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EDU 3: Pre-College Activities: CENSEI and Education Tools related to Audio/Visual Sensing

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Publication Date

2006



Pre-College Activities: CENSEI and Education Tools Related to Audio/Visual Sensing

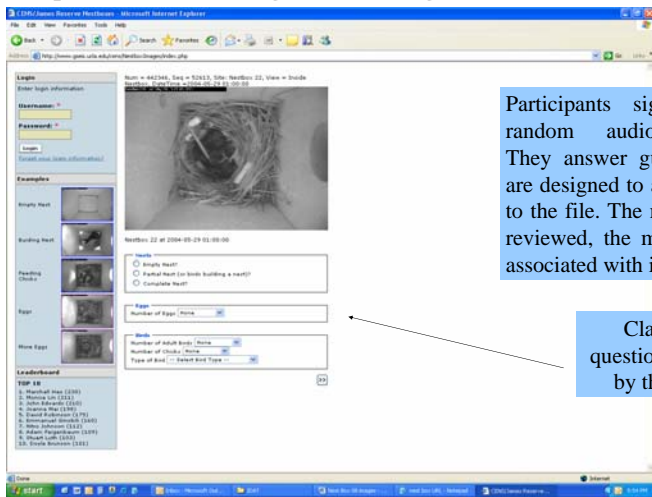
Christine Borgman, Melissa Cook, Deborah Estrin, Deborah Fields, Kathy Griffis, Aletha Harven, Karen Kim, Kelli Millwood, William Sandoval, Jason Su, Vandana Thadani, Jillian Wallis, Joe Wise, Eric Yuen

The Interactive Data Classification Tool (iDCT) trains novice “scientists” to add data fields to audio and/or video files for future data mining.

iDCT

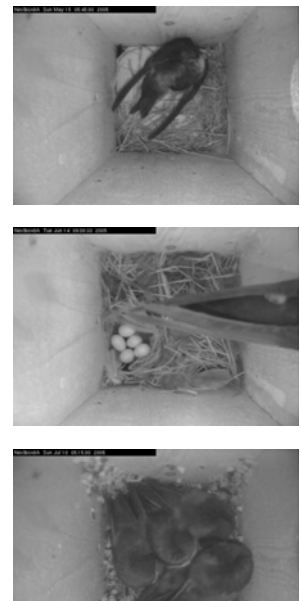
A web-delivered tool that allows students, the general public, and scientists to classify the content of images based on guiding questions provided by scientists for which computer algorithms are inadequate. The potential use of “trained novices” to help scientists with preliminary classification has been effectively demonstrated by NASA’s Clickworkers program. Inter-rater reliability is built into the activity so that searchable data bases can be quickly and reliably developed for scientific use.

Example of the iDCT using nest box images from the James Reserve



Participants sign in and receive random audio/video/image files. They answer guiding questions that are designed to attach searchable data to the file. The more times a file gets reviewed, the more reliable the data associated with it.

Classification questions determined by the scientists



- Current work is completed on the nestbox images
- Future work includes moss cam and ribosome images, and audio files

<http://interactive.cens.ucla.edu/education/idct/idct>



CENSEi

Center for Embedded Networked Sensing Education cyberInfrastructure



Modules currently under development include:

- Plant Adaptations to the Environment:** covering photosynthesis, transpiration, structure and function relationships, and natural selection through investigation of an area of the Santa Monica Mountains (shown).
- Wetlands Bacterial Ecology:** covering cellular respiration and metabolism, urban wetlands ecology, and natural selection through investigation of Mugu lagoon in Southern California.

•Visit us at www.censei.ucla.edu

CENSEI is developing web-supported curricular materials that allow middle school students to explore authentic scientific data collected from embedded sensor networks deployed in Southern California ecosystems.

CENSEI materials are aligned with NSES and CA science content standards. Materials are collaboratively developed by learning scientists, biologists, and teachers. Each curricular module is a 3-4 week unit that combines traditional classroom laboratory activities with online, open-ended sensor network investigations.

