

Eliciting Gesture with STEM Learning Technologies

R. Lindgren^{1*}

¹University of Illinois Urbana-Champaign, College of Education, 394 Education Bldg.,
1310 S. Sixth St., Champaign, IL 61820, robblind@illinois.edu

* Corresponding Author

Abstract

In this talk I will describe several ongoing efforts to design learning technologies that elicit and interpret student gesturing as they attempt to solve problems or explain ideas in STEM. These designed learning environments employ several different devices from motion sensors to augmented reality headsets, and they target a range of physical actions from hand gestures to full body movements. This talk will describe empirical evidence that using these technologies creates opportunities for students to communicate and reflect upon their emerging knowledge of STEM topics such as molecular interactions, rates of change, and how to find one's location on Earth using a view of the night sky. I will also describe how these technologies can be designed in ways to elicit gesturing that promotes learning transfer and supports collaboration. The talk will conclude with the description of an emerging framework for categorizing the kinds of designed interactions students may have with immersive and embodied STEM learning technologies, and the different forms of learning we should expect to emerge from these interactions.