A New Human-Monitor Interface For Interpreting Clinical Images

Tech ID: 30021 / UC Case 2014-965-0

SUMMARY

UCLA researchers in the Department of Radiological Sciences have invented a novel interactive tool that can rapidly focus and zoom on a large number of images using eye tracking technology.

BACKGROUND

With the development of digital workstations, radiologists have had to move from reading clinical images of 3D anatomy on film in incremental slices placed side by side to reviewing images in a stack mode, scrolling through them individually using a mouse or jog-wheel. In many instances, this shift has resulted in a loss of efficiency for some experts who could previously scan a collection of images for points of interest quickly. Easy and rapid access to large sets of radiological images, as was done before the advent of digital workstations, is necessary and highly sought by expert users.

INNOVATION

Dr. Enzmann and his research team have developed a novel human-monitor interface capable of cycling through large sets of images and identifying points of interest using an eye-tracking self-selection mechanism. This technology is designed to run on a large and ultra-high resolution screen, where a large number of images can be displayed side by side and still allow for sufficient image resolution to anatomically localize and identify main features of images. This system supports dynamic magnification (zooming in and out) either automatically through eye tracking or triggered via a key or foot pedal. Points of interest can be rapidly identified, marked, tracked, and revisited and the system can automatically pull other sets of images around the region, enabling the user to rapidly review and switch between images around the same region.

APPLICATIONS

- Clinical image analysis system
- Radiological imaging software
- Machine vision
- Eye tracking system

ADVANTAGES

- Uses an eye tracking mechanism to rapidly identify, mark, track, and revisit points of interest
- Can be used with large sets of images
- Displays images simultaneously and side by side
- Main features of images are rapidly localized and identified
- Dynamic magnification triggered via eye tracking or a key/foot pedal

CONTACT

UCLA Technology Development Group
ncd@tdg.ucla.edu
tel: 310.794.0558.



INVENTORS

- Enzmann, Dieter R.

OTHER INFORMATION

KEYWORDS

Human-monitor interface, radiology, radiological imaging, clinical imaging, eye tracking, machine vision, foot pedal, points of interest, clinical images, image analysis software

CATEGORIZED AS

- **Biotechnology**
  - Bioinformatics
  - Health
  - Other
- **Computer**
  - Other
  - Software
- **Imaging**
  - Medical
  - Software
- **Medical**
  - Imaging
  - Other
  - Research Tools
  - Screening
  - Software
- **Research Tools**
  - Bioinformatics
  - Other

RELATED CASES

2014-965-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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- Computer-Aided Detection of Implantable Man-Made Devices in Medical Images
- Probability Map of Biopsy Site
- 3D Population Maps for Noninvasively Identifying Phenotypes and Pathologies in Individual Patients

UCLA Technology Development Group

10889 Wilshire Blvd., Suite 920,Los Angeles,CA 90095

https://tdg.ucla.edu

Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu

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