

FÜR INFORMATIK

Faculty of Informatics

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Games with a Purpose

Design and implementation of a serious game to determine global land cover

Masterstudium: Medieninformatik

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world population and the climate change, gained scientific importance. International projects like GLC-2000 (JRC), MODIS (NASA) and GlobCover (ESA) aim to determine global land cover but the results show significant differences. The validation of this data is an important task to improve remote sensing of the global land cover. The goal of our project is to validate this

Geo-Wiki.org where the land cover determined by remote sensing projects disagrees.



Land cover disagreement map

remote sensing projects GLC-2000, Modis and GlobCover and tries to validate them with the help of volunteers. The users are encouraged to recognize the land cover on satellite images from Google-Earth. To motivate volunteers to participate is one of the main problems within Geo-Wiki. Using a serious game our project aims to motivate



User interface - Geo-Wiki.org

A SERIOUS GAME FOR GLOBAL LAND COVER CLASSIFICATION



Landspotting -A serious game to determine the global land cover

Landspotting is a project which aims to develop serious games for land cover classification. This thesis focuses on the development of a computer game for the tablet computer iPad that implements the classification of land cover as an integral part. The developed serious game Landspotting combines game mechanics of a tower defense game with land cover classification. As a part of the game users have to paint the land cover of satellite images on the screen of the devices. Each brush



Go to the zoom

as possible according to the Earth's surface

Help screen

world in a large/small scale.

ok-button



The computer game Landspotting was published on the 4th of January 2013 on the Apple App Store. To date 1543 categorizations were performed by players. In total 6172 km² of land cover have been categorized with the serious game. The results have been analyzed and compared with results provided by the Geo-Wiki.org project.

The evaluation of the results showed that 74,2% of categorizations carried out by players are correct. The figures below show overlaping regions in both projects. We came to the result, that it is more difficult for humans to distinguish categories like grass or shrubs from other types of land cover while categories like cropland or water are easy to determine. The developed serious game Landspotting proves that computer games have a huge potential to improve global land cover.





Overlapping grass surface in both projects

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