Communicating your Research to a Broad Audience

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Who I am and how I got here

Science journalists come in many forms; they play many different functions in the knowledge ecosystem.

I am not a trained scientist. No PhD. or science research experience. Last formal training as an undergrad.

I am a journalist who finds science fascinating as a subject for articles, films, art and who believes promoting science is important to society.
Who I am and how I got here

Not only science. Also the people, processes and creativity that underlie the pursuit and progress of science.

In that sense, I’m much like my readers… hungry for STORIES!
Who I am and how I got here

This interest took me:

- to West Texas to document efforts to protect prairie dogs;
- into Newark high schools to study innovative approaches to science-learning;
- to Lake Okeechobee to report on the draining of the everglades;
- and to experimental forests where brain-eating flies were being introduced to control fire ant populations.

(In other words, pretty cool places.)
Who I am and how I got here

Flashback to 2007....

A Science Writer position was listed at the Texas Advanced Computing Center (TACC), based at The University of Texas at Austin

Knowing almost nothing about supercomputers, I applied and got the job. So began my CS/CI education....
Who I am and how I got here

What I didn’t know then but know now…. 

The National Science Foundation had insisted that TACC include a communications person as an add-on component to the “Ranger” supercomputer.

(Ranger was a $50 million system that our center had just competed for and won.)
Who I am and how I got here

**Ranger (and supercomputers in general) needed a publicist!**

Not to mention the computational scientists who used them.
Supercomputing Guy

For the last 7 years, worked as an embedded reporter at TACC

Represent the uses and significance of high performance computing (HPC) in 21st century science

Probably have written as many articles about scientific computing as anyone else during that time.
Going National

In Fall 2013, I started at NSF in Washington, D.C.

Will serve 1-3 years as a rotator in the Office of Legislative and Public Affairs

Computing, Information Science and Engineering (CISE) directorate is my beat.
Role in the ecosystem

Many names for what I do:

Public Affairs Specialist
Press Officer
Science Writer
Public Relations Coordinator
Public Information Officer
External Relations Manager
PR flack….

Or:
Science grunt/
Technical translator/
Knowledge infantryman
PR Guy

Stigma associated with PIO’s among journalists.

- “Not real reporting”
- “Hype”
- “Uninformed”

Yet... science journalism is in retreat among newspapers, magazines, TV stations.

Increasingly, news is drawn directly from PIOs. Growing sense of importance to health of science.
The Truth about Journalists

• **Fact:** Reporters don’t find out about the science they cover by reading journal articles
4 things you didn’t know about your press officer
(and why you should care)

1. Your PO writes for a living

2. His/her job is to tell the media about your work

3. Your PO has media contacts and dissemination tools you don’t have

4. This is the stage where you have the most control
Enough about me

Show of hands:
Who has been interviewed
(or had their research
covered) by the media?

How did it work out?
*Good experiences?*
*Bad experiences?*
Informal Communication Survey

Who blogs, tweets, pitches to reporters or their university press officer, writes op-eds or does public outreach or any kind about their research?

What do you do?
Why not communicate?

Fear and/or negative perspective of the media: “They’re going to misrepresent me!”
Some Common Concerns About Media Interaction . . . debunked

I’ll be misquoted / You can record the discussion, request a courtesy review, or if you’re dealing with something sensitive, you can reply with a carefully-worded email

I’ll be taken out of context / see above

I’ll look stupid (“peer sneer”) / If subject matter is outside your field of expertise, re-direct the reporter to another source

I’ll mistakenly contradict agency policies in print / Please don’t respond to a press query without calling your or your funding agency’s public affairs officer first. They’ll provide coaching, tips, even talking points if necessary (and we will be present at the interview if necessary, particularly television)

I’ll be hounded by the press / Press should go through our office first – we’ll work with you to schedule the interview

By preparing together, we can address and minimize these concerns
Media outreach

- Why do it?
- What to expect?
- Where to get help?
Media outreach

Why do it?
1) Because we owe it to taxpayers
Media outreach

NSF Broader Impacts Criteria

• 1. Advance discovery and learning
• 2. Broaden the participation of underrepresented groups
• 3. Enhance infrastructure for research and education

• **4. Disseminate results broadly**

• 5. Benefit society

The media can help.
Media outreach

Why do it?

2) Because journals ask you to

Press Release
Media outreach

Why do it?
3) Because the media needs you to

Once, 70 major American newspapers had science sections. Now, few do.

"Science is always the first thing that gets cut when times get tough."
-Ira Flatow, NPR
Need more reasons?

Communication is important to:

• **Research and business communities**  
  - spreading knowledge, connecting researchers/companies

• **Policy-makers**  
  - communicating value of federally funded research programs

• **General public**  
  - spreading knowledge, communicating value of computer science, etc.
Need more reasons?

**Benefits**
Working with journalists can provide accurate, informative updates about your research to stakeholders. Specifically, taking the time to work with journalists can help you:
Need more reasons?

**Reach a Wider Audience:** Journalists can help you reach the broader public, decision-makers, and grant-makers, not just those actively seeking information.

**Raise Awareness:** Consistent and accurate news coverage could increase public awareness of your work and of science in general.

**Create Positive Attitudes:** Bringing current successes and future goals of science to the attention of the public could help generate enthusiasm for research and support for funding.
Media outreach

We’ve talked about why.

But how?
Public scientists: a growing breed

Classic science communicators:
• Richard Feynman
• Carl Sagan
• Neil Degrasse Tyson
Public scientists: a growing breed

How about this guy:
The Dancing Scientist?
Public scientists: a growing breed

Or these folks...

An explosion in the number/多样性 of ways to be a public scientist.
Find your own way

• Lots of different ways to get your message out.

• Doesn’t have to be dramatic, time-consuming or silly.
What’s news? What’s not?

What the media are looking for in a story and why your work may be more newsworthy than you think...
What’s news? What’s not?

Publication of a scientific paper
Sometimes the secret is timing
What’s news? What’s not?

What is also (sometimes) news?

- A talk at a conference or meeting
- A patent or spin-off company
- Things that are just plain cool!
What (usually) ISN’T news?

Exhibit A: review papers

Exhibit B: white papers / policy papers
What (usually) ISN’T news?

Also (usually) not news:
• Grants, awards and fellowships
• New programs, centers, institutes, etc.
• Building dedications

Don’t assume what you’re working on isn’t newsworthy. Talk to your press officer. Lots of opportunities and outlets out there.
Know your audience

Communication is one of the most important aspects of science.

What is it that we human beings ultimately depend on? We depend on our words. We are suspended in language. Our task is to communicate experience and ideas to others.

-NIELS BOHR

Most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in a language comprehensible to everyone.

-ALBERT EINSTEIN
Know your audience

How you communicate depends on who/what you’re talking to/about:

• publishing research results in a peer-reviewed journal,
• talking to a reporter,
• interacting with students,
• or discussing your research with the public.

Respond appropriately!
Explaining your work in a quick & compelling way: a few tips

Dissertations are long and boring.

Brachiopods and Sponges- paraphyletic?
Still they just sit there

By contrast, everybody likes haiku.

http://dissertationhaiku.wordpress.com
When engaging larger audiences, brevity is key.

Here’s why:

- TV story = 80 seconds
- Radio story = 45 seconds
- Newspaper article = 400-600 words
- Undergraduate attention span = 10 min
When engaging larger audiences, brevity is key.

Say it simply

“But this is the simplified version for the general public.”
More tips

Try not to slide into incomprehensible jargon

Analogies are your friend

It’s ok to repeat yourself
Turn your writing upside down

Scientists and the public have different communication styles.

Scientists often start by placing research in a historical context, the public wants to know the point from the beginning.
Turn your writing upside down

• How do you translate detailed and complex material into a clear, streamlined structure?

• **What's the Point?** Start out by explaining the "big picture" and why the audience should care. Then go into an appropriate level of detail to emphasize your points.

• **3-Point Structure:** What are the three things you want your audience to remember? Organize your message around these points.
Radiographs Reveal Exceptional Forelimb Strength in the Sabertooth Cat, *Smilodon fatalis*

Julie A. Meachen-Samuels, Blaire Van Valkenburgh
Department of Ecology and Evolutionary Biology, University of California Los Angeles, Los Angeles, California, United States of America
Why you should never arm wrestle a saber-toothed tiger

X-ray analysis reveals that sabertooth forelimbs were exceptionally strong compared to their feline cousins.

Durham, NC — Saber-toothed cats may be best known for their supersized canines, but they also had exceptionally strong forelimbs for spinning prey before delivering the fatal bite, says a new study in the journal *PLOS ONE.*
But be careful not to go to far

- On the flip side – the Coburn Wastebook

- Don’t get too cute (or let your communications person get too cute)

- Careful consideration of your wording is critical!
CS/CI specific challenges

Ideas in computer science, cyber-infrastructure and related fields can be abstract and difficult to visualize.

```c
void CMyC28CView::OnTestSpaceship()
{
    // TODO: Add your command handler code here
    CISID cObj;
    LPCCLASSFACTORY pClif;
    IUNKNOWN pUnk;
    IMotion* pMot;
    IVisual* pVis;

    HRESULT hr;
    if ((hr = ::CISIDFromProgID(L"Spaceship", &cObj)) != NOERROR)
    {
        TRACE("unable to find ProgID -- error = %x\n", hr);
        return;
    }
    if ((hr = ::CoGetClassObject(cObj, CLSCTX_INPROC_SERVER, NULL, IID_IClassFactory,
        (void**) &pClif)) != NOERROR)
    {
        TRACE("unable to find CISID -- error = %x\n", hr);
        return;
    }
    pClif->CreateInstance(NULL, IID_IVUnknown, (void**) &pUnk);
    pUnk->QueryInterface(IID_IMotion, (void**) &pMot); // all three
    pMot->QueryInterface(IID_IVisual, (void**) &pVis); // pointers
    TRACE("main: pUnk = %p, pMot = %p, pVis = %p\n", pUnk, pMot, pVis);
    // Test all the interface virtual functions
    pMot->FLy();
    int nPos = pMot->GetPosition();
    TRACE("nPos = %d\n", nPos);
    pVis->Display();
    pClif->Release();
    pUnk->Release();
    pMot->Release();
    pVis->Release();
    AfxMessageBox("Test succeeded. See Debug window for output.");
}
```
Show and Tell

- As much as possible, connect to tangible, real-world activities.
- Try to find angles, images and approaches that resonate with the public.
Make connections to the broader context

Fundamental research in IT underpins the creation of billion-dollar-plus IT market segments and a vital U.S. IT industry through a complex partnership between universities, industry, and government.

The first version of this figure was published in the 1995 report Evolving the High Performance Computing and Communications Initiative to Support the Nation’s Information Infrastructure. The original figure, which was updated in 2002 and 2003, dispelled the assumption that the commercially successful IT industry is self-sufficient. It underscored the extent to which industry instead builds on government-funded university research—sometimes through long incubation periods of years and even decades.

As illustrated in this figure from the 2012 report Continuing Innovation in Information Technology, computing research and its impacts have since continued to evolve and blossom. The figure illustrates how fundamental research in IT, conducted in industry and universities, has led to the introduction of entirely new product categories that ultimately became billion-dollar industries. It reflects a complex research environment in which concurrent advances in multiple subfields have been mutually reinforcing, stimulating and enabling one another and leading to vibrant, innovative industries exemplified by top-performing U.S. firms. Such research often starts as a search for fundamental knowledge but time and again produces practical technologies that enable significant economic impact.

The gray lines illustrate the rich interplay between academic research, industry research, and products and indicate the cross-fertilization resulting from multi-directional flows of...
Getting better all the time

How do you communicate so that individuals outside your field can understand the meaning?

• **Experiment:** Try out language on friends, families and colleagues who do not hold the same technical background as you

• **Learn from Others:** Actively read and follow other successful science communicators in your field to help expand the terms and analogies you can use that work with public audiences.

• **Trial and Error:** Learn from your experiences and take the chance to adjust your word choices when you notice situations where communication hasn't gone as well as you had hoped.
What do I do when a reporter calls?

Give yourself time and consider consulting with NSF on how best to respond. Say, “Thanks for calling, but you’ve caught me in the middle of something. If you give me a sense of your topic and deadline, I’d be happy to get back to you.

Call your press officer or public information officer.

Never give an interview for which you aren’t prepared NEVER speak “off-the-record.”
The “Off the Record” Myth

There is no universally accepted definition of what “off the record” means. It means what the reporter thinks it means.

Assume that anything and everything you say to a reporter is ON the record.

You cannot “take back” something that you already have said in an interview.

Never say anything you would not wish to see mentioned on CNN.

The Bottom line: Never speak “off-the-record.”
Questions you might be asked

• Big picture: So what? Why should we care?

• Can you think of any good analogies?

• Do you have any images we could use?

• What’s next?

• Is there anything that I haven’t asked that you’d like to comment on?
Remember: *An interview is strictly business*

While keeping it friendly, the interview is not a good venue for chit chat. You are always on the record.

Don’t repeat negative questions or comments. Speak clearly and help the reporter understand the issue. This is no place for emotional arguments, lectures, or other forms of debating or cajoling.

And finally, deadlines are tight, and reporters need all the time they can get to prepare an accurate story. Be brief.
More tips

Got a paper in review?
Think it’s likely to be accepted?

Contact your press officer/public information officer (yes, you have one)
You’re not in it alone

Seek out someone like me in your department, at your university, or at any organization that played a role in your work.

Have a conversation.
Tell them what you’re working on and what your research roadmap looks like. See where there may be opportunities for promotion.
Call me too

Or better yet, contact ME, your friendly neighborhood NSF public affairs specialist!

I’m here to work with you on any NSF-related promotions.
(And to consult on non-NSF research too.)
More tips

Timing is everything

Alert your press officer to papers in the pipeline. At acceptance works best.
Not just one way

News releases are not always the best or only means to communicate.

Video, social media, citizen science applications, creative storytelling… the sky’s the limit!
Recap

Why?
• Because NSF/taxpayers want you to
• Because journals ask you to
• Because the media and the public need you to

How?
• Say it simply
• Don’t use jargon
• Do use analogies, similes, metaphors
• Contact your press officer

When?
• Before publication is best
Practice makes perfect

Interactive exercise:
Elevator pitch OR research statement for media.

• Take 3 minutes to draft a quick elevator pitch or 3-part statement that describes the key aspects of your research.

• Imagine yourself talking to a reporter, someone at a cocktail party or the director of the NSF.

• What would you say? Write it down.
Now you!

• Pair up with someone sitting next to/near you.
• Take a moment to go over your notes and then, without looking at the paper, deliver your elevator pitch.
• Partner: ask 1 or 2 follow-up questions from the perspective of a non-specialist.
• Offer one compliment and one constructive criticism of the pitch.
• Reverse roles. Repeat.
Thanks for listening!
If there’s time, let’s have a discussion about how your research can reach a broader audience (or whether you want it to).

I’ll be available this evening and tomorrow if anyone would like a 1-on-1 media relations consultation.
Contact information

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