Public Communication for Researchers
PCR builds communication workshops

- Talking to the Media Workshop
- Interview Workshop
- Telling Science Stories
- Communicating Science with Theatre Techniques
- 3 Minute Thesis Workshop
- Why are FACTS not enough?
- The Art of Argument
- Scientific writing
PCR runs events to practice communication

5 CMU students
26,000 downloads
PCR runs events to practice communication

Students workshop science writing once a week

Some articles get 200-300 views
Past seminars

Fall 2012

**So you want to be a Science Communicator**

Explaining science to the general public is not a matter of dumbing it down; it is a greater challenge to reach someone when you don't share a common background. In this workshop we discussed challenges and strategies for how to set appropriate goals in your communication, adapt to your audience's background, spot and untangle their misconceptions, and explain science in a way that's accessible and engaging.

[slides] [video] [more info]

**Telling Science Stories**

How do you make scientific ideas compelling? Even if your message is true and important, it's hard to reach a general audience with facts alone. Stories are memorable – stories have the power to captivate and inspire high school students, busy parents, and members of Congress. In this workshop we examined storytelling techniques of professional journalists and the NPR podcast Radiolab. We also practiced composing a narrative about discovery.

[storytelling techniques] [Radiolab examples] [video] [more info]

**Talking to The Media**

Television, newspaper, radio and podcasts are key channels to explain why your work matters and put a personal face to science. Interviewing requires more than just distilling your message into soundbites: you also have to improvise, tell a story that's personal and emotional, and all while under pressure. Anybody who speaks publicly should be prepared to respond to a journalist's questions.

[more info]
You can get more out of PCR

Website: CMU.edu/student-org/PCR
Facebook: Facebook.com/PCRCmu
Twitter: @PCRCmu
Mailing list: tinyurl.com/PCR-announce
In person: Talk to us!
Blog: ScienceNonFiction.org
Volume Regularization for Binary Classification

Koby Crammer    Tal Wagner

Number of wins of BoW vs SVM on all 45 pairs of USPS data-set

- BoW-S
- SVM
- TIE

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<th>Training Label Error</th>
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BoW-S outperforms SVM on noisy data
BoW-S outperforms SVM on noisy data

# of wins out of 45

Training label error

BoW-S

SVM

Tie
Distill your message
(see the duck)
Causal relations represent a significant fraction of the intermediate-level semantics of a text. To assist with downstream semantic processing, I am defining an annotation scheme for the causal relations that are expressed by a text, including such attributes as the degree/polarity and the type of causation.

I am working with annotators to build a small annotated corpus, which will serve to validate the representation. I am also building a machine learning system that will be trained and tested on this corpus.

The system will use a variety of features, particularly TRex patterns on the dependency parse of the sentence, to identify and classify unseen instances of causal relations.
You’re struggling to express the big picture
Your job is to decide what big picture you’re conveying
Argentina played another great game last night against Brazil — the last game in Group C. In the first half, Brazil maintained the majority of the possession, but got few clear looks on goal.

With under 5 minutes to half-time, a long ball was sent towards the Brazilian center back, who misplayed the ball. As the ball skipped behind him, the Argentinian center forward was able to gather it for a 1v1 with the keeper. The result was a 1-0 lead for the Argentina.

In the second half, Brazil struggled to keep possession of the ball. The Argentinian midfielders were able to stop any clear looks, preserving the shutout and advancing their team to the knockout stages.
You need to:

Identify the **big picture**

Focus explicitly on the **meaning**
Focus on the meaning, not the details

“Argentina played the last game in Group C.

“This was the decisive game.

“Brazil maintained the majority of the possession…

“Brazil seemed to be in control.

“the Argentinian center forward was able to gather it for a 1v1 with the keeper.”

“…which an Argentinian player exploited to circumvent Brazil’s defenses.”
You need to:

Identify the big picture

Focus explicitly on the meaning

Eliminate whatever doesn’t support the big picture
The big picture is a compelling story
This was the decisive game in qualifying rounds, a tense encounter between Argentina and Brazil. For the first half of the game, Brazil seemed to be running the show. But halfway through, the Brazilians made a mistake, which an Argentinian player exploited to circumvent Brazil’s defenses and pull into the lead. The Brazilians never recovered: the Argentinian team then kept up their own defenses for the rest of the game, and ultimately won the game!
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A compelling story has

- Clear stakes
- Difficult obstacles
- Ingenious solution

Outcome: obstacles resolved
A compelling research story has

- Clear stakes: problem you’re trying to solve
- Difficult obstacles: why it’s difficult
- Ingenious solution: your approach
- Outcome: obstacles resolved: research results
Start with the **stakes** why are you telling me this?

Long-term impact
Why do you care?
x, but y.
Negative space
It would take you 20 years to read the articles we publish online every day. The only way we’ll be able to harness this information overload is if our computers can help us extract the key information—but even state-of-the-art software can interpret only the simplest English statements. As a first step toward more sophisticated interpretation, I’m building a system to extract one of the most common and useful types of information: statements about cause and effect (e.g., “smoking leads to cancer”). To teach the system what such expressions look like, I am first building a collection of documents in which humans have manually flagged and analyzed cause-and-effect language. From these documents, the system will learn to extract different kinds of cause-and-effect language, ultimately allowing us to see at a glance the key arguments being made.
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Your turn
Distill your message

(see the duck)
Explain your message
(show the duck)
The Diffie-Hellman-Merkle Key Exchange
Signpost their structure

Overview
• “A new problem emerged”
• “First, let's explore how this trick is done using colors”
• “The trick is based on two facts”
• “The reverse procedure is hard.”

Transition
• “One… And two…”
• “And that is the trick.”
• “now to do this with numbers…”

Summarize
• “This is the basis for a lock: easy in one direction, hard in the reverse direction.
• So we say 46 mod 12≡10. Easy.
• And now we have our 1 way function.

Flag
• “And now, the heart of the trick…”
Signpost their structure
Overview  Transition  Summarize  Flag

Tell a story
Characters  Goals  Stakes

Motivate each point
Leave out details you can’t motivate

Build from familiar to unfamiliar
Focus on meaning, not details
Come up with a metaphor for your work
Viruses that infect Bacteria
Explain your message
(show the duck)
Distill your message  Explain your message
Register at: http://www.cmu.edu/student-org/pcr
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