space is an important but often overlooked aspect of poster design. Visually attractive posters tend to have substantial borders and significant gaps between text blocks. The white space should flow together in a cohesive way that draws in the eye while giving it a chance to rest. In a room full of posters screaming for attention, he says, some well-placed emptiness can offer tranquility.

ERIKA DEBENEDICTIS/MIT MEDIA LAB

THE RIGHT TOOL FOR THE JOB

Yet these design aesthetics won't amount to much without the right software. Many researchers resort to PowerPoint, usually because they already have PowerPoint figures at hand. It can work: Hedwig van der Meer, a physiotherapy PhD student at the Amsterdam University of Applied Sciences in the Netherlands, used PowerPoint to make her first-place poster at the 2016 conference of the American Academy of Orofacial Pain in Orlando, Florida. But Salvagno advises against the program: it isn't designed for printing, the colours may be off and the alignment tools are cumbersome. If PowerPoint is the only option, he recommends disabling the 'snap to grid' function for maximum control of the layout.

Hertig recommends vector-based graphics programs such as Inkscape or Adobe Illustrator. Unlike PowerPoint and other programs that create illustrations with pixels, both of these use equations to determine each point; images and text can thus be scaled up without loss of clarity. These programs can also smoothly align text and captions. Choose one vector-based program and stick with it for every poster and presentation, Hertig adds. "It's important to invest the time early in your PhD. You won't have to learn it again. It will just be natural."

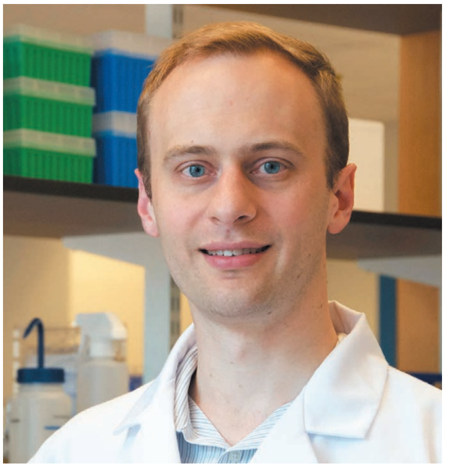
A quality poster is just one part of a successful presentation. At most conferences, the presenter will have at least a couple of hours to stand by their posters and interact with attendees. This is where some of the most important work at a conference takes place, which is why researchers should spend as much time polishing their pitches as they spend creating their poster, Salvagno says. He recommends preparing several different versions of one's talking points: a 20-second elevator pitch for the mildly curious and a longer version for anyone who wants a deeper dive.

For her part, van der Meer thinks that her presentation of her prizewinning poster was as important as the actual product. "You have to involve the audience by being open and enthusiastic," she says. "The combination of a clear poster and passionate presentation works best, because people will understand your work and get excited." ■

Chris Woolston *is a freelance writer in Billings, Montana.*

TURNING POINT Kevin Esvelt

Evolutionary engineer Kevin Esvelt, at the Massachusetts Institute of Technology in Cambridge, works with gene drives, engineered bits of DNA that can cause a mutation to become heritable all the time. He calls for researchers to create and use safe lab procedures while working with this powerful but potentially risky technology.



What is a gene drive?

In nature, a gene drive occurs when a DNA sequence spreads through a population by breaking the conventional rules of inheritance. For example, if an organism has a single copy of a fluorescent marker gene and its mate has none, normally only half their offspring will fluoresce. When a gene-drive system is in play, almost all of them will glow.

How can scientists use this capability?

Gene drives allow us to drive altered traits through wild populations over generations. For instance, we could alter the DNA of wild mosquitoes to stop them from carrying disease. We could restore damaged ecosystems and save endangered wildlife by genetically removing invasive species.

How did your insights help to propel this field?

Even ten years ago, heritable genome editing was a possibility, but no one had found a molecular tool that would enable it to be done efficiently. In 2013, laboratories began using CRISPR to precisely edit the genomes of many species. I realized then that this tool could be used to build stable gene drives in many complex organisms. It could also be used to build reverse drives, which are like molecular erasers for overwriting previous edits.

Why did you explain how gene drives would work before you published results showing that they could work in any organism?

Most advances don't give individual scientists the power to affect entire ecosystems. By detailing what was possible, how it could be achieved and what safeguards were needed to prevent any accidental release of altered organisms from the lab, we hoped to set an example of how future work in gene drives should proceed.

Why was this important?

A single escaped organism that found a mate could eventually alter most of the local population and, very possibly, every population of that species worldwide. The ecological risk might be low, but the damage to public trust in biotechnology could imperil the future of the field.

Did you want researchers to agree on some guidelines first?

My immediate priority was to prevent the accidental release of any gene-drive organisms into the wild. I wrote to the few researchers working on gene drives to explain my concerns about ethics and safety.

What happened?

Last year, we released results showing that gene drives work in yeast. Then another group — who were working with fruit flies — independently created a functional gene-drive system. They were careful to keep the flies contained, but unlike our paper, their manuscript, which was meant to be published as a how-to for other labs, made no mention of safeguards or the risk to wild populations. To their credit, they agreed to include those details.

Did your efforts help to usher in regulation?

The fruit-fly case triggered responses from many scientists. For months, we struggled to agree on which safeguards should be used in the lab. We eventually published our recommendations in July 2015, and this year the US National Academy of Sciences released a report setting out how to conduct gene-drive research responsibly.

Should gene-drive information be classified?

Classifying such information would hinder beneficial applications and threaten biosecurity. We must know which species to monitor. Open science is the best defence and the best way to earn public support. ■

INTERVIEW BY VIJEE VENKATRAMAN

This interview has been edited for length and clarity.