University of Central Florida
Department of Chemistry Seminar Series – Fall Semester 2023
25th August 2023 at 9:00 AM, Location CB2 105

Deconstruction and evaluation of a scientific animation using MVADER

Dr. Kevin Wee
Purdue University (formerly) and Discover Financial Services

Host: Dr. Christopher Randles

Abstract

External visual representations (e.g., images, animations, and graphs) are created and used to convey, educate, and learn presented topics. Evaluating the visual representations used in science education enables us to inspect students' learning experiences with the representations, particularly when the learning outcomes misalign with the educators' intention or the representation content.

A scientific visualization (SciViz) team approached Dr. Wee to inspect the educational value of an animation they had developed. The animation was created to teach lower-division life science undergraduates about the role of the actin cytoskeleton in cell motility. For this purpose, Dr. Wee developed the Multimodal Variation Analysis of Dynamic External Representations (MVADER) methodology that deconstructs the animation's content and design to inspect how each content feature is conveyed via the animation's design elements.

In this seminar, Dr. Wee will present how MVADER can be--and has been--applied in SciViz evaluation. He will reveal the content features of the studied animation conveyed effectively to the intended students and identify the animation's design elements that might have caused students' misperceptions. He will conclude the seminar with considerations for using animations and visual representations in the classroom.

Biography

Dr. Kevin Wee has a B.S. in Chemistry (Chemistry Biology) from Tunghai University, Taiwan, and a Ph.D. in Chemistry (Chemical Education) from Purdue University, Indiana. He also participated in a study abroad program at the University of New South Wales.

Dr. Wee is a Chicago-based visualization researcher, data practitioner, and community leader. As an independent researcher, his current projects include SciViz evaluation and qualitative data visualization (DataViz). He is also the Senior Business Intelligence Analyst at Discover Financial Services. He provides creative visual strategies that tackle his business partners' analytical problems and DataViz training to the company's analysts. Moreover, Dr. Wee is a Tableau Public Ambassador. He proactively contributes to the Tableau User community (DataFam) via his DataViz work on his Tableau Public profile and his visual design and analytics presentations.