



**UNIVERSITY OF CENTRAL FLORIDA**  
CENTER FOR RESEARCH IN COMPUTER VISION

# Dr. Robert Pless

## Washington University in St. Louis

---

### “Using All The World’s Webcams”

Friday, June 7, 2013 · 2:00PM · HEC 101



#### ABSTRACT

The web has an enormous collection of live cameras view image parks, roads, cities, beaches, mountains, ski-resorts, buildings and more. Over the last 5 years, I have been archiving imagery for most (>22000) publicly available outdoor cameras, and working to understand how to effectively use this massively distributed resource as a tool for phenology, environmental and atmospheric measurement.

Our approaches to analyzing this data set are inspired by a combination of time-lapse video artists Jason Salavon and Hiroshi Sugimoto and work to characterize the statistical invariants in images of natural scenes. I will talk about algorithms for automatically geo-locating, calibrating and inferring 3D scene structure from outdoor time-lapse imagery, interfaces to integrate the webcams with Google Earth and strategies that we have developed to visualize and categorize this data archive. I will conclude by describing early work that uses webcam data to evaluate satellite estimates of how spring green-up time of trees in North America and the potential for smart phone apps to allow citizen scientists to capture more calibrated and directed imagery.

#### BIOGRAPHY

Robert Pless is a Professor of Computer Science and Engineering at Washington University in St. Louis. His research focus is data driven approach to understanding motion and change in video with a current focus on long term time-lapse imagery. Dr. Pless has a Bachelors Degree in Computer Science from Cornell University in 1994 and a PhD from the University of Maryland, College Park in 2000. He chaired the IEEE Workshop on Omnidirectional Vision and Camera Networks (OMNIVIS) in 2003, the MICCAI Workshop on Manifold Learning in Medical Imagery in 2008 and received the NSF career award in 2006.