

COMPUTER SCIENCE COLLOQUIUM

Thursdays at 12:00 noon
Salazar 2016

SEPT. 09	Vicki & Dave Shreiner, Mountain View, CA Graphics and Apple's iDevices As the hottest mobile development platforms available, the iPod, iPhone, and iPad are capable 3D graphics machines. In this talk, we'll describe the graphics system in these devices, and discuss some best practices for developing graphics-intensive applications for them. We'll describe the topics in a manner accessible to everyone - even the non-graphics programmer.	
SEPT. 16	Joe Andresen, Oracle, Santa Clara, CA Modern Lighting Algorithms This presentation will cover the topic of lighting, one of the most important parts of the graphics pipeline. The struggle of attaining realism in graphics has always been limited to the simulation of light. Let's look at a real-time lighting algorithm known as deferred shading as well as some global illumination techniques like Radiosity and Ambient Occlusion. We'll take an interactive look at an engine pipeline and inspect the various parts that make up a shader pipeline. Topics Include: OpenGL, Shaders, Deferred shading, Radiosity, Ambient Occlusion, FrameBuffers/RenderBuffers, Compositing, Normal Mapping, C++, and more.	Pizza after talk in Darwin 28
SEPT. 23	Nina Bhatti, Hewlett Packard, Palo Alto, CA Mobile Imaging Applications Camera phones are ubiquitous, and consumers have been adopting them faster than any other technology in modern history. When connected to a network, though, they are capable of more than just picture taking: Suddenly, they gain access to the power of the cloud. We exploit this capability by providing a series of image-based personal advisory services. These are designed to work with any handset over any cellular carrier using commonly available Multimedia Messaging Service (MMS) and Short Message Service (SMS) features. Targeted at the unsophisticated consumer, these applications must be quick and easy to use, not requiring download capabilities or preplanning. Thus, all application processing occurs in the back-end system (i.e., as a cloud service) and not on the handset itself. Presenting an image to an advisory service in the cloud, a user receives information that can be acted upon immediately. Two of our examples involve color assessment - selecting cosmetics and home décor paint palettes; the third provides the ability to extract text from a scene. In the case of the color imaging applications, we have shown that our service rivals the advice quality of experts. The result of this capability is a new paradigm for mobile interactions - image-based information services exploiting the ubiquity of camera phones.	
SEPT. 30	Kamakshi Sivaramakrishnan, Google, Mountain View, CA Display Advertising in Mobile Modern smart phones and mobile web browsers display advertisements on consumer properties like the iPhone/Android apps and mobile versions of popular content publishers like m.espn.com, m.cnn.com, m.nytimes.com etc. Similar to traditional ad supported online web content model, mobile web content is also supported by advertisements as revenue models. Such a revenue model relies on market mechanisms to elicit prices for these advertisements, making use of an auction among advertisers who bid in order to have their ads shown. These advertisers, depending on the context of either web or mobile, target either keywords, content and mobile traffic profile respectively. The ad placement problem involves three parties--advertisers, publishers, and auctioneer (or ad network)--we present cutting edge algorithmic techniques that jointly optimizes the goal for each of these parties. A commonly used business model in digital ad placements is pay-per-click where the advertiser participates in the auction for an ad impression by expressing a value for a possible click on the impression. As a result, the auctioneer actively tries to solve a critical problem, i.e., to predict the probability of click through, commonly known as click through rate. The algorithms for click through rate prediction, traffic allocation and pricing use techniques from three mathematical areas: mechanism design, optimization, and statistical estimation. We present an overview of the statistical techniques that estimate the competitiveness of an ad and hence traffic it would receive when participating in the auction. The discussions will be generalized to the problem of digital advertising with topical references to the mobile advertising context at relevant points through the talk.	
OCT. 07	Daniel Glickhorn, Samsung Electronics, Irvine, CA TV as a Platform: The Change Towards Over-the-Top Broadcasting What are the changes toward software solutions for the digital media business and the newly changing state of software based TV? Let's check out some recent projects (publicly released) from Samsung and its competitors and figure out where the digital / Internet connected TV and digital media markets are going. Let's also look at the research challenges in this market and how personally I used my undergraduate & masters programs to leverage access to such opportunities.	Pizza after talk in Darwin 28
OCT. 14	Gidi Cohen, Skybox Security, San Jose, CA Predictive Cyber Security Using risk modeling and attack simulation to reduce network security exposures and avoid cyber attacks, IT professionals are proving that it is possible to secure networks from cyber attacks even in the most demanding real-world environments. The key is to enhance proactive security capabilities to plan for and take steps to prevent attacks before they happen. Risk modeling and attack simulation technologies allow IT professionals to visualize and simulate the interaction of a complex set of factors such as network topology device settings, potential threats, access policies, attacker techniques, known vulnerabilities, and more. This lecture will show you how to use proactive security technologies in real-world scenarios to find and eliminate network security risks. We will demonstrate a best-practices approach based on lessons learned in using near real-time network modeling, vulnerability management and attack simulation to find, predict, and prevent attacks against global networks. In addition, we will discuss how to quantify and communicate security risks for executive decision-making, as well as translate security risk management objectives into effective IT processes for risk assessments, change control, compliance management, and more.	
OCT. 21	Jennifer Anderson and Ravi Soundararajan, VMware, Palo Alto, CA Challenges in Virtualized Datacenter Management Virtualization has become the <i>de facto</i> policy for server deployment in modern Fortune-500 companies. When an end-user requests a new server, the first question that is asked is no longer "why virtualize" but "why NOT virtualize." In reducing server sprawl, virtualization has also become part of the IT revolution toward Green Computing. In this talk, we will give a brief retrospective on x86-based virtualization, describe its evolution as a dominant datacenter and cloud technology, and also describe some of the challenges we face in virtualized datacenter management. We will describe how virtualization creates new management workflows that ease large-scale administration, but require re-thinking the design of datacenters for best performance.	
OCT. 28	Jason Shankel, The Stupid Fun Club Natural Language for Games Advances in computer technology have improved the performance of decades old AI methodologies for generating and interpreting natural language and how these advances will be used in the future development of content rich computer-based entertainment.	Pizza after talk in Darwin 28
NOV. 04	Dave Einstein, San Francisco Chronicle Technology Columnist Science Fiction—Portal to the Future "If you can imagine it, you can achieve it; if you can dream it, you can become it." When writer and theologian William Arthur Ward coined that phrase, he was talking about matters of the soul. Yet, it also turns out to be true for science. Since the mid-nineteenth century, when Jules Verne became the father of science fiction, he and many other writers have successfully predicted a wide range of inventions and discoveries that shape our world today. Things like electricity, the automobile, airplanes, space travel—and more recently, computers and the Internet—all sprang from the minds of science fiction writers years before science made them realities. Today, science fiction continues to probe the future, with stories of immersive virtual reality, FTL and time travel, artificial intelligence and biogenetics. Well-respected writers who practice hard science predict that in the not-too distant future, mankind will render the Earth unlivable. Are today's best science fiction writers also reliable futurists? And should we be paying attention to them? There's no time like the present to decide.	
NOV. 11	VETERAN'S DAY HOLIDAY (No lecture)	
NOV. 18	William Batt-Freitas, CBS Interactive, San Francisco, CA Emerging Technologies in Internet Video Broadcasting Thanks to increasing Internet speeds and decreasing hardware costs, users are accessing video in more places and on more devices. Companies that produce and serve this content must ensure that their video streams are accessible for the widest possible audience. Come and see how a leading Internet company is setting the bar for content delivery.	Pizza after talk in Darwin 28
NOV. 25	THANKSGIVING (No lecture)	
DEC. 02	STUDENT PRESENTATIONS SHORT PRESENTATIONS OF RESEARCH CARRIED OUT BY SONOMA STATE COMPUTER SCIENCE STUDENTS	Pizza during talks in Salazar 2016
DEC. 09	END OF SEMESTER CELEBRATION AWARDS PRESENTED TO SONOMA STATE COMPUTER SCIENCE MAJORS	Pizza during talks in Salazar 2016



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

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