

## COMPUTER SCIENCE

## COLLOQUIUM

Thursdays at 12:00 noon  
Salazar 2016

SEP 10	Joe Andresen, SUN Microsystems (JavaFX Core Graphics Team) <b>Game Engine Architecture and Nvidia PhysX</b> Game engines are often considered to be among the most advanced programs, using every bit of hardware to present stories and art in a programmed computer simulation. The architecture for such programs is often daunting to programmers. This talk will cover an example of the architecture and show the use of various tools used in industry for aiding in the development of a production game engine. Various topics include Nvidia PhysX, Lua, C#, C++, and Cg. Pizza after talk
SEP 17	Allan B. Cruse, University of San Francisco <b>A Dynamic Visualization of Core-2 Duo Interrupts</b> The ability of a Linux programmer to insert user-programmed 'modules' into a running kernel opens up the possibility of exploring processor behavior in real time, in whatever ways a user can imagine, unencumbered by CPU privilege-level restrictions of a multitasking environment. As an example, we show how this technique can let us watch the 'live' occurrence of interrupt activities being dispatched among multiple CPUs on an x86 SMP Linux platform.
SEP 24	Steve French, Digg, Inc <b>Tipping the Scale: Tools and Techniques for Building Scalable Websites</b> There is no single magic bullet to building a website that is capable of handling millions of visitors each day. This talk will focus on presenting various scaling challenges found in web application development and how various tools and techniques can solve them. To be discussed here: some techniques that are widely used, like asynchronous processing, database partitioning and horizontal/vertical scaling. Also covered: some of the technologies that are in use at Digg like Gearman (messaging queues), Memcache (caching), Hadoop (map/reduce), and Cassandra (key/value store). Pizza after talk
OCT 01	Klaus Roder, IBM Silicon Valley Lab, San Jose <b>Mashup Technology in the Enterprise</b> Mashup Technology is becoming more and more popular in the enterprise. This talk will explain what mashups are, where they can be used in the enterprise, why they are important for the enterprise and how to quickly build mashups with the IBM Mashup Center. Also covered: How Mashups transform web, enterprise, personal and departmental information into consumable or "mashable" assets, including information feeds and widgets, and how these assets can then be dynamically assembled into new applications that address daily business challenges.
OCT 08	Eric Eisenhart, IT, Sonoma State University <b>Email System Architecture</b> An overview of our email system architecture, including explanations of how we got where we are, understanding why hard drives get slower every year and a crazy diagram or two (there's a lot of systems and connections between them). Pizza after talk
OCT 15	Mehul A. Shah, Hewlett-Packard <b>Benchmarking and Designing for Energy Efficiency: How to Break a World Record in 30 Days</b> Energy efficiency is a key concern in contexts ranging from large-scale data centers to mobile devices. This talk discusses our work on benchmarking and designing data-intensive systems for energy efficiency. After mentioning the pitfalls surrounding the creation of JouleSort, a whole-system, energy-based benchmark, the talk will describe the 100GB JouleSort system that can sort 11,300 records for a Joule --- the 2007 world record. Also discussed will be the results and insights from measuring the efficiency of a variety of systems from desktops to embedded devices. Going beyond JouleSort, there are preliminary results characterizing the efficiency of audit-class TPC-H systems, which suggest that in the future software optimizations will play an important role in reducing energy-use. It is to be hoped that the audience will be armed with the tools and know-how to break an energy-efficiency world record in fewer than 30 days.
OCT 22	V. Scott Gordon, California State University, Sacramento <b>Recursion without Fear</b> Do you live in mortal terror of recursion? Does the mere sound of the dreaded "R" word induce panic or run chills up and down your spine? Well, fear no more, you can understand recursion and use it with confidence. Whereas most books explain recursion using mathematical examples, or by describing how it is implemented, this unique lecture will instead show you how to visualize what recursion <b>does</b> when you put it in your code. You will also see recursion perform <b>three magic tricks</b> that will amaze your friends, and simplify your code. Add recursion to <b>your</b> bag of tricks!
OCT 29	David Singer, IBM Almaden Research Center, San Jose <b>When Your Coworkers might be Virtual</b> With the continued movement of work around the world, and with the pressures for reduced travel, it's easy to find yourself interacting with co-workers who are only represented by electronic simulacra (voice, text, video, or avatars). What does this mean to human interaction, to trust, and to effective collaboration.
NOV 05	Jason Shankel, Stupid Fun Club <b>Generative Storytelling for Games</b> Production costs for computer games have risen almost as quickly as consumer demand for content. Increases in computer power and storage capacity, as well as improvements in the quality of text-to-speech systems, offer opportunities to generate rich stories automatically. In this talk, I will present methods and technologies for producing computer-generated characters and plot arcs for use in interactive games. Pizza after talk
NOV 12	Eugenia Caldwell, IBM Innovation Center, San Mateo <b>If You Know Oracle, You Know DB2 9.7</b> Most computer science students learn Oracle, rather than DB2. But many large institutions (banks, insurance companies, credit card issuers, manufacturers, retailers) have established DB2 as their standard. You have an edge in the job market if you understand DB2 in addition to Oracle. Now, with the DB2 9.7 Oracle Compatibility features, if you know Oracle, you can use and program a DB2 database. You can also take advantage of the many outstanding, unique features of this newest DB2 release, including self-tuning memory, automatic storage, easy high availability, the best compression in the industry, pure XML storage, database changes without downtime, and lower costs, which is one big reason why those large institutions love DB2.
NOV 19	Cheryl Jerozal, Atlassian, San Francisco <b>Agile Software Development</b> The agile methodology was created to address shortcomings in traditional software development processes, such as the waterfall model. This talk will give an introduction to agile development, including practices and tools used. Some specific topics covered will be test-driven development, daily standups, and code reviews.
NOV 26	THANKSGIVING (No lecture)
DEC 03	STUDENT PRESENTATIONS SHORT PRESENTATIONS OF RESEARCH CARRIED OUT BY SONOMA STATE COMPUTER SCIENCE STUDENTS
DEC 10	END OF SEMESTER CELEBRATION AWARDS PRESENTED TO SONOMA STATE COMPUTER SCIENCE MAJORS Pizza after talk

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(707) 664-2667<http://www.cs.sonoma.edu>Parking is usually available in Lots "E" and "F" and costs \$2.50  
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