



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Megan N. McQueen	Project Number J0417
Project Title That's Uncanny! Gender in the Uncanny Valley	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine how the gender of a subject affects the way he or she responds to human-like androids that can be categorized as belonging to the Uncanny Valley. The Uncanny Valley is a theory in the field of robotics and computer animation that states: "When human replicas look and act almost, but not perfectly like human beings, it invokes feelings of revulsion among human observers."</p> <p>Methods/Materials 25 male and 25 female participants were surveyed, 14 images of progressively more human-like androids/digital animation were gathered via the Internet, and a notebook was used to record survey data. Each participant was shown the 14 images one by one and asked to rate them on a familiarity scale from -5 to 5, (-5 being highly repulsive, and 5 being very appealing). Familiarity is a measure of human attraction and positive feelings towards any certain object. High familiarity describes something/someone that is appealing and attractive to humans, and a low familiarity describes an object that is not appealing or comforting at all.</p> <p>Results Females responded with more dramatically negative responses than males towards images of humanoids categorized under the Uncanny Valley. Like-wise, females had more positive responses towards images of real human beings or appealing, simplistic human-like androids. The results were not surprising, in part, because females have shown to have a higher rate of facial recognition than males, allowing for female subjects to better recognize images in which a humanoid's facial expression or appearance looked "off."</p> <p>Conclusions/Discussion My conclusion is that female participants respond more negatively to Uncanny Valley humanoids than male participants, whose responses were less extreme, both positive and negative, than female participants. This supports my hypothesis and helps us to better understand the way in which different genders respond or interact with artificial human beings. As animation and robotic human beings are being integrated into everyday life in areas such as entertainment, warfare, medical fields, research in human behavior, and to perform tasks that would otherwise be too dangerous for an actual human being, it is important to understand the way we respond and behave towards humanoids.</p>	
Summary Statement I surveyed both male and female participants in order to determine if gender affects the degree of emotional response to images of life-like human replicas used in the field of animation and robotics.	
Help Received Mentor: Karl F. MacDorman, Associate Professor in the Human Computer interaction program, Indiana University	