



# University of Pittsburgh

Department of Information Science and  
Telecommunications presents the following colloquium talk.  
Graduate students are very welcome to attend.



## Colloquium: José Carlos Brustoloni

Assistant Professor  
Department of Computer Science  
University of Pittsburgh

### “Usable Security for Wi-Fi Hotspots”

Friday, September 24, 2004

Meet the Speaker Coffee, Large Commons Room, 5th Floor,  
IS Building 10:40 - 11:00am

Presentation - 11:00am - 12:00pm  
Room 501 IS Building (135 N. Bellefield Avenue)

**Abstract:** Securing Wi-Fi hotspots is challenging because hotspots typically can provide little or no on-site technical support. Therefore, any security solutions need to be easy to use and readily interoperate with user-owned equipment. Security schemes based on IPsec or 802.1x are being promoted for enterprise Wi-Fi networks, but they are difficult to configure and interoperate and are thus considered inadequate for hotspots. Current hotspots typically rely instead on SSL-secured captive portals to authenticate users. Captive portals are intuitive and do not require special client equipment. However, captive portals are vulnerable to session hijacking and freeloading attacks. The latter were previously unreported and, surprisingly, are strengthened by the increasing use of personal firewalls. We propose and evaluate novel defenses against these attacks, session id checking and MAC sequence number tracking. We also introduce a novel method that allows a single access point to employ a captive portal or 802.1x to authenticate users. This allows hotspots to provide 802.1x-based security (e.g., WPA or 802.11i) without disrupting legacy captive portal users. Experiments show that our proposed solutions are effective against the mentioned attacks, impose little performance overhead, interoperate with a variety of commercial network interface cards, and do not require special configuration of client computers or PDAs.

Joint work with Haidong Xia.

See more on DIST Colloquia page [http://www.sis.pitt.edu/updates/colloquia/DIST\\_Fall2004.html](http://www.sis.pitt.edu/updates/colloquia/DIST_Fall2004.html)