9/11, the blind force of Moore's Law was the biggest threat to privacy. The human population does not double every 18 months, but the ability of computers to keep track of us does. But after 9/11 this formerly blind force of technology is being accelerated and guided by policy. We need more than good crypto to hold the line.
September 23	**EXTREME VISUALIZATION: MILLIONS OF USERS ACCESSING PETABYTES OF DATA** Michael T. Jones Keyhole Corp., Mountain View Keyhole provides interactive exploration of a massive digital earth dataset across the public Internet. This global-scale database-imagery as fine as three inches per pixel, terrain at 15m postings, full road networks, business listings, and similar data-grows

up by terabytes per day. Acquiring, processing, storing, serving, and interactively displaying this massive data store has been challenging, but the results are visually compelling, as seen on CNN's coverage of the war in Iraq. The speaker will outline the problem space and describe the techniques used to implement the Keyhole system, with particular attention to real-time graphics aspects of texture and terrain within the Keyhole client software.

September 30	**THE UNEXAMINED TECHNOLOGY IS NOT WORTH BUILDING: INCORPORATING ETHICS AND PHILOSOPHY INTO COMPUTER SCIENCE AND ENGINEERING CURRICULA** John Sullins SSU Philosophy Department The new Bachelor of Science in Engineering Science program at Sonoma State University intends to expose its students to the broader impacts of technology on society and a new course is being designed in the philosophy department that will address these topics. Dr. Sullins will discuss the proposed new course and how it might be of value to computer science and engineering majors. He will also relate the role philosophy can play in the design of information technology.
October 7	**SOFTWARE LOCALIZATION -- WHAT IS IT?** Tamami Tokutake Autodesk, Marin County Programming, test engineering and web design are not the only career options for computer science students -- there's also localization. The speaker will explain localization and the challenges facing the computer profession. The Computer Graphics industry, for which the speaker does localization, will also be discussed.
October 14	**THE ARCHITECTURE OF COLOSSUS, THE FIRST PC** Benjamin Wells University of San Francisco Colossus, the first electronic digital computer, was built by Tommy Flowers at the General Post Office Research Station in Dollis Hill, London. It was installed during December 1943 at Bletchley Park, the famous WWII British code-cracking enclave. Its purpose was to assist with the decryption of wireless traffic among German high-level commands encrypted using the Lorenz teletype cipher machine. Called Colossus because of its size, it could be run by a single operator-and often was. At least in that sense, it was also the world's first personal computer. Bletchley had already developed a highly successful automated attack on the Enigma cipher system under the guidance and genius of Alan Turing. Built without direct input from Turing, Colossus was designed to support the cracking of the highest volume of

German strategic code transmissions. These intelligence-rich messages were thousands of characters long, overshadowing the hand-encoded tactical traffic using Enigma. Because Colossus was kept secret until 1973, and full details of its use and construction were not released until 2000, it did not play a direct role in the evolution of digital computers. Of course, many who worked on it were involved with later computers. With the release of previously classified documents, interest in Colossus has grown over the last four years. This accessible, multimedia talk will compare the architectural features of Colossus with those of modern PCs. Although it is tempting to assert that the former was a stored-program general purpose machine, as some have done in print, that analysis is less than promising. What is amazing is that Colossus introduced buffered I/O, branch decisions, biquinary representation, and bit masking, and anticipated some deeper modern features: parallelism, dual rail, hardware interrupt, shift register, asynchronous dataflow, and plug-ins. Moreover, recent results (AMS Abstracts 04T-68-2) show that a universal Turing machine could have been implemented on a cluster of the ten Colossi, proving the power of Colossus.

October 21	COMBINING NETWORKS AND STORAGE
	Tina Amper
	BlueSky Solutions, San Francisco
	What is a SAN? What is a NAS? Growing companies with growing data can face monumental storage problems. This talk addresses the issues and offers tips on how to ease the pain, now and in the future.
October 28	TRACING OpenGL'S CURRENT EVOLUTIONARY PATH
	Vicki Shreiner and David Shreiner
	Silicon Graphics
	OpenGL has long been the computer-graphics programming library of choice for cross-platform development. However, as the capabilities of the devices OpenGL runs on change, and the images that are being rendered become more complex, OpenGL has been forced to evolve. This talk looks at OpenGL ES, for embedded devices (e.g., cell phones), OpenGL 2.0 and its new programmable shading capabilities, and OpenGL's interaction with OpenML and the Khronos Group for digital media applications.
November 4	A TUTORIAL ON CREATING TUTORIALS
	Jeffrey Diamond
	Santa Rosa Junior College
	This talk is a short tutorial on how to combine video, audio and Flash to create online tutorials. The focus will be utilizing the software application Camtasia Studio to capture events occurring on the computer screen. Once this is accomplished, audio

will be added to this video file. This will then be embedded into an interactive Flash file for students to access over the Internet.

November 11	## WORLD CLASS CHALLENGES Moira Gunn TechNation, (NPR Syndicated Show) This talk will describe the nature of challenging global issues, issues either created or potentially solved by emerging technology. Dr. Gunn will also review some of the topics discussed at the Tech Nation Summit 2004.
November 18	## VOTING TECHNOLOGY Sonia Arrison Pacific Research Foundation, San Francisco Touch-screen and other technological innovations are changing the way voters cast their ballots. Is Internet (online) voting just around the corner? Email and fax were instrumental in loosening the grip of repressive regimes during the cold war. How effective can voting technology be in the democratization of the world?
November 25	## THANKSGIVING RECESS - NO COLLOQUIUM
December 2	## INSIDE GAME DEVELOPMENT Jason Shankel Maxis/Electronic Arts, Walnut Creek The computer game industry combines elements of both entertainment and technology. Do these elements mesh? Do they clash? How does a computer game develop from the initial design stage to its final release?
December 9	## STARTING DOCUMENTATION EARLY IN THE PRODUCT DEVELOPMENT CYCLE Linda Urban Berkeley It's easy to leave documentation to the end of the product cycle, when the product is "finished," and it might seem that it would be easier to write about it then. But there are significant advantages to starting documentation early, and developing it alongside the product. Many of the questions that a technical writer asks, such as what the product will be used for, who the users will be, and the context in which

they will use it, are questions that are critical for insuring the usability of the product itself. Starting the documentation early can help keep the focus on the users' perspective, and helps surface features and concepts that are hard to explain or overly complex early on, when it's easier to make adjustments in the product. This talk focuses on how starting documentation early can result in an improved product, as well as better documentation. And if you're wearing the writer's hat, you'll learn techniques for planning and developing the documentation while the product is still shifting.