Idaho Vandals

The Idaho Vandals will play their Homecoming game on October 18 at 2:00pm. A wealth of activities is planned both on and off campus during homecoming week. Which will you take part in?

RADICL

The University of Idaho’s RADICL is the Reconfigurable Attack-Defend Instructional Computing Laboratory. The goal of this special purpose lab is to enable hands-on teaching and research in the areas of information assurance, cyber-defense, and modern computing platforms and networks.

In RADICL students can run cyber security experiments that they would not be able to do in a traditional lab. RADICL enables teams of students and researchers to create and deploy multiple independent experiments that are quick to set-up and modify. Within the context of these isolated experiments, students and researchers are able to design, implement, examine, explore, and develop a detail-oriented hands-on view of modern computing infrastructures. This is due to the unique isolation of the lab made possible by multiple layers of both hardware and software. These layers create separation between the lab and the university network, creating essentially a black box so that no information from the lab can escape it. Students are also able to create a virtual private network infrastructure to simulate a large scale IT environment like those found in businesses and universities. The lab also creates a platform for students to practice for Colligate Cyber Defense Competitions, such as the Pacific Rim competition where the University of Idaho took second place last year. RADICL is operated, programmed, and managed by students. RADICL was originally created and implemented in 2003 by the Computer Science Department and Scholarship for Service students under the initiative and direction of Dr. Paul W. Oman, with funding provided by the National Science Foundation (NSF). Since that time its computing and software infrastructure has gone through several improvements. The latest improvements, implemented in 2014, were funded by the State of Idaho under the Idaho Global Entrepreneurial Mission (IGEM). The current configuration of RADICL makes full use of virtualization features built into modern computing environments.

Envision Idaho

Friday October 3 will be the first Envision Idaho event for high school students and transfer students. For many it will be the first time they have been to the University of Idaho campus. This is an exciting event and the Computer Science Department hopes to welcome many new students at the event.

Dates to Remember

Oct 8 Job, Internship, & Grad Fair
Oct 17 Bonfire, Fireworks & Tower Lights See pg 3
Oct 13-17 MidTerms!
Oct 20 Spring Advising Begins
Oct 12-19 Homecoming Week
Oct 18 Homecoming Parade & Football game
Researchers at the University of Idaho Computer Science Department, lead by Dr. Axel Krings, in collaboration with the National Institute of Advanced Transportation Technology (NIATT), have been involved in investigating the vulnerability of Intelligent Transportation Systems (ITS) to malicious attack for over 10 years now. It is all about how one can make sure that the ITS works safely. ITS safety is typically considered to be an engineering task. However, as much of the ITS is based on communications, either from vehicle to vehicle (V2V), vehicles to the infrastructure (V2I), or infrastructure to infrastructure (I2I), the ITS inherits the full spectrum of security threats. Therefore, the research focus has been on security, resilience, and survivability of ITS subjected to pathological scenarios. Furthermore, it is assumed that sooner, or later, attacks will partially succeed, which lead to the adaptation of the principle of Design for Survivability, an approach where the mechanisms that provide resilience and survivability are designed into the systems, rather than in an add-on fashion.

Starting in 2015, all new vehicles are expected to include Dedicated Short Range Communications (DSRC) equipment, which operates in the 5.9 GHz band. These so-called On Board Units (OBU) implement the V2V and V2I communications that is at the core of DSRC Safety Applications, such as Forward Collision Warning, that are projected to prevent up to 82% of all crashes in the United States involving unimpaired drivers.

So what would happen if an attacker would “pretend” that there is an accident, when in reality there is not; what if the communication were to be jammed in order to cause misinterpretation or confusion about events, such as hard braking, with the intend of causing drivers to react in a way that could cause a hazard? We can imagine many scenarios that could lead to disaster. Failure of DSRC Safety Applications could have catastrophic consequences and could undermine public trust and acceptance of the underlying technologies. The assumption is that there are no assumptions about what causes the faults, and only the consequences, e.g., the fault modes they produce, are considered.

As the research has advanced, we are approaching real implementations and field tests of the concepts developed. With the help of funds from the Idaho Global Entrepreneurial Mission (IGEM), NIATT and in collaboration with ARADA Systems we have established a connected vehicle laboratory to bring the research to the next level. Currently students are developing the tools that allow communications corruption models involving OBUs, RSUs and Android-based user applications to be tested. Furthermore, we are investigating ways to bring the experiences to the classroom, with this semester’s CS549 Fault-tolerant System’s class in the “driver seat”.

If you are interested in following the progress of the ongoing work you may want to check out the publications at http://www.cs.uidaho.edu/~krings/publications.html
Here are just a few of the awesome Senior Design Projects our Students are working on:

**Drone Software and Hardware**

The students in this group hope to build a sophisticated drone and control it with custom mission planning software. They will use open-source Arduino hardware for most embedded solutions, and XBee modules for all radio communications. Mission planning software must be programmed using C#, and all Arduino embedded hardware must run the XAPI framework.

**TowerLights**

The University of Idaho student branch of the Association for Computing Machinery (UIACM) has developed a project called TowerLights, which uses the campus Theophilus Tower dormitory as an animated video display. The system uses high-powered RGB LEDs controlled by a custom-built LED Driver board located in the building’s basement. The individual song "animations" consist of a file of "frames" - the colors and intensities of the LEDs in each room.

The purpose of this project is to make the TowerAnimator much easier to use for the animation creator. [The Students] would like to incorporate some of the capabilities used by commercial cartoon animators. These might include tweening (specifying the start and ending points of an animated sequence, and having the program fill in the frames between the two), the use of set patterns that can be inserted into the animation, automatic creation of animation sequences derived from the music selection itself, etc. The current program is written in C#, while the CS department’s primary language is C++.

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**Oct 12-19 Homecoming Week Festivities**

The entire week leading up to homecoming is filled with events around campus on Oct 12 there will be a photo scavenger hunt that starts at 5pm outside the VandalStore. The women's volleyball team takes on University of Montana on Oct 16 in the Mem Gym. And Soccer faces Weber State at Guy Wicks Field on Oct 17.

**Oct 17 Bonfire, Fireworks & TowerLights**

Starting at 8:30pm there will be a bonfire in the Kibbie Dome parking lot. Followed by a fireworks display.

At 9:45 move down to the Theophilus Tower lawn and see the TowerLights first hand.

**Oct 18 Homecoming Game!**

Your University of Idaho Vandal football team will face New Mexico State at 2:00pm.

**Events in Moscow**

**Oct 18 - Homecoming Parade**

The University of Idaho’s 150th annual Homecoming Parade is held the morning before the game on Main St. down in Moscow. This year’s theme is “Once Upon a Homecoming”