Culture

Random walks

Innovation Case Study   **Early Career Researchers Innovation Programme**

What was the question?

How can graphic design help in the teaching of complex ideas? In particular, how can we present seemingly random biological variability in a way that is visually appealing and will engage younger audiences, so as to stimulate their interest in scientific research?

Who were the collaborators?

Design Science; NETADIS; Barbara Bravi, Aleksandra Aloric & Silvia Bartolucci from the Department of Mathematics; and Sari Nusier from the Department of Informatics.

What did we do?

The project explored a creative design process, to test how graphics can help non-specialists understand intriguing but complex mathematical concepts. *Random walks* is a playful and interactive learning tool to help a young audience understand scientific ideas

random walks
with pirate and parrot

through visualization. The team used the example of random walks, such as the plot of the path that a drunkard might take on the way home from a party. Although it isn't possible to specify the destiny of a particular drunkard, the project devised a method to analyse the average behaviour when we look at a large number of drunk walkers. The team produced an app which allows users to play against randomness and, in the process, learn mathematical concepts. More information about the app can be found here: randomwalkspp.wix.com/pirateparrot.

What was the outcome?

The app provides enhanced learning support for students and is being used as a teaching tool for instructors involved in science education. A second version of the app is now in development. This will include additional levels and data analysis, as well as a better platform to implement more complicated graphics. The project informs a wider-scale research study of how large-scale regularity can emerge out of random motions.

NETADIS
Statistical Physics Approaches to
Networks Across Disciplines

Design Science