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Eye-Tracking Experiment on Public Perception of Astronomical Images

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Eye-Tracking Experiment on Public Perception of Astronomical Images

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Project Description

This research uses eye-tracking technology to measure how participants view astronomical images, such as those produced by the Hubble and Chandra X-Ray Observatory. Eye-tracking technology can measure and record the fixation points, gaze length, and eye-movements of participants as they view images; conducting eye-tracking studies on multiple participants allow researchers to statistically analyze how people are likely to view images. The proposed research will perform eye-tracking studies on several participants using the GazePoint eye tracker in the UAH VUE lab. The research will test how altering different variables, such as different colors and labels, affect perception of images.

The objective of the research is to replicate aspects of existing research about public perceptions of astronomical images using eye-tracking technology. This research will result in an article submitted for peer review to the journal *Science Communication*. The faculty member will begin the research in Spring 2019, getting IRB approval, refining the methodology, and conducting eye-tracking research with participants. However, this research will continue in Summer 2019, when the RCEU student will assist with conducting the research.

Student Duties, Contributions, and Outcomes

The RCEU student will complete the following **specific tasks**:

- Use the eye-tracking equipment in the VUE lab to conduct research on how participants view specific astronomical images
- Analyze data from the eye-tracking experiments
- Contribute to the results section of an article reporting research results

The student will make the following **tangible contributions** to the project:

- Generate and analyze eye-tracking data
- Contribute to a peer-reviewed publication submitted to the journal *Science Communication* (where the student will appear as a co-author)

The student will meet the following **outcomes**:

- Learn to conduct experiments using eye-tracking technology
- Learn to analyze eye-tracking data
- Gain a better understanding of public perceptions of astronomical images
- Understand the academic publishing process

Faculty Requirements and Mentorship

Required qualifications: Eligible students should hold the rank of junior or senior. Students should have taken classes in computer science, technical communication, user experience, statistics, and/or data analysis.

Preferred qualifications: Previous experience with VUE lab-related research or equipment.

Faculty Mentoring: The faculty member will meet weekly with the student to guide them through the research. The faculty member will train the student on using the eye-tracking equipment (if necessary), introduce them to the methodology of the study, mentor them through the process of conducting the experiment on participants, train them to analyze eye-tracking data, work with them on data analysis, and provide guidance and feedback as they contribute to the results and discussion sections of a peer reviewed article. Two other UAH faculty members, Dr. Candice Lanus and Dr. Joy Robinson, will also participate in this research and may also help mentor the RCEU student.