JPUR
JOURNAL OF PURDUE UNDERGRADUATE RESEARCH

HEALTH AND HUMAN SCIENCES

All in My Head: How Mood Affects the Interpretation of Facial Expressions

Student researcher: Lillian Ashmore, Senior

What visual cues do people use to judge facial expressions? Do those cues change with the observer's mood, or is emotion recognition in facial expressions based on the objective, formulaic facial cues that Paul Ekman's notion of universal facial expressions suggests in his 1970 publication, "Universal Facial Expressions of Emotion"? Such questions are informative and important because if mood changes how we interact with faces, the "seat of empathy," then our ability to enter into another's mental world becomes as unstable as our emotionality makes it. Using a reverse correlation technique by embedding random noise pixels on a face with an ambiguous facial expression (a copy of the Mona Lisa), the resulting facial image sometimes looks happy and sometimes sad. Subjects classified the facial expressions (happy or sad) for many different random patterns. The commonly categorized patterns were then averaged to identify which noise pixels influenced expression categorization. In addition, mood was induced in experiment 1 using sad or happy music, and in experiment 2, subjects were sorted by emotionality prescreen results. Based on previous research, we hypothesized that different noise pixels would be important in expression categorization depending on the manipulation mood. The results find that noise pixels around the corners of the mouth are important in determining the categorized facial expression, but that there was no difference in the cues used to make judgments between mood groups. These findings complement the results of "What Makes Mona Lisa Smile?," Leonid L. Kontsevich and Christopher W. Tyler's 2004 study of human understanding of emotion, and provide evidence for an objective analysis of facial expression.

Research advisor Gregory Francis writes, "Lilli's project uses a very clever technique to measure the parts of an image that people pay attention to when making decisions. Her investigation explores whether these parts vary as people make decisions while in different emotional states. The answer appears to be 'no,' which I think will be surprising to many people."

Ashmore, L. (2012). All in my head: How mood affects the interpretation of facial expressions. *Journal of Purdue Undergraduate Research,* 2, 87. doi:10.5703/1288284314700