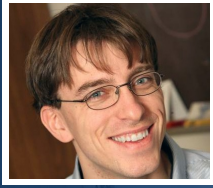


# Using the World's Webcams to Capture Time and Space in New Ways



Robert Pless  
Professor, Computer Science and Engineering

## CURRENT RESEARCH

Through image layering and geocalibration, we can see the world in new ways


Recently, geo-imaging technology helped a group of forensic detectives find the lost grave of a missing child in Missouri.

Increasing sophistication of cameras and satellites and advancements in mapping technologies like Google Earth are allowing users to access all parts of the world while sitting in the comfort of their own homes. Despite this, the world is vast and current pictures do not often document what is important to individual people or scientific questions. Dr. Robert Pless, of Washington University of St. Louis, builds web-based or smart-phone based imaging tools that anyone can use to document the story of their world. Dr. Pless then works to merge the unparalleled information in these visual sources to document a larger story of the environment and its change over time.

Dr. Pless' current research can be divided into three categories, each working with images and their relationship with the environment in which they were taken.

- Repeat photography is the layering of one image over an earlier one through time. Dr. Pless and his team have developed and shared the rePhoto App, available for iPhone and Android, so that anyone can capture how a place changes over time. Current projects document urban renewal projects, environmental change, and migration patterns of box turtles.
- Dr. Pless and his colleagues have been collecting images (one photo every half hour) from every publically available webcam, traffic-cam, beach-cam, etc. by finding, calibrating, organizing and re-purposing all outdoor webcams. This database, AMOS (the Archive of Many Outdoor Scenes) has been documenting changes from 27,000 cameras for over 8 years.
- "Geocalibration.org" and "...

## AFFILIATION

 Washington University

## EDUCATION

- Ph.D. in Computer Science, 2000 , University of Maryland
- B.S. in Computer Science, 1994 , Cornell University

## AWARDS

- 2009 Faculty of the Year
- 2006 Emerson Electric Excellence in Teaching Award
- National Science Foundation Early Faculty CAREER Award

## RESEARCH AREAS

Technology, Photonics / Imaging, IOT, Devices, Data, Natural Disasters / Emergency

## FUNDING REQUEST

The National Science Foundation (NSF) has provided basic funds for research on image analysis; your contributions will dramatically extend the reach and scope of Citizen Science projects with the rePhoto App, extend webcam analysis tools to measure more subtle, important changes in tree growing seasons, and help to more carefully document how people are using public spaces.

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