TWENTY EIGHTH SERIES

COMPUTER SCIENCE

COLLOQUIUM

Spring 2008

Thursdays at 12:00 noon
Darwin Hall, Room 102

Feb 7	Andru Luvisi, Sonoma State University **THE HISTORY, CONTROVERSY, AND EVOLUTION OF THE GOTO STATEMENT** This talk will touch on how standard usage patterns for the Goto statement became embodied in higher level control structures, ways in which higher level control structures can often express the intent of the programmer more clearly than lower level control structures, ways in which programming in a restricted set of control structures can sometimes make programs easier to reason about and prove correct, some of the controversy surrounding the Goto statement, common reasons for and ways of using Goto, and common ways of implementing arbitrary control structures in languages that do not contain the Goto statement.
Feb 14	Donald Ensley, Signet Testing Labs **SHADOW IN THE CORNER** An overview of a FORTRAN program implementation of the Phong reflection model is given as a PowerPoint slide presentation with narrative including program origins, Phong model vectors used, grids, normal's, and output graphical samples.
Feb 21	Mary Roth, IBM **TO BOLDLY GO WHERE NO DATABASE HAS GONE BEFORE: DATA INTEGRATION THROUGH DATA FEDERATION** The relational database is an example of a research project gone right. Database researchers solved some challenging research problems (transaction management, backup/recovery, and query optimization), leading to an $8 billion industry in less than thirty years, and making Larry Ellison one of the richest men in the world. In fact, database management systems (DBMS) are so successful that nearly every enterprise has more than one DBMS instance, and more than one DBMS vendor. This leads to a new research challenge: how to extend the benefits of a DBMS to data stored *outside* the DBMS. In this talk, I will describe two different approaches to data integration, the benefits and drawbacks of each, and which approach appears to be gaining the most traction in the industry.
Feb 28	Ron LaPedis, Citrix **DISASTER RECOVERY - A HOLISTIC APPROACH** Many IT technologists think that Disaster Recovery is all about recovering the computer systems and applications after disaster strikes. But not only is this not correct, they aren't even using the right words. The real objective is Business Continuity - keeping the business running - and without recovering your workforce, that's impossible. This talk will present the proper focus of a business continuity plan as well as a new product from Citrix that facilitates workforce recovery when disaster strikes.
Mar 6	Yunyao Li, IBM **DECLARATIVE INFORMATION EXTRACTION** Information extraction -- the task of deriving structured information from unstructured text -- has become increasingly important in a wide range of software applications. This talk will discuss the shortcomings of traditional information extraction techniques and how we overcame those issues in our recent work on declarative information extraction. A live system demonstration will be included.
Mar 13	Igor Sviridov, 23 and Me **BUILDING SCALABLE INTERNET INFRASTRUCTURES FROM SCRATCH** Internet startups often require rapid deployment of scalable Internet infrastructures; most are designed and built by a small (sometimes single-person) teams of generalist(s). This talk would describe approaches, tools and components accumulated after doing this for 10+ years. Topics discussed (or at least mentioned) would include hardware, and provider selection, data center design, remote management, automatic deployment, virtualization, monitoring, security
Mar 20	Darren Shou, Symantec **SECURITY RESEARCH AT SYMANTEC RESEARCH LABS** This talk will discuss how to guard against never before seen attacks, protect the contents of one's safe from those with the keys, and deal with zombies using only a keyboard.

Mar 27	**SPRING BREAK (No Colloquium)**
April 3	Lodewijk Bonebakker, SUN **THE WORKLOAD YOU HAVE AND THE SYSTEM YOU GET: THE IMPACT OF WORKLOAD CHARACTERIZATION IN COMPUTER SYSTEM DESIGN** System design takes place against a set of requirements. These requirements may be functional, technical, or financial. In the computer system design process there is the desire to perform well on standardized benchmarks, keep the processor cost effective and do well on workloads important to the customer base. It is infeasible to do in-depth analysis of all workloads, thus designers have to resort to a limited set of workloads that are assumed to be representative. Choosing these representative workloads is an interaction between the designers and the marketing department. One of the serious challenges for computer system and processor designers is the fact that several years lie between their design decisions and the final system. During that time the relevance of the design workloads may change. As a result, the processor delivered may no longer be optimal for the market when it is first released, leading to loss of revenue as well as prestige. This talk outlines the tension between general purpose and specific processors, the rate of change of workloads in the market and gives examples of processor design failures with an analysis of what the leading cause might have been.
April 10	Sami Rollins, University of San Francisco **USERS AND BATTERIES: INTERACTIONS AND ADAPTIVE ENERGY MANAGEMENT IN MOBILE SYSTEMS** Battery lifetime has become one of the top usability concerns of mobile systems. While many endeavors have been devoted to improving battery lifetime, they have fallen short in understanding how users interact with batteries. In response, we have conducted a systematic user study on battery use and recharge behavior, an important aspect of user-battery interaction, on both laptop computers and mobile phones. Based on this study, we present three important findings: 1) most recharges happen when the battery has substantial energy left, 2) a considerable portion of the recharges are driven by context (location and time), and those driven by battery levels usually occur when the battery level is high, and 3) there is great variation among users and systems. These findings indicate that there is substantial opportunity to enhance existing energy management policies, which solely focus on extending battery lifetime and often lead to excess battery energy upon recharge, by adapting the aggressiveness of the policy to match the usage and recharge patterns of the device. We have designed, deployed, and evaluated a user- and statistics-driven energy management system, Llama, to exploit the battery energy in a user-adaptive and user-friendly fashion to better serve the user. We also conducted a user study after the deployment that shows Llama effectively harvests excess battery energy for a better user experience (brighter display) or higher quality of service (more application data) without a noticeable change in battery lifetime.
April 17	Jason Shankel, Maxis **SIMULATING PLANETARY ENVIRONMENTS** Complex game worlds require complex dynamic simulation. This talk will describe methods for simulating atmospheric weather, ocean currents and the spread of life in a game-quality environment.
April 24	John Markoff, The New York Times **WHAT THE DORMOUSE SAID** How a political counterculture converged with the microprocessor during the 1960s and early 1970s around Stanford University to create personal computing.
May 1	V. Scott Gordon, California State University, Sacramento **NEW TRAINING METHODS FOR NEURAL NETWORKS** Neural networks attempt to learn solutions to problems by emulating simplified neurons. They are becoming increasingly popular for helping solve complex problems such as vehicle guidance, face identification, handwritten text recognition, and spam filtering. This talk presents research into new neural network training methods such as particle swarm optimization (PSO) and neighbor annealing, combined with a divide-and-conquer approach, which may enable neural networks to solve even larger problems.
May 8	Sukanya Sreehari, IBM **EFFECTIVE SOFTWARE TESTING** This presentation covers the lifecycle of software testing, beginning with the gathering and capturing of requirements in a process called Business Driven Development, all the way to runtime performance testing. The objective is to show that Rational® software quality solutions and best practices can provide programmers with the framework and tools needed to use excellence in software testing as a strategic business advantage.
May 15	**End of Semester Celebration** SHORT PRESENTATIONS OF RESEARCH CARRIED OUT BY SONOMA STATE COMPUTER SCIENCE STUDENTS AND AWARDS PRESENTED TO SONOMA STATE COMPUTER SCIENCE MAJORS

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Parking is usually available in Lots "E" and "F" and costs $2.50.
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