

**AN INTRO TO EYE-TRACKING AND THE PROCESSING OF RAW ISCAN DATA.** *C. Louten, J. Pelz, M. Rosen, & M.E. Arndt, Center for Imaging Science, [cjl4959@cis.rit.edu](mailto:cjl4959@cis.rit.edu), [pelz@cis.rit.edu](mailto:pelz@cis.rit.edu), [rosen@cis.rit.edu](mailto:rosen@cis.rit.edu)*

The Visual Perception Lab in the Carlson Center for Imaging Science is collaborating with NTID in a project designed to better understand the perceptual and cognitive limitations in classroom instruction mediated by a sign-language interpreter.

Using an eyetracker to monitor students' gaze patterns, 32 students viewed a classroom lecture with an instructor, an interpreter, and a video display. The eyetracker recorded their visual point-of-regard throughout the lecture.

The goal of the research project was to extract and evaluate gaze data from the raw eyetracker data stream. Challenges included dealing with signal noise, calibration, data loss due to blinks and hardware errors, and region of interest classification. Programs were written in MATLAB, a high-level programming language, to analyze the raw data. A series of filters were investigated, including mean, median, and threshold filters.

The final implementation combined a threshold filter followed by a median filter. After filtering, eyetracker data analysis included studies of horizontal eye position as a function of time, histograms showing gaze distributions across the regions of interest, and summary statistics of gaze behavior. The modular programs will be used with future analysis programs.

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