

Plastic Patients And Cyber-Surgery Center for Virtual Care Promotes Technology-Based Medical Training

n a semi-dark control room at the UC Davis Medical Center, Nurse Peter Rutan sits facing half a dozen video monitors, alternately moaning into a microphone and sipping diet Mountain Dew. Every so often, seemingly at random, he shouts "Mother!"

From this view of the Center for Virtual Care, Rutan appears to be a benevolent Wizard of Oz, working from a Mac G4 while acting as the voice of Stan, a human patient simulator mannequin who can be seen in the next room experiencing a heart attack for the benefit of the ER residents vigorously toiling to assist him.

Out of the ER and Into the VCR

Across the hall from the ad hoc ER, other interns and senior residents anxiously watch a video monitor on which the medical scenario plays out. As their peers work on Stan-one of the many SimSuite human simulators-, these interns evaluate the decisions their fellow students make. Once the virtual emergency ends, the interns working on Stan enter the video room to critique their own actions and thought processes. In this way, sessions perform double duty and lessons learned are shared by all. Once the debriefing session is complete, those who watched the emergency get their turn in the hot seat.

What's Virtual About a Heart Attack?

Attending physicians consult with Rutan prior to each training session, ordering up a host of symptoms

to help students combat real-life medical scenarios. Dr. Erik Laurin glances at his waiting charges and mischievously suggests, "Let's trick them." But his intentions are honorable;

> rarely follow textbook patterns, and ER doctors in particular must respond to symptoms that change by the moment.

More than just emergenroom residents, however, are trained on the SimSuite simulators: nurse practi-

tioners, interventional radiologists, pediatric specialists. advanced MDs, paramedics, certified physians' assistants and more get to work on Stan, his sister Simantha, her infant son, and his older brother Morgan.

These hominid counterfeits have uncanny abilities to mimic human responses, responses that vary according to the needs of the students they are "training": tracheae that can be intubated, eyes that close upon administering anesthesia, pupils that constrict under bright lights, blood pressure that rises and falls, and a lower region that simulates what the staff has dubbed "brown alert." These and other such features make for low-risk, high-quality training.

Sharing Stan with the Neighbors

The family of human simulators is also being used to help the Medical Center reach out to the community. High school students from populations traditionally under-

Nurse Rutan in his Control Room

Head, Heart, Hands, and Hardware? 4-H, Technology, and the University

In a way, it started with a rocket. Steven Worker holds his hands about ten inches apart, miming the outcome of the project that got him hooked on 4-H when he was just twelve. "Oh, you know," he says: "Wood glue. Paint kit. Go out and launch it in an abandoned field."

Now, 15 years later, Worker, the California 4-H Youth Development Program Representative, is still applying his skills in 4-H, though he's moved on from that first project. In 1998, he and a group of four others started the 4-H Computer Corps, a team of volunteers that helped launch the organization into cyberspace.

The 4-H Computer Corps

The Corps started within Worker's office as a loose group trying to keep the state Web site updated. From there, it blossomed into a creative nucleus that organized teaching workshops. It now consists of 20 volunteers from around the state, each with a year-long commitment to the Corps. Together, and with other volunteers working at the county level, they've launched a 4-H technological assault on several fronts: keeping the Web site current

and running smoothly; creat-

ing and carrying out teaching workshops on software programs and Web page-building; and now, armed with a mobile lab of computers donated by Hewlett Packard, bringing computer education to areas without ready access to information technology.

An Unlikely Place for a Techie

Located in the dusty agricultural part of UCD avis campus, Worker's office seems an unlikely spot for a technology outpost. Then again, the Computer Corps he's helped create doesn't fit with 4-H's agricultural stereotype (neither, for that matter, does his computer's screensaver, which shows a huge, green-ringed planet sinking into an alien sea).

4-H, however, which offers projects in fields as diverse as leathercraft and video editing, has gotten increasingly tech-savvy-and it has had to. About one-fourth of its participants now live in cities, and in a society that demands employees be comfortable working with technology, 4-H has risen to the challenge by offering IT education designed to prepare its youth for successful lives and careers. To do so, it has expanded its already long list of options for the 1.5 million participants across the country who choose science and technology projects.

A group in Merced County has mapped trails for the Parks Depart-

See 4-H Computer Corps, third page

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represented in the medical professions have access to the Center for Virtual Care on hospital field trips. The simulation situation gives these students "a sense of medical language and choreography that might establish an interest in medical careers," explains Health Systems Public Affairs Representative Charles Casey. "We want to share these resources with the community, and high school students often show a real interest in the virtual aspects of their hospital tour."

More than Just a Bunch of Dummies

In addition to the human simulators, the Center for Virtual Care includes a section devoted to robotic surgery, surgery via an apparatus called da Vinci, which combines Lost in Space-style robotic arms with leading-edge virtual reality.

Arising from laparoscopic surgery—in which, rather than make large incisions, surgeons use electronic instruments and microscopic cameras inserted through the navel or into minute incisions—, robotic surgery has advantages over laparoscopy by permitting surgeons to use their hands as primary instruments, rather than rely upon rudimentary tools to do the job.

Sitting at some remove from the operating table, the surgeon inserts her hands into grasper-like instruments that control the movements of the surgical robot. Just above these cyberhands is a 3-D monitor (not unlike that found at old arcade peep shows) revealing the detailed movements of the surgery in larger-than-life-size color.

Statistics on robotic surgery are impressive: in prostatectomies (removal of the prostate gland), robotic surgery patients lose an average of 152 milliliters of blood, while their traditional surgery counterparts lose an average of 900; and hospitalization

For the first time, UC Davis will podcast the Fall Convocation. For individual audio segments or a single link to the entire program, visit the Web site below. You can also subscribe to "My Personal Compass," which throughout the year will bring you campus community members sharing their guiding beliefs. www.news.ucdavis.edu/convocation 2005



Wireless Network Being Enhanced New Hotspots Will Fill in the Quad and the Memorial Union

When you hook up your laptop on campus later this Fall, you may notice that the wireless network is faster, stronger, and safer. This is because several improvements now in process will guarantee a better wireless experience for the UC Davis community—and now, also their guests.

most popular places to access wireless service, twelve new access points are being added to the MU and the quad. Staff and faculty giving presentations in the MU will find they no longer need special hookups to go live on the Internet (see "Wireless How To" for hook-up instructions).

Because the Memorial Union continues to be one of the

One more and very welcome addition to campus wireless—and one

that's already in place—is temporary guest access to the network. Any faculty or staff member possessing a valid Kerberos account can now sponsor a guest user.

To learn more about granting guest access to the wireless network or to find out what's new in wireless service, visit wireless.ucdavis.edu. $\{\widehat{P}\}$



Wireless access on campus is available to any UC Davis affiliate with a valid UC Davis login ID and Kerberos password, and it's now easier than ever to go wireless.

Configuring Your Laptop to Connect to the Internet

- First install and configure a wireless card (NIC). This procedure varies with wireless card brands, so carefully follow the instructions that came with your device.
- Make sure you are within range of the campus wireless network.
- If you are asked to choose between several available wireless networks, select "moobilenet."
- If you are asked to type in an SSID, type "moobilenet" (all lower case).
- Once you have properly configured your laptop and have connected to moobilenet, you may launch your preferred Web browser.
- **NOTE:** To avoid unnecessary hassles, do NOT use a secure "https" address until after you've gone through the authentication process.

Authenticating with the Campus Network

To make sure you are authorized to use the campus wireless network, you will be redirected to the UC Davis Secure Login Web page. Once you enter your login ID and Kerberos password and hit the "Login" button, a window will appear confirming your connection to the network and featuring links to the Web page you wanted to visit (or your browser's home page).

Logging Out

If you have pop-ups enabled on your laptop, you can log out using the bluesocket pop-up window that appears upon connection. Although you can log out without using bluesocket, the benefit to doing so is that a wireless connection is immediately available to other users because the connection is broken at the server end, instead of at the user end.

If you do not have pop-ups enabled in your browser, you will not see the bluesocket pop-up logout window, but you will still be able to log out of the wireless network by returning to the window where you first selected moobilenet.

Not Quite Working for You?

Visit wireless.ucdavis.edu for answers to frequently asked questions and for more detailed hook-up instructions. If you continue to have problems connecting to or disconnecting from moobilenet, please contact the IT Help Desk at ithelp@ucdavis.edu or 754-HELP.

Campus Heats up Security with New Firewall Services

Walls Ward Off (Virtual) Flames!

A firewall is one of many tools that can be used to defend one's computer against hackers. Using a firewall can help protect you and the campus against attacks.

What is a Firewall?

Much like its metaphoric namesake, a firewall acts as a protective barrier between your computer and the Internet, monitoring all incoming and/or outgoing traffic, allowing only the network traffic you permit. There are two main types of firewalls: software and hardware. Software firewalls are usually programs you install on your computer system to help protect against attack by limiting network activity that could be dangerous. Hardware firewalls are physical devices (routers) that stand between your computer and the Internet.

How Does It Work?

Firewalls employ various methods of protection: • Packet Filtering

The firewall analyzes small pieces of information

(packets), permitting only data consistent with user-defined rules to pass.Proxy Services

The firewall prevents information about your computer from being transmitted to another computer.

• Stateful Inspection

Only trusted information, defined in a database, is permitted to pass.

Customization

Firewalls can be customized to allow/deny words, phrases, packets, IP addresses, domain names, ports, and more.

What Is the Campus Doing to Protect Me?

UC Davis recently signed a contract with Netscreen to provide a range of firewall solutions for campus departments at a 35% product discount. IET will provide technical support for these products through the Desktop Enterprise Solutions unit (desktop.ucdavis.edu).

How Will Firewalls Affect Me?

• Central Campus Firewalls

IET has deployed Netscreen firewalls to protect key campus computing systems (e.g., MyUCDavis, Geckomail, etc.) from off-campus threats. These firewalls will not protect departments or personal computers and will likely be invisible to users.

• Departmental Firewalls

Departmental firewalls may affect your computer's connectivity to the Internet. Depending on their setup, certain programs may not be allowed to receive or send data over the network. Contact your MSO or Technical Support Coordinator for more information about firewalls in your department.

Personal Firewalls

Newer computers are often equipped with firewalls that must be configured in order to defend against attacks. Contact your departmental MSO or Technical Support Coordinator for help and instructions before configuring any personal firewalls.

I'd Like to Learn More...

For additional firewall information, visit these resources:

• Departmental Firewall Resources:

security.ucdavis.edu/firewalls.cfm

• UC Davis Cyber-Safety Firewall Services: security.ucdavis.edu/firewallservices.cfm.

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4-H Computer Corps



Steven Worker in the Grape Fields Outside his Office

ment using Global Positioning Systems (GPS), high-tech navigation tools. Alabama 4-H members worked with NASA to create Club Space Place, a children's educational program covering the space sciences. And in San Diego, a 4-H group has been working with fire management, helping monitor post-fire land-restoration by taking digital photographs.

Technology in the Rest of the Club: Rabbits, Sheep, and Ambassadors

The divide between technology and agriculture within 4-H hasn't proven clear cut, however. Instead of advancing upon and replacing more traditional projects, information technology has slowly filtered into the club's agricultural areas. A student might still choose to raise sheep, for example, but she'll learn to plot the animals' feeding schedules on an Excel spreadsheet rather than on paper.

Hally Fobes, 17, and a member of 4-H in Sacramento, doesn't work with the Computer Corps. She

works with rabbits; nevertheless, she's seen the integration of technology and agriculture firsthand. Access to Instant Messenger made Fobes' computer an ad hoc rabbit hotline, allowing members across the state instant access to advice should a rabbit become sick or stop eating.

Fobes also works with 4-H's Ambassador Program, representing the club to donors and potential members. She's noticed a change in the visibility both her program and the club have received; because of the Internet, she and fellow ambassadors now find it easier to contact TV, radio, and news reporters.

Head, Heart, Hands, Health, and Hardware

The 4-H Computer Corps is more than just a means to an end; it's a learning experience in itself. Aside from its concrete successes, such as the Web site and the mobile computer lab, the Corps has fostered a unique partnership between youth and adults. This relationship-along with the CA 4-H Web site's high visibility on Google—is among the Corps' primary achievements, according to Worker. "In this organization, the 15, 18, and 20 yearolds have just as much say as the 30, 40, 50 year-olds," he explains. "It's an opportunity for personal growth for both youth and adults."

The Computer Corps is run entirely by volunteers. Unlike 4-H organizations in many other states, there's no paid staff to do what the Computer Corps does. In this way, the Corps provides a living example of 4-H's core values of volunteerism and personal development-what the Head, Heart, Hands and Health in the organization's name are all about. (??)

The UC Davis/4-H Link

4-H is affiliated with UC Davis through UC's Cooperative Extension, and fulfills part of Davis' requirements as a land-grant university to serve the community. Land-grant universities were created in the late 19th century as a way to promote practical education by using research generated in major universities. In exchange for funding, land-grant universities provide agricultural education in the classroom and in surrounding regions, making them, in the words of C. Peter Magrath, President

of the National Association of State Universities and Land-Grant Colleges, "truly people's universities."

Get Involved!

Download an application from the Computer Corps Web site at ca4h.org/compcorps.

Don't Make "Password" Your Password

It's hard to organize numerous passwords, so we can understand why you'd try to make them easier to recall. The problem is, easily-remembered passwords are easy to crack, so here are some suggestions for creating a secure password:

Don't use common dictionary words.

Use a combination of letters, numbers, and symbols. A Kerberos password, for example, must include a capital letter, lower case letter, symbol, and a number. Try this with your other passwords.

Turn letters into numbers or special characters. For "S" use "\$" and for "A" use ··/-\."

Forgotten Your Kerherns Password?

If you've already set up the Online Password Reset:

Visit computingaccounts.ucdavis.edu, select "Change your password," and follow the directions there.

Keep It to Yourself Maintaining a Fraud-Free Identity at Work and at Home



to commit fraud was more sci-fi fantasy than cause for concern. Today, identity theft is the nation's fastest growing crime, having claimed more than 27 million victims in the last five years alone. What's more, academic institutions have become prime targets of this serious offense. In light of recent breaches on campuses across the country, you should be aware of where ID theft risks lie and what actions you can take to protect personal information.

What type of information is sensitive?

- Credit card, drivers license, social security, and telephone numbers
- Financial account information
- Home addresses
- Educational, medical, and employment history

Where might this information be lurking?

- Federal grant applications
- Performance evaluations
- · Downloads from PPS and Banner
- Online order forms or auction Web sites
- Digital access to bank, credit card, or other account information
- Emails or instant messages

Which devices are vulnerable?

• Computers, laptops, PDAs, cell phones, blackberries, and other mobile devices

How do I avoid becoming a victim?

• Get to know UC Davis' Cyber-safety Program Policy, which defines individual and campus unit responsibilities as well as 14 key practices for protecting campus computing systems and electronic data.

• Remove unnecessary personal information from your home and work computers and mobile devices.

• Transfer personal files to removable media or make them useless to hackers and thieves by using encryption.

• Keep software patches, anti-spyware and anti-virus programs up-todate.

- Use passwords that are difficult to guess and keep them secret.
- Password protect your phone, bank, and credit card accounts.

• Order a copy of your credit report from each of the three major credit bureaus (visit consumer.gov/idtheft for directions on how to order three free credit reports per year).

• Learn about information security procedures in the workplace; find out who has access to your personal information and verify that it is stored securely.

NB: You might need to speak to your department's Technology Support Coordinator (TSC) or other technical support person for more detailed information regarding personal data management. Visit tsp.ucdavis.edu to locate your department's TSC.

Combine several words. While "GreatFamily" is easy to guess, "GFraemaitly" (alternating letters of the words) is difficult.

Make a picture! "@;-)" Doesn't that look like Jack Lord winking?

Utilize password management software. Programs such as Password Safe (sourceforge.net/projects/passwordsafe) and Password Corral (cygnusproductions.com/ freeware/pc.asp) manage, securely store, and help you effectively use your passwords. What's more, they're free, though those who run these systems ask for donations to keep them in service.

Create an acronym. Combine the first letters in a list of names, sports teams, or a favorite-but hard-to-guess-quote. While "ILY" is not hard to guess, "TLTSTF" (The Lakers traded Shaq, those fools) is.

If you've forgotten your Kerberos password but have not set up Online Password Reset: Visit IT Express (182 Shields Library) with a picture ID. They'll help you reset your password.

Afraid You MIGHT **Forget Your Kerberos Password?**

Set up the Online Password Reset service; this way, if in the future you forget your password, you can answer your "Identity Verification Questions," rather than visiting IT Express.

To set up this service, visit computingaccounts.ucdavis.edu, select "Change your password" and follow the instructions listed.

What are the warning signs of ID theft?

- There is unauthorized activity on your credit report.
- Expected bills do not arrive, or unexpected ones do.
- You are denied credit for no apparent reason.

What do I do if I believe I'm a victim?

- Immediately close the accounts that have been tampered with.
- File fraud reports with the police and federal government (consumer.gov/idtheft).
- Call the FTC's Identity Theft Hotline (1-877-ID THEFT).

What do I do if I suspect someone has gained unauthorized access to sensitive workplace data?

• Report security breaches to your department's technical support person and/or to abuse@ucdavis.edu.

Where do I go for more information?

- UC Davis Security site: security.ucdavis.edu/id theft.cfm.
- "ID Theft: When Bad Things Happen to Your Good Name," published by the FTC and available online at www.ftc.gov/bcp/ conline/pubs/credit/idtheft.htm.
- "Preventing Identity Theft" from the University of Oklahoma Police Department: ou.edu/oupd/idtheft3.htm.

Center for Virtual Care

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is cut from the typical 3.5 days to 1.2. The patient also experiences a lower risk of infection, reduced post-operative pain, and a faster rate of recovery.

Gamey Technology

Clinical specialist Bill Smith predicts that robotic surgery will continue to grow exponentially given the upcoming generation's comfort with and skill at using video and virtual technology.

In fact, video game models have helped UC Davis doctors and computer technicians develop "virtual hallucinations" drawn from the experiences of schizophrenic patients. From commentary played in the "brain" of the patient, to disappearing floors and morphing faces, this video features various aspects of a hallucinatory experience, and the simulation is useful for a variety of purposes: educating health care providers and family members about the illness experience, destigmatizing the disease, and training schizophrenics in how to handle their hallucinations.

Virtual reality has been used elsewhere to help distract patients from excessive pain and to treat phobias, post-traumatic stress disorders, and addiction. Cigarette smokers, for example, can "walk" into a party and be offered a smoke along with a drink, a cue many smokers find tough to pass up. Practicing doing so makes doing so in real scenarios all the easier.

What's In the Works

Further virtual reality additions are in the planning stages. UC Davis researchers are exploring using Second Life—the software program employed for the virtual hallucinations video—in other medical situations: bioterrorism response, for instance, in which countless medical staff must attend to a common event and one that is otherwise nearly impossible to duplicate for training purposes.

Surprisingly, the Second Life system runs on standard Windows and Macintosh computers, allowing multiple users to "play" simultaneously and requiring only a broadband Internet connection; thus, teams in numerous parts of the hospital or even the county can be taught to work collectively in complex group situations.

Psychiatrist Dr. Peter Yellowlees, Director of Academic Information Systems at UC Davis and Interim Vice Provost of IET, is keenly aware of the crossover potential between information technology and medicine. Having worked on the virtual hallucinations video, Dr. Yellowlees looks forward to "using VR environments increasingly in health education."



Department of Emergency Medicine Residents Rebekah Caravelli, Danner Hodgson, Raymond Han, and Mohammad Nazari hover over Morgan.

Want to Put YOUR Hands to Work?

Fire up your computer and head to *IT Times* online (ittimes. ucdavis.edu) for links to a recent KCRA Channel 3 News video featuring the Center for Virtual Care. There, you'll also find a *New Yorker* article entitled "A Model Patient," covering medical human simulators, and "Simulation-Based Medical Education: An Ethical Imperative," published in *Academic Medicine*. Note: The article links are available to UC Davis affiliates only (those possessing a Kerberos password). The Center for Virtual Care Web site is located at www.ucdmc.ucdavis. edu/healthprofessionals/virtual_care. $\langle \widehat{\varphi} \rangle$

What's cookin' on Campus

Campus Technology Upgrades

Look for the following classroom upgrades, courtesy of Classroom Technology Services:

Dual high resolution data projectors in two Art Department classrooms,

- High resolution data projectors in 45 general assignment classrooms,
- High resolution data projectors in 7 computer rooms,
- New printers and software upgrades in all computer rooms.

* Mac aficionados will be pleased to learn that 27 Olson have been changed from PCs to Macs.

Watch for Banner 7 Training

Banner 7, the latest version of the campus student information system, will be released in latesummer 2006. To help those who use Banner become adept at this improved version, IET will offer Banner 7 workshops beginning in Summer 2006.

To learn more about the new Banner system, visit sis.ucdavis.edu/future.htm, email banner-helpdesk@ucdavis.edu, or call 757-3299.



Lana Dancy previews Banner 7 for a campus audience.

Mediaworks: Ready to Serve You!

When your work calls for high-resolution photos of detailed objects—such as fine art, an insect collection, or forensic evidence—Mediaworks' photography group can help you out with their recently-purchased Better Lite Camera.

Enjoy the Distinguished Lecture Series at the Mondavi Center? The already-successful simulcast will now let you see those speakers "up close," even from the balcony, thanks to Mediaworks' new telephoto lens and large screen projection at the back of the stage.

Thinking of adding a 3D model to your next lecture, or perhaps some 2D or 3D animation to a PowerPoint presentation? You're not alone. To respond to this growing need, Mediaworks recently formed an Animation Group. Current projects include graphics for an interview-style program on UCTV and a 3D working model of the human eye for an online cranial nerves tutorial.



Need help financing your instruction or technology project? Apply for an Educational Technology Award. The Fall application deadline is November 11. To learn more about these grants or any of the above services, visit

mediaworks.ucdavis.edu

TechNews

technews.ucdavis.edu

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