

Abstract: How can you engage a large audience to play and experiment with (modern) mathematics? How can software tools be used to foster mathematical discovery? How can the large public participate in mathematics communication? How can software exhibits be used in physical activities (from museums to exhibitions to workshop) and also in virtual settings online? In this talk we show several open source exhibits and its use in an international context pre- and post-Covid-19: one tool to create algebraic surfaces (images, exhibitions, fashion, designs) in real-time with the audience, one tool to experience the connection between mathematics and music in the field of scales and one tool on the mathematics of Artificial Intelligence algorithms. All software tools, from the concept to the user interface, were developed within then open source exhibition framework of the non-profit organisation IMAGINARY. We briefly show how such tools can be developed, what are their key characteristics and what is the current status in this field (creative interaction, explorable explanations).

Short bio: Andreas Daniel Matt (1975, Innsbruck) is director of IMAGINARY, a non-profit organisation for the communication of current research in mathematics based in Berlin. He has a PhD in Mathematics in the field of Machine Learning, and has worked from 2007 until 2016 for the Mathematisches Forschungsinstitut Oberwolfach, a Leibniz Institute, where he co-initiated IMAGINARY. In 2013, he received the Media Award of the German Society of Mathematics for his achievement in communicating mathematics. IMAGINARY is currently involved in a major training and teaching program in AI worldwide, and has developed a digital and physical open source AI exhibition.