

COMPUTER SCIENCE • COLLOQUIUM

SEP.05	<p><u>Maria Kazandjieva - Stanford University</u> A NEW SYSTEM ARCHITECTURE FOR GREEN ENTERPRISE COMPUTING Computing systems account for at least 13% of the electricity use of office buildings. This translates to about 2% of the electricity consumption of the entire US. (The equivalent of the State of New Jersey!) As computing becomes pervasive, making these systems more efficient is an opportunity to make a positive change. First, I will argue that the current understanding of energy consumption in office buildings is too limited and coarse-grained. Without better visibility into how electricity is spent and how much of it is wasted, we cannot start thinking about how to reduce its use. I will present Powernet, a multi-year power and utilization study of the compute infrastructure in Gates. I will then use the Powernet data to propose a novel system architecture for office computing, Anyware, that replaces desktops while retaining performance. Anyware's hybrid design splits workload execution between a local low-power client device and a virtual machine (VM) on a backend server. Anyware reduces the energy cost of computing by 70%--80% because the client has power draw comparable to that of a thin client or a laptop (15 to 20 watts) while the server can host multiple user VMs. Fast I/O, the availability of network resources in a LAN environment, and the increased CPU and memory on the server mean that users can get comparable performance at the fraction of the energy cost. Anyware demonstrates that with a new computing architecture, it is possible to have the best of two worlds: desktop performance at the energy costs of thin clients.</p>
SEP.12	<p><u>Michel Davidoff - CSU Chancellor's Office</u> IT IS ALL ABOUT THE PROCESS This talk will focus on the process that led the CSU to change its networking vendor and save the CSU tens of millions of dollars. This story was covered by all the major networking magazines and created quite a stir within the industry. I will talk about the process to write the RFP, both technical and financial as well as the selection process.</p>
SEP.19	<p><u>Katerina Potika - San Jose State University</u> GAME THEORETIC ASPECTS IN ALL OPTICAL NETWORKS This talk is about modeling decentralized wavelength assignment problems in all-optical networks as games. In this model, we will answer questions related to the existence, computation of, and convergence to a pure Nash equilibrium (a stable state in which no user/player has incentive to change). We provide bounds for the loss that is encountered due to the lack of a centralized control, aka Price of Anarchy, when every selfish player seeks to reduce her individual cost.</p>
SEP.26	<p><u>Todd J. Green - University of California, Davis</u> LogicBlox: PLATFORM AND LANGUAGE The modern enterprise software stack---a collection of applications supporting bookkeeping, analytics, planning, and forecasting for enterprise data---is in danger of collapsing under its own weight. The task of building and maintaining enterprise software is tedious and laborious; applications are cumbersome for end-users; and adapting to new computing hardware and infrastructures is difficult. We believe that much of the complexity in today's architecture is accidental, rather than inherent. This tutorial provides an overview of the LogicBlox platform, an ambitious redesign of the enterprise software stack centered around a unified declarative programming model, based on an extended version of Datalog.</p>
OCT.03	<p><u>Benjamin Wells - University of San Francisco</u> MODELS OF MODELS--ELEVEN EXAMPLES OF REALIZING COMPUTATIONAL MODELS FROM BABBAGE'S ANALYTICAL ENGINE TO OFF-THE-WALL TURING MACHINES For more than three decades, students, friends, acquaintances, and I have struggled to bring a variety of models of computation into a usable form for the classroom, written exposition, and mathematical proof. This has involved numerous software, notational, and conceptual systems. This talk will introduce you to hardware you never heard of, software you would not dream of, and schemes you just might think of.</p>
OCT.10	<p><u>Marshall Kirk McKusick - Unix & BSD Guru</u> BUILDING AND RUNNING AN OPEN-SOURCE COMMUNITY: THE FreeBSD PROJECT This talk will tell the story of the FreeBSD project, which started 20 years ago from the open-source release of 4.4BSD-Lite from the University of California at Berkeley. The FreeBSD project patterned its initial community structure on the development structure built up at Berkeley. It evolved and expanded that structure to create a self-organizing project that supports an ever growing and changing group of developers around the world. This lecture concludes with a description of the roles played by the thousands of volunteer developers that make up the FreeBSD Project of today. Dr. Marshall Kirk McKusick's work with Unix and BSD development spans over thirty years. It begins with his first paper on the implementation of Berkeley Pascal in 1979, goes on to his pioneering work in the eighties on the BSD Fast File System, the BSD virtual memory system, the final release of 4.4BSD-Lite from the UC Berkeley Computer Systems Research Group, and carries on with his work on FreeBSD. A key figure in Unix and BSD development, his experiences chronicle not only the innovative technical achievements but also the interesting personalities and philosophical debates in Unix over the past thirty years.</p>
OCT.17	<p><u>L Peter Deutsch - Aladdin Enterprises</u> WHO OWNS YOUR SOFTWARE? Why Open Source, And Open Standards, Matter We take for granted that we can loan (or give or sell) a book to a friend, play a CD on any device we want, repair a car (or pay someone to repair it), reinforce a ladder, or break the lock on a box whose key we've lost. But for software, we usually sign away all of these rights, or accept technical measures that nullify them. What are the costs and benefits of this situation, and its available alternatives, for you as a software user and/or creator?</p>
OCT.24	<p><u>Dragutin Petkovic - San Francisco State University</u> A MACHINE LEARNING APPROACH FOR ASSESSMENT AND PREDICTION OF TEAMWORK EFFECTIVENESS IN SOFTWARE ENGINEERING EDUCATION One of the challenges in effective software engineering (SE) education is the lack of objective assessment methods of how well student teams learn the critically needed teamwork practices, defined as the ability: (i) to learn and effectively apply <i>SE processes</i> in a teamwork setting, and (ii) to work as a team to develop satisfactory software (SW) <i>products</i>. In this talk we present a novel approach to address the assessment and prediction of student learning of teamwork effectiveness in software engineering education based on extracting only objective and quantitative student team activity data during their team class project together paired with grading of their teamwork proficiency, then applying a machine learning (ML) approach for assessment and prediction of student learning achievements. The work is joint work between San Francisco State University (SFSU), Florida Atlantic University (FAU) and Fulda University, Germany (Fulda).</p>
OCT.31	<p><u>Jason Shankel - The Stupid Fun Club</u> THE FUTURE OF AUGMENTED REALITY Augmented reality devices such as smart phones and the upcoming Google Glass are currently in their infancy. Let's discuss the future development path of augmented reality and compare and contrast this emerging field with previous innovations in networking, hypertext and gaming.</p>
NOV.07	<p><u>Ilmi Yoon, San Francisco State University</u> ITERATIVE DESIGN AND DEVELOPMENT OF THE 'WORLD OF BALANCE' GAME: FROM ECOSYSTEM EDUCATION TO SCIENTIFIC DISCOVERY Advances in computer science are continuing to help expand a new subfield of ecology based on computational analyses of complex ecological networks where the nonlinear dynamics of many interacting species can be more realistically modeled and understood. Research has recently elucidated how the network structure of feeding relationships both generally stabilizes complex ecosystems and also specifically predicts effects of experimentally removing species. Still, further research is inhibited by the exponential increase of parameter space with the number of nonlinearly interacting species. Such increases prevent more thorough exploration and understanding of complex ecosystems. We describe how intelligent interfaces for multiplayer games help researchers surpass these limitations. A multiplayer online game, "World of Balance," educates players about interdependence and non-linear population dynamics among species within ecosystems while helping to explore critically important parameter space in a scientifically productive manner. Our evaluation tests found that benefits of playing World of Balance on knowledge gain and learning significantly surpassed the benefits of reading scientific articles among undergraduates. Such work efficiently leverages multiple resources to expand education and research potential within critically important areas of ecology and sustainability science.</p>
NOV.14	<p><u>Rick Wesson - Support Intelligence</u> CYBER PEACE An exploration of military history and how military technologists created dialogs for peace in their times.</p>
NOV.21	<p>PIZZA DURING TALK IN SAL 2016 STUDENT PRESENTATIONS / SHORT PRESENTATIONS OF RESEARCH CARRIED OUT BY SONOMA STATE COMPUTER SCIENCE STUDENTS</p>
NOV.28	<p>THANKSGIVING (No Lecture)</p>
DEC.05	<p>PIZZA DURING TALK IN SAL 2016 END OF SEMESTER CELEBRATION / AWARDS PRESENTED TO SONOMA STATE COMPUTER SCIENCE MAJORS</p>



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 Computer Science Department, Sonoma State University, Rohnert Park, CA 94928
 (707) 664-2667

<http://www.cs.sonoma.edu>

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