MODELING THE VISUAL SEARCH PROCESS

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An Abstract of a Thesis Submitted to the Graduate

Faculty of Rensselaer Polytechnic Institute

in Partial Fulfillment of the

Requirements for the Degree of

DOCTOR OF PHILOSOPHY

Major Subject: COGNITIVE SCIENCE

The original of the complete thesis is on file
in the Rensselaer Polytechnic Institute Library

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September 2011
(For Graduation December 2011)

ABSTRACT

The role of visual search in everyday tasks is paramount. Whether we are searching for an item in the grocery store, trying to find our car in a busy parking garage, or looking for an important piece of information on a web page, the visual search mechanism is crucial. The main focus of the current work is to further our understanding and modeling of what makes the process so efficient. The key emphasis here is on the process of visual search – the actual strategies that people employ as they search for things within the context of a larger task. The current work explores how the process of visual search is affected by the organization of the display, how it is altered with respect to timed lockouts, at different points within a trial, and the role that memory plays in the search strategies employed. A computational cognitive model of visual search behavior is presented and takes into account data collected at several levels of analysis. The modeling work incorporates information about the organization of the display and includes a visual search mechanism which integrates findings from human judgments of visual clustering and is based on eye data collected during task performance.