Communicating neuroscience across peoples, languages, and cultures

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Educational Course - Half Day (4 hours)

Timeliness. Recent developments in social media highlight the need for open, informed, distributed models of science communication. Without structural changes to science communication within and beyond academic circles, the status quo of scientific gatekeeping allows biases in psychology (Roberts, 2022 preprint) and related fields to continue to influence the hypotheses that are tested and the methods we use to conduct and disseminate science. Further, as many organizations—including OHBM itself—have transitioned to hybrid or virtual content in recent years, OHBM members can greatly benefit from discussions on the state-of-the-art in global science communication.

Importance. The modern approaches to science communication discussed in this educational course break down the silos constructed by traditional communication methods and better serve all of humanity, not just the scientific status quo. Attendees who incorporate best practices in open, distributed science communication can greatly extend the reach of their scientific research.

Objective

Desired learning outcomes. Our speakers are expert communicators and community builders and will discuss a number of approaches to building a better, more informed, and more inclusive scientific community. The topics and desired learning outcomes include:
1. Communicating science to broad audiences across languages
2. How to host globally accessible scientific discussions

3. Principles of and hands-on experience generating brain imaging visualizations

Target Audience

We are targeting brain imaging community members across the career spectrum, as we will cover basic principles as well as specific actionable steps for improving science communication, visualization, and community-building.

Presentations

Outreach within reach: Communicating to our communities

How can science influence societal decision making and policy, if scientists do not involve their communities in t' scientific process? Our community members largely contribute to the funding of our research and are ultimately research targets. Increasingly, in current times where mistrust in science prevails, it is more important than ever get outside of the lab and communicate with the public. But, how are we supposed to do outreach, if (1) our scientific productivity is solely measured by how many papers we publish and hours we spend in the lab, and (2) there is no infrastructure in place to guide us and help us navigate the science outreach world? In the first half of the talk, I will stress the importance of integrating science outreach training and initiatives in academia and I will share tips on how to get started on this journey. I will bring my own experiences and lessons I learned attending science communication workshops and spearheading my own outreach activities. I will show how the most effective way to do outreach is by bringing one's passions into the equation (art, games, writing, sports)! The second half of the talk will be interactive and will involve hands-on science communication activities and a brainstorming session where we will come up with ideas of outreach projects we can take back home.

Presenter

Giulia Baracchini, Montreal Neurological Institute and Hospital Montreal, Quebec Canada

Multilingual science communication

Scientists come from across the globe, speaking many native languages. However, as English has become the lingua franca of the science community, English language proficiency serves as a gatekeeper to scientific knowledge. This presents challenges to communicating science to a broader audience across language backgrounds, particularly for young students. To challenge this status quo, Dr. Lee established the Annual Multilingual Kids Review within OHBM, which supports neuroscientists in translating important scientific research to various languages. In this talk, Dr. Lee will discuss her experience setting up the first Multilingual Kids Review with the past and current members of the Diversity and Inclusivity Committee and how she adapted and grew the program over multiple years. Audience members will learn important principles in translating English-language science to multilingual audiences, getting children excited about science, and operating a large-scale multilingual science outreach endeavor.

Presenter

Kangjoo Lee, Yale University New Haven, CT
United States

Interpretable, reproducible and creative neuroimaging data visualization

“A picture is worth a thousand words.” Effective data visualization is crucial for precisely interpreting and compellingly communicating scientific findings. However, it is challenging to transform scientific results into interpretable, reproducible and creative visualization. This talk aims to review issues, principles, tools and examples for enriching interpretability, reproducibility, and creativity of neuroimaging data visualization. First, I will discuss common pitfalls hindering interpretability and reproducibility. Then, I will present guidelines for evaluating the clarity and completeness of figures (Allen et al., 2012), alongside practices to improve interpretability and reproducibility, such as highlighting results instead of hiding all but the most significant ones (Taylor et al., 2023). Next, I will introduce a comprehensive array of software toolboxes for brain visualization, and highlight an emerging tool Brain-Code (Chopra et al., 2023) which generates R and/or Python code templates to visualize brain imaging data. Finally, I will illustrate innovative visualization examples from recent literature, including graphic workflows (Bethlehem et al., 2022) and icon representations (Tian et al., 2023). During the presentation, we will include brief quiz questions for the audience on visualization and accessibility.

Presenter

Xinhui Li, Georgia Institute of Technology Atlanta, GA
United States

Hands-on visualization of brain images

Communicating our scientific findings benefits tremendously from clear, effective, and easily implementable visualization of results. Various analysis tools generate default visualizations with varying degrees of clarity and comprehension. Modern tools allow scientists to customize their brain visualizations, but getting started with coding for visualization poses a major challenge to many trainees and experienced scientists alike. In this presentation, Dr. Yee will describe the Grammar of Graphics framework (Wickham, 2010; doi:10.1198/jcgs.2009.07098) to visualize data and provide a hands-on walkthrough for visualizing structural and functional MRI results within this framework. Using R and/or Python packages, participants will be guided on how to implement code to visualize their data in a clean and reproducible manner. Participants will gain the knowledge on how to practically implement the guidelines described in the previous talk and will leave this talk with a basic pipeline for visualizing neuroimaging results that they can use and adapt for their own research.

Presenter

Yohan Yee, McGill University Montreal, Quebec
Canada

Organizing public journal clubs

As the scientific literature grows at increasingly faster rates, it becomes even more challenging for scientists across the career spectrum to digest seminal as well as new studies. Fortunately, paper discussions—"journal clubs"—are a helpful way for trainees and senior scientists alike to discuss important work in an informal setting. But what makes a journal club effective, and how can we broaden participation to provide richer discussion? In this talk, Dr. Forkel will present her key insights from the popular CNSeminars and Neuroccino journal club series, which enables informal discussion of interesting scientific articles in an online format. Attendees will learn key attributes of a successful journal club, including how to present an article, how to participate in the conversation, how to broaden participation, and how to share the discussion after-the-fact for greater public benefit.

Presenter

Anna Matsulevits, University Bordeaux, Institut des Maladies Neurodégénératives CNRS UMR 5293 Université de Bordeaux
Neurofunctional Imaging Group
Bordeaux, Gironde
France

The Unique Role of Podcasts in Communicating Science

The podcast medium opens a window into conversations between scientific experts, providing opportunities for the broader scientific community to learn about the personal history of scientific endeavors, as well as new innovations and outcomes. Nowhere is this more evident than with OHBM's own Neurosalience podcast, where the host, Dr. Peter Bandettini, discusses with diverse guests topics that include critical moments in human brain mapping history, recent methodological advances, community-led efforts, and challenges in the field. In this presentation, Dr. Bandettini will discuss the origin, development, and future of the OHBM Neurosalience podcast, as well how he selects guests, how he prepares, and most importantly, his constant quest to ask better questions.

Audience members will learn a podcaster's approach to literature, presentations, and discussions that strives to balance curiosity and healthy skepticism - always looking for the best questions that open up new insights. They will also learn the workflow for creating podcast content, and have opportunities to interact with Dr. Bandettini to answer their own questions.

Presenter

Peter Bandettini, Ph.D., National Institute of Mental Health
Section on Functional Imaging Methods
Bethesda, MD
United States