The Art of Scientific Surprise: Using Humor, Magic, and Art to Enhance Communication and Thinking

Jason E. McDermott
Integrated Discovery Science Directorate, Pacific Northwest National Laboratory
Richland, WA 99325, USA
Email: Jason.McDermott@pnnl.gov

Jonathan H. Chen
Stanford Center for Biomedical Informatics Research, Stanford
Stanford, CA, 94305 USA
Email: jonc101@stanford.edu

The scientific method follows a particular pattern: the background is established, a hypothesis is postulated, then tested by experiment, to reveal the hidden truth. Humor and magic follow similar patterns: expectations are established, and then broken, to enact the joke or trick. Humor and magic can often reveal truths or illuminate portions of the truth in interesting ways. In science, humor, magic, and art are sometimes used as ways of communicating scientific ideas and concepts. Research has shown that use of these approaches can improve understanding of complex scientific concepts and retention of knowledge. Interestingly, beyond just communication, aspects of these can be thought of as useful scientific tools – allowing us to approach problems in ways that may not be evident otherwise. Finally, the advent of sophisticated large language models presents the question of how these new tools may provide a basis for communication of scientific findings and thought but also of the limitations and dangers of relegating these important skills to machines. This workshop is aimed at discussing and understanding these ideas and exploring how humor, magic, and art can be used in your own science communication – and maybe even research.

Keywords: science communication, humor, magic, art, science, AI.

1. Introduction

Humor, magic, and the scientific method each work by establishing an expectation, formulating an implicit or explicit hypothesis about what will happen next, and then breaking (in the case of humor and magic) or testing (in the case of science) that expectation to yield surprise, delight, and insight ('haha!', 'ooooh!', and 'eureka!', respectively). These reactions are united by – perhaps – a single emotion: wonder. Wonder at the turn of logic or sense that comes with the punchline of a really good joke or pun. Wonder at the mysteries of reality and illusion when one is presented with a seemingly impossible magic trick. And wonder at the revealing of secrets of the natural world around us through a particularly surprising scientific finding. This wonder is an inherently human reaction and lies at the heart of science communication, and in some senses at the center of scientific thought.

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Studies have shown that humor and art – beyond being useful devices for communication – can improve understanding of scientific concepts and retention of that knowledge (Yeo, et al., 2020; Yeo, et al., 2021), and we and others have written on the use of such devices in scientific communication (McDermott, et al., 2018). Interestingly, metaphor – a foundational concept that humor and magic often build on - can also be considered a scientific tool. One that, according to the science cartoonist Matteo Farinella, 'can enable scientists to visualize the invisible, bringing into focus useful details while blurring others' (Farinella, 2018).

Being able to communicate the wonder of your scientific problem, the importance of solving it, and its wider societal impact is foundational to a successful career in science—nearly as important as the science itself. Conveying complex information and concepts in a way that's clear, engaging, and easy to understand is a constant learning process. Even the best science communicators look for new approaches to improve these important pieces.

The advent of AI that can shape language and re-frame complex concepts brings another set of facets to this topic (Boies, 2026; Feldman, et al., 2026; Kobayashi, et al., 2026; Noy and Zhang, 2023). If communication of science is an inherently human activity can conveying the wonder and magic of science discovery be accomplished using machines? How does this impact the process of scientific thought and reasoning for the individual researcher and how does AI affect the state of science as a whole? Though these new tools are powerful and seemingly omnipresent, science communication must wrestle with similar questions that are presented to many different areas: will use of such tools improve communication, and will their use necessarily promote atrophy of human skills in these areas?

Underlying each of these points, education and scientific literacy for students, junior researchers, and the broader public is critically important to prevent further misinformation and distrust in science and the findings it brings to society. When used judiciously in science communication, humor, magic, and art can greatly increase engagement, interest, and even knowledge retention for the audience – no matter if it's fellow researchers or if it's your uncle Sid (a taxpayer, he tells you) at the Thanksgiving dinner table.

The ability to communicate our science to other scientists, and to taxpayers who fund our research, is an important and, in many ways, underappreciated skill. The inherent interdisciplinary nature of bioinformatics and PSB itself highlights the need for effective communication across disciplines between scientists.

2. Workshop Format

The workshop will be led by talks from Drs. McDermott and Chen on the role of humor, magic, AI, and art in science and science communication followed by discussion of these topics. Finally, the last half of the workshop will be a hands-on session where participants will be guided through drawing their own comic about their science, learning a magic trick with a science basis, and will be able to discuss their own ideas about science communication in a receptive, fun, and informal environment.

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