COMPUTER SCIENCE COLLOQUIUM

Thursdays at 12:00 noon
Salazar 2016

SEP.08	Chris Bross, DriveSavers Data Recovery, Inc., Novato, CA **FAST, SECURE, RELIABLE, RECOVERABLE? DATA RECOVERY FROM SSD, NAND FLASH, SMART PHONES AND TABLETS** All storage devices eventually fail. Critical data files are lost every day. Users who do not maintain a verified backup risk devastating repercussions. Digital memories, financial data, personal information, business-critical information, your blind trust in the technology you use every day...gone! Is solid-state data storage the answer? SSD and NAND Flash production is on the rise, as is product reliability. This is in part due to the explosive growth of smart phones and Apple's iOS devices. Solid-state drives and storage based on NAND Flash technology eliminate the traditional mechanical malfunctions of traditional hard drives. However, they present a whole new set of failure issues and recovery challenges that must be resolved to satisfy customers who have lost critical data. New methods for data recovery have already been developed, but many new challenges lie ahead. Vendor-specific SSD designs and encryption technologies, whether in the controller or in the NAND itself, are likely to be the norm and are creating new challenges from the data recovery perspective. As the amount of valuable data stored increases, so does the impact of device failure and data loss -- driving the need for a certified, secure data recovery solution as part of the package. The objective of this presentation is to raise awareness about the vulnerabilities of these solid-state storage devices, and to educate users on the diligence and awareness needed to protect your valuable data. And in the unfortunate event of data loss, guidelines and best practices will be discussed on how to proceed if data recovery is required.
SEP.15	Michael E. Duffy, CIO, American Healthcare Finance **LOOKING BACK, LOOKING FORWARD** I will be talking a bit about the dramatic changes in technology over the past 25 years, try to extract some patterns, and engage the audience in thinking about what is more and less likely to happen in the next 25. I will offer some opinions on where new CS graduates might find interesting jobs during the next few years, based on my 35 years of experience as a developer and manager. I also hope to hear what students find interesting in current technology. I invite attendees to drop me suggestions in advance of the talk at mike@mikeduffy.com (my full bio is available at www.mikeduffy.com).
SEP.22	Marc LeBrun, Fixpoint, Inc., Novato, CA **SHAVING WITH EINSTEIN'S RAZOR** Einstein's Razor is the principle that "Everything should be made as simple as possible, but no simpler!" We will first explore how closely we can shave something as simple as arithmetic, without crossing over the bleeding edge. We will also briefly visit a proposal for open-source computer game development, touch on what Leibniz might think of today's personal computing, and return to Einstein by demonstrating that object-oriented programming violates quantum mechanics.
SEP.29	Bill Kendrick, SSU Alumnus, Davis, CA **PARTY LIKE IT'S 1979** Frustrated by his friends' and family's relative lack of interest in the toys of his past -- the Atari video game and computer systems that drew him into programming and Computer Science -- Bill Kendrick decided to throw a retro party and invite the public to come re-live the past. The "Atari Party" in Davis, first held in 2009 due to the lack of Vintage Computer Festival in the San Francisco Bay Area, is similar to other annual 'classic computing' events of various sizes held around the globe. It is a small, daylong event where the public is invited to come and experience multiple generations of classic Atari hardware and software, hands-on. Aside from the usual suspects (Pac-Man, Space Invaders and Pong), early speech synthesis software, art software (with drawing tablets and light pens!), and other software is exhibited. Together with 20-30 year old hardware and software, modern homebrew software and hardware are on display -- from SD memory-card alternatives to the traditional 5.25" or 3.5" floppy disk drives of the past, to real-time 3D retracing demos running on 1.79MHz CPUs and amazing video games written and released in the past few years. Bill will talk about and display some of his favorites of the new tricks that these old dog computers and game systems have been taught, and describe the logistics required to run his particular show.
OCT.06	Hans Van Tilburg, CTO Office, VISA, Foster City, CA **CHIP SECURITY AND THE MOBILE CHALLENGE** On August 9, Visa announced plans to accelerate the migration to EMV contact and contactless chip technology in the United States. After a brief overview of chip card payment basics, this presentation focuses on chip product implementations (e.g., chip card, SIM) that have a security impact. Even when the payment protocol is cryptographically secure, information leakage due to incorrect implementation might reveal security assets such as cryptographic keys. This presentation will conclude with the security challenges of malicious applications that might be loaded post issuance.
OCT.13	Jonathan Smolenski, 3M Cogent, Pasadena, CA (and SSU Alumnus) **COMPUTER SCIENCE IN BIOMETRIC SECURITY** Technology in recent years has played an increasingly invaluable role in biometric security and identification. Fingerprint matching, iris scanning and facial recognition have become staples in modern crime fighting and access controls with the help of computer science to assist in analysis and searching. Learn how 3M's security division, Cogent Systems, uses state-of-the-art computer systems in providing some of the fastest, most accurate (and very much unlike what you see on CSI) bio-metric matching in the world today.
OCT.20	Bill Imler, Squirrel Hill Associates, Oakland, CA **ORGANIC SEMICONDUCTORS FOR DISPLAYS, LIGHTING AND PHOTOVOLTAICS** The newly emerging field of organic electronics has the potential to revolutionize the display, lighting and photovoltaic industries. The first applications of organic electronics have been in small displays for hand-held devices, in which the active-matrix organic light-emitting diode (AMOLED) displays are brighter, more colorful and consume less energy than the older, but still dominant, passive-matrix and LCD technologies. Over the next few years, these AMOLED displays will increase in size, challenging large-area plasma and LCD displays. A simpler version of OLED technology can be used to produce lighting panels. Organic semiconductors used in photovoltaic devices can enable many applications, which would be impossible for traditional photovoltaic materials. New manufacturing techniques being developed for organic semiconductors such as solution processing, inkjet printing and roll-to-roll processing could result in extremely inexpensive, very large area displays and OPV panels.
OCT.27	Scott Stanfield, Vertigo Software, Point Richmond, CA **A DESIGN PRIMER FOR THE GRAPHICALLY CHALLENGED: *EIGHT ESSENTIAL SKILLS FOR PROGRAMMERS*** As a software developer, it's inevitable that you will "have to deal" with a designer at some point. But if you appreciate their craft as a learnable discipline, instead of some magical, hocus-pocus process, great things happen. And there's nothing preventing you from learning the basics. This talk covers the practical elements of design from a programmer's perspective, useful even if you "don't do front-end". I'll cover the basics like grids, typography, usability, color, brand and industrial design along with practical tools and resources to help you make good design decisions.
NOV.03	Ron LaPedis, Seacliff Partners International, San Bruno, CA **WILL FULL DISK ENCRYPTION KEEP MY DATA SAFE?** There are many questions surrounding the topic of protecting sensitive information, and volume level or full disk encryption (FDE) seem to come up quite often as the answer. But are we asking the right questions? This colloquium will show you why FDE will not protect your data most of the time and will give you a tutorial of encryption technologies, validations, and injection points.
NOV.10	Jason Shankel, Stupid Fun Club, Berkeley, CA **PROTOTYPING** As budgets, schedules and quality standards in software projects grow, so does the cost of mistakes and course changes. In this talk, I will describe the essential role of prototyping in software development, both to contain costs and to harness developer creativity.
NOV.17	Jacob Appelbaum, Tor Project, University of Washington, Seattle, Washington **ANONYMITY, PRIVACY, SECURITY, INTERNET SURVEILLANCE AND CENSORSHIP** This talk will explore Internet censorship and surveillance as it happens in the wild around the world. There will be a focus on the recent Arab Spring uprisings and the NSA wiretapping of American citizens. I will discuss practical techniques and technologies for circumvention of networked authoritarianism.
NOV.24	**THANKSGIVING** (No Lecture)
DEC.01	**STUDENT PRESENTATIONS** / SHORT PRESENTATIONS OF RESEARCH CARRIED OUT BY SONOMA STATE COMPUTER SCIENCE STUDENTS
DEC.08	**END OF SEMESTER CELEBRATION** / 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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