

*I originally made these
for Young NOvA tutorials
but the general advice is
broadly applicable.*

How to present your work

Fernanda Psihas

Focus on talks and presentations.

***Main pointers of making slides and
presenting information.***

***General guidelines + my own views +
advice from people “in the know”***

A necessary skill

Most of us have no formal training on how to present our work. However, this is a skill we need to develop to successfully:

- Update supervisors on your work
- Get the public interested in science
- Informing the community of scientific results
- Successful collaboration
- Getting high-profile talks
- Getting funding
- Getting your next job

Your goal is

to **communicate**

a **message**

to your **audience**

You want your audience to:

Receive your message.

Remember your message.

Appreciate your talk.

"I saw this talk earlier about X and learned Y..."

"I saw this plot on a talk yesterday that made me think about..."

You do NOT want your audience to:

Become disinterested in your message.

Forget your message.

Misunderstand/misinterpret your message.

Be bored.

"What is this talk about?"

"Why are you telling me this?"

"What is this plot showing?"

"What did the blue line mean?"

"When does this talk end?"

*Connect with
the audience*

*Spark
interest*

*Build
trust*

*Communicate
efficiently*

You will...

*Connect with
the audience*

*Spark
interest*

*Build
trust*

*Communicate
efficiently*

By simply being...

Kind

Considerate

Thoughtful

Professional

Responsible

Yourself

What we will cover

General Strategies

Pointers for good slides

NOvA talks rules and tips

Public speaking tips

Handling questions

Public lectures

Interview talks

Dissertation talk

Seminars

Colloquia

Conference Talks

Practice Talks

Collaboration meeting talks

Working group updates

START HERE

*Who is
your audience?*

*What is
your message?*

*What is
the context?*

*Who are you
representing?*

*How long
do you have?*

How much knowledge can you assume?

Live audience: Remote or in-person.

Future audience: Recording or slides.

What is your audience interested in?

Is your audience likely attentive? bored? excited?
skeptical?

Your audience is the most important factor in how to build your talk

START HERE

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your audience?*

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your message?*

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the context?*

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representing?*

*How long
do you have?*

What is your conclusion?
(objective, quantitative)

What are the 2-3 things your audience will remember?
(simple sentences)

What non-essential things would you like your
audience to remember?

What do you absolutely NEED to introduce?

The talk you WANT to give is not always the best this talk CAN be

START HERE

*Who is
your audience?*

*What is
your message?*

*What is
the context?*

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representing?*

*How long
do you have?*

What is the topic of the meeting/session/conference?

What came immediately before your talk and what comes after?

Is this the first talk of the day? The last talk before lunch?

How much overlap in content do you expect in the same session? day? audience expertise?

START HERE

*Who is
your audience?*

*What is
your message?*

*What is
the context?*

*Who are you
representing?*

*How long
do you have?*

This is very coupled with audience and context, but it must define the emphasis of what your message is and the details of how to present it.

You are always representing someone:

NOvA, your institution, yourself, neutrino experiments, particle physics, your university group, your working group, etc.

Figure out in what order and why those matter for this talk.

This is important for many reasons. Think about logos, photos, acknowledgements, etc. but also message, content, conclusions.

START HERE

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your audience?*

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your message?*

*What is
the context?*

*Who are you
representing?*

*How long
do you have?*

Very coupled with the message and depth of the content that you can get into.

Short time: Focus on main points rather than fast delivery.

LOOK OUT: for audience getting lost, missing crucial information, running over time.

Long time: Think carefully about what interests your audience. Craft your story carefully, making sure that everything you say has a purpose.

LOOK OUT: for your audience getting bored, disconnected ideas, rambling, unnecessary detail.

*If you have
answers to...*

*Who is
your audience?*

*What is
your message?*

*What is
the context?*

*Who are you
representing?*

*How long
do you have?*

***NOW you can
start making
your talk.***

Public Lectures

*Who is
your audience?*

General public

*What is
your message?*

Science is cool

*What is
the context?*

Highschool kids?

Fermilab fans?

*Who are you
representing?*

SCIENTISTS

*How long
do you have?*

Varies

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Dissertation talk

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Working grp. updates

TIPS

*Dress smart
but relatable*

*Use almost
zero text*

*Use real-life
examples*

Appear human

Appear human

*Use simple
language*

Be very excited

Interview Talks

*Who is
your audience?*

A committee or a seminar audience

*What is
your message?*

This is what I have worked on and why it is important. I am an expert on this.

*What is
the context?*

What kind of job are you applying to?
What does your competition look like?

*Who are you
representing?*

Mostly yourself, but also your collaborators
and your institution.

*How long
do you have?*

Usually around 45-50 minutes

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TIPS *Dress as smart
as you are
comfortable with*

*Do not include ANYTHING
you can not explain*

Give yourself credit

Be excited

Give others credit

*Insert photos of
yourself doing things*

*Structure your talk in a way that
highlights your work*

Dissertation Talks

*Who is
your audience?*

—

*What is
your message?*

This is what I have worked on and why it is important. I am NOW an expert on this.

*What is
the context?*

You're graduating, it's great!
Context can vary a lot by institution so ask

*Who are you
representing?*

Mostly yourself, but also your collaborators
and your advisor (who is also in the audience).

*How long
do you have?*

Typically ~1 hr TOTAL

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Dress smart

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you can not explain*

Give yourself credit

Be excited

Give others credit

*Insert photos of
yourself doing things*

*Structure your talk in a way that
highlights your work*

Seminars

*Who is
your audience?*

Usually the part of a physics department who might care about what you are showing.

*What is
your message?*

Focused mostly on the result/technique you are showing.

*What is
the context?*

Do you know the audience? Do any of the audience members work on a similar thing?

*Who are you
representing?*

Your collaborators, your area of research, and your institution.

*How long
do you have?*

Typically ~1 hr TOTAL

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TIPS

Dress smart

Give yourself credit

Give others credit

Colloquia

*Who is
your audience?*

The whole physics department, usually

*What is
your message?*

Focused mostly on educating young physicist and less on the result/technique you are showing, **but you need to get to it.**

*What is
the context?*

—

*Who are you
representing?*

Your area of research, your institution, and your collaborators.

*How long
do you have?*

Typically ~1 hr TOTAL

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TIPS

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Be excited

Conference Talks

*Who is
your audience?*

Large conference?
Parallel session?

*What is
your message?*

Focused mostly on the result/technique you
are showing.

*What is
the context?*

—

*Who are you
representing?*

Your collaborators, your institution, and your
area of research.

*How long
do you have?*

Varies from 10 to 30 minutes

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Dress smart

Be excited

Practice Talks

*Who is
your audience?*

Your supervisors/collaborators

*What is
your message?*

—

*What is
the context?*

Other practice talks for the same event, etc.

*Who are you
representing?*

Mostly yourself

*How long
do you have?*

2 x your talk length

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Be excited

Collaboration Meeting Talks

*Who is
your audience?*

All collaborators, whether they work on something related or not

*What is
your message?*

Show your progress, get feedback

*What is
the context?*

—

*Who are you
representing?*

Your working group and your project.

*How long
do you have?*

Varies, but ~15 min

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Working grp. updates

TIPS

Dress smart

Be excited

Working Group Updates

*Who is
your audience?*

Not just conveners but everyone who needs
to understand your work

*What is
your message?*

Show your progress, get feedback

*What is
the context?*

—

*Who are you
representing?*

Your project and your local group

*How long
do you have?*

Varies, but ~15 min

Public lectures

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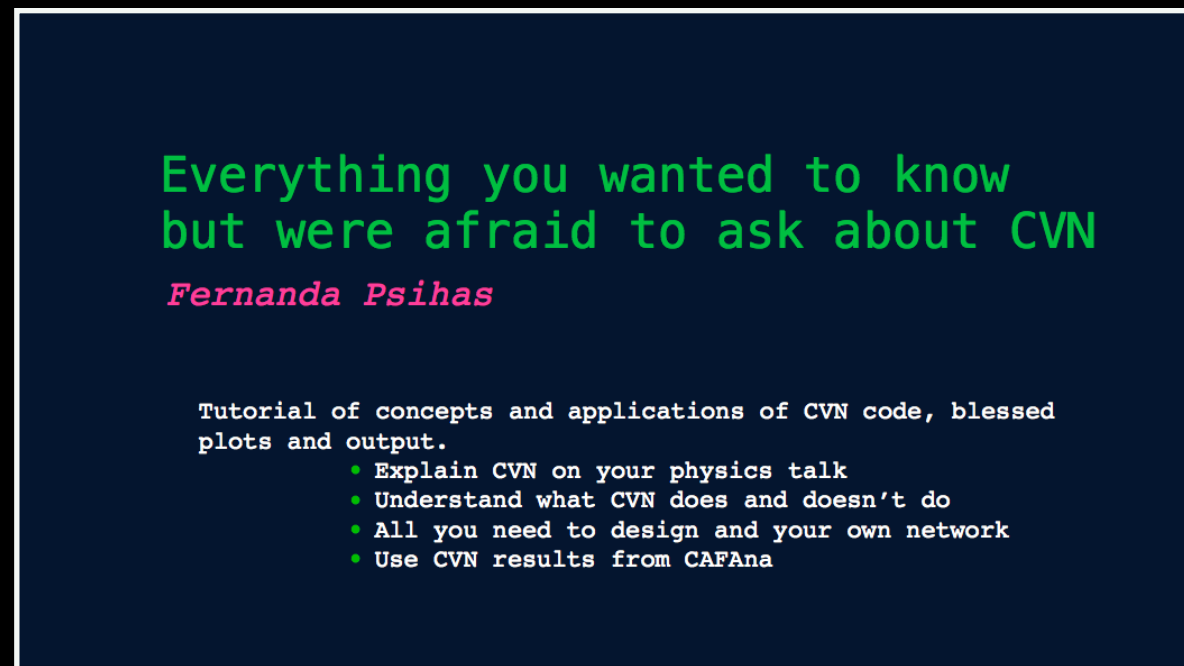
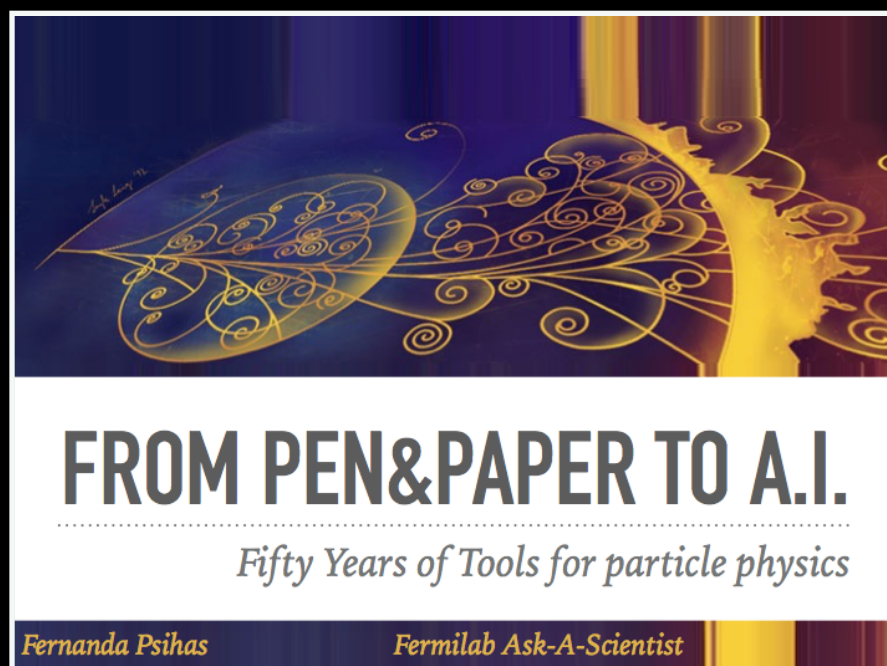
Collab. meeting talks

Working grp. updates

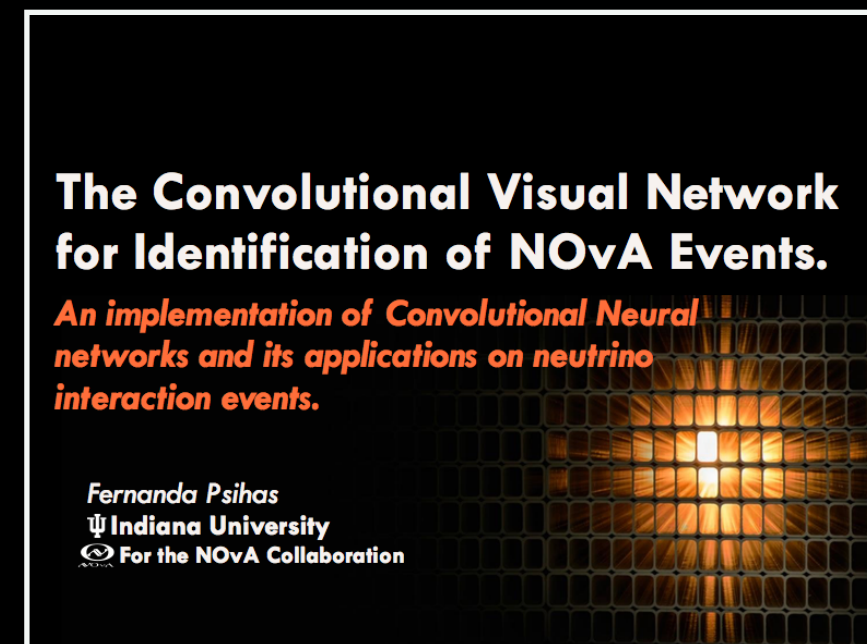
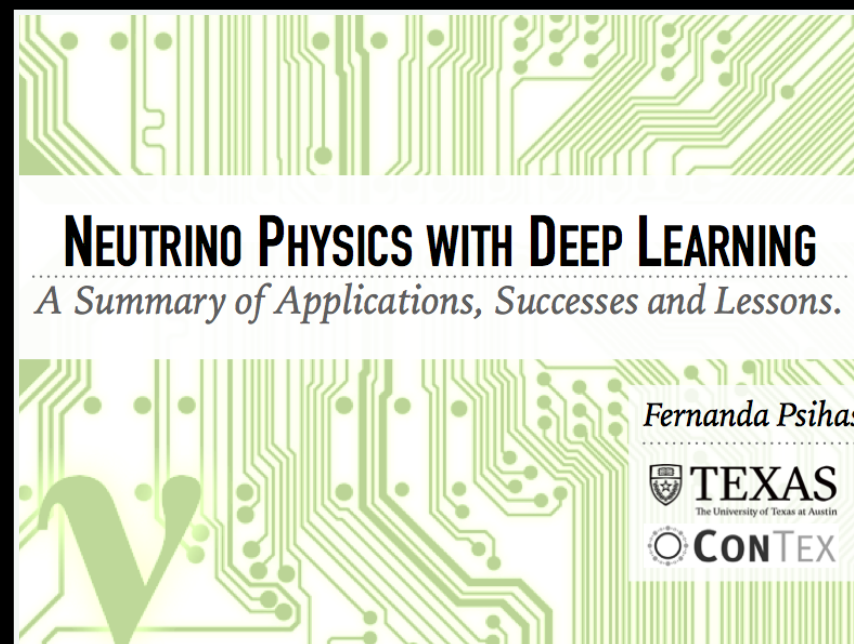
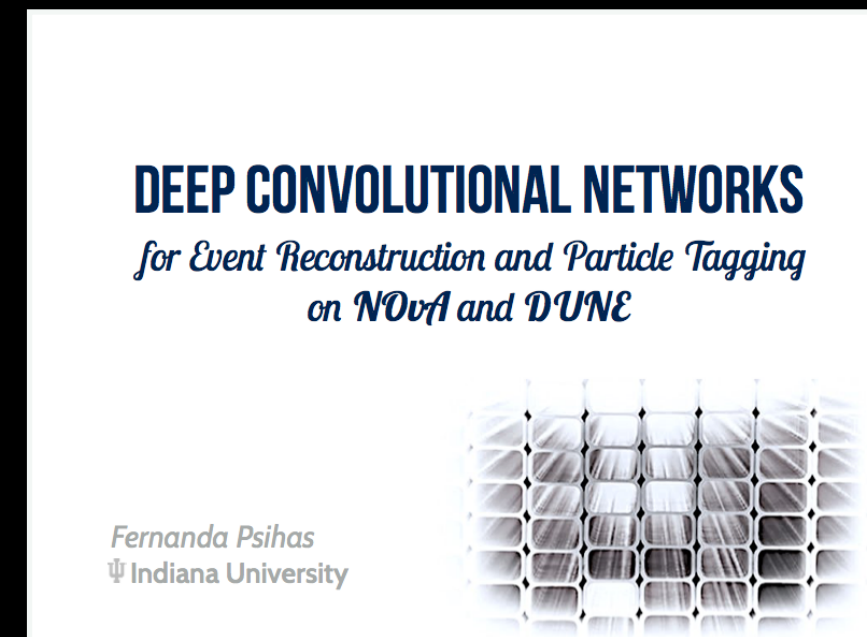
TIPS

Dress smart

Be excited

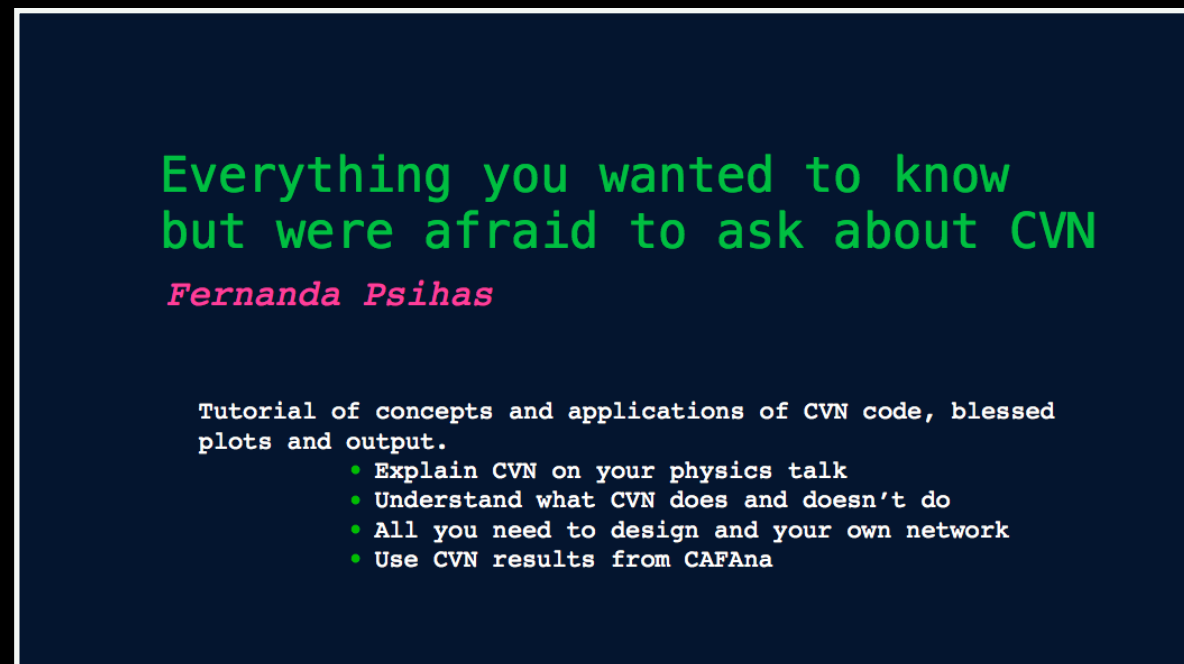


A few examples of talks with similar **content** but different **audience** and **message**...





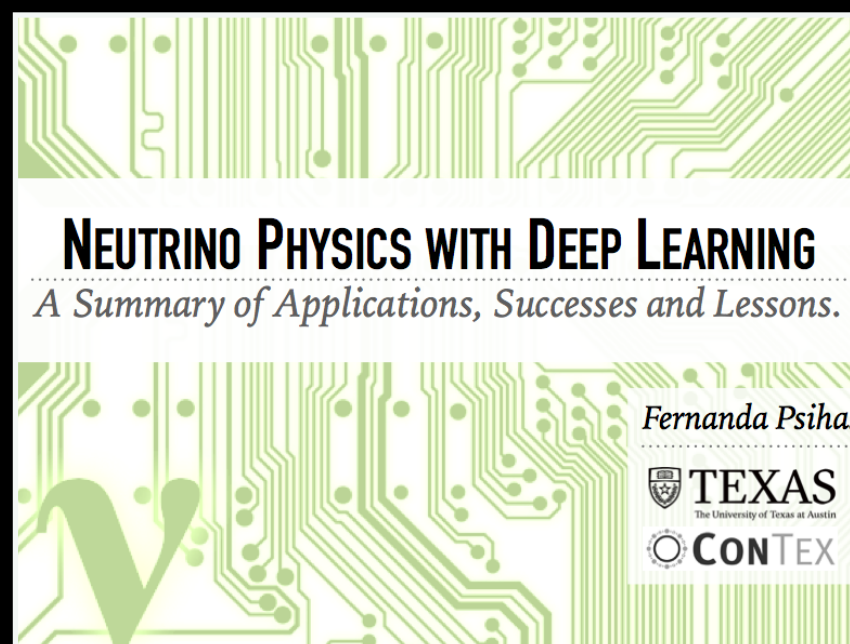
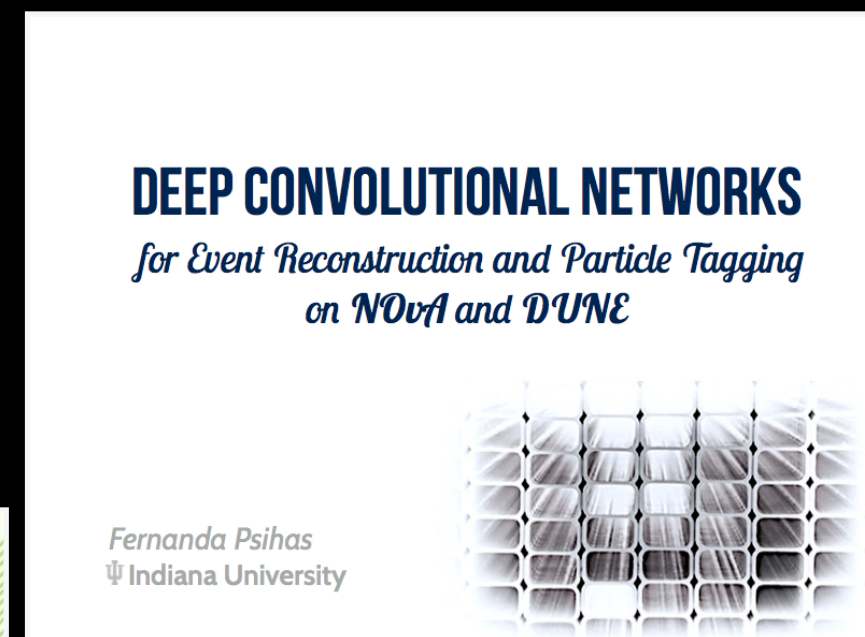
Fermilab Ask A Scientist
(Public outreach)



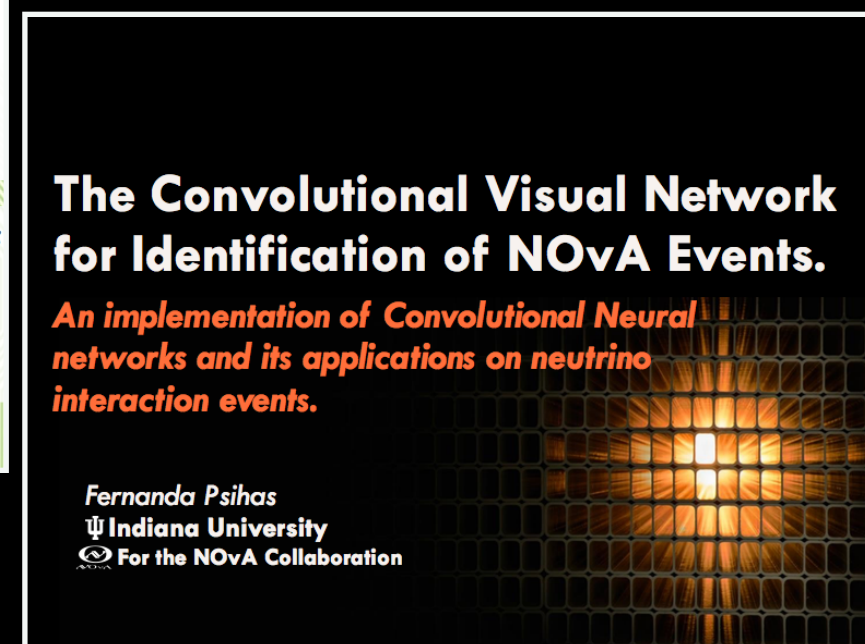
CERN Inter-experimental
ML group

Mexican Physical Society,
Division of Particles and Fields

At the crossroads between
physics and ML



CHEP





The unforgivables....

Text-to-image ratio

Ask yourself “Is there too much text here?”. The answer is often YES

What is the purpose of text on slides?

- Visual reference for offline (and those who aren't quite listening)
- Remind you what you want to say.
REMIND, NOT DICTATE!
- Important highlights

How set in stone are the project's and movement's names at this point? To grow faster, the movement needs to make a good first impression, taking advantage of anyone's fleeting first exposure to it so a person will want to learn more and believe it could actually offer a possible real solution or they won't bother. But this name, "The Venus Project", rather than encouraging one to listen with an open mind could cause one's antennae to go up, waiting for the crazy, not realistic, 'out of this world' part. I'm guessing the Venus in the Venus Project comes from Jacques being in Venus, Florida, but to any newbie "Venus" means something "out there" on other planet, and I think that makes an easily avoidable bad first impression. The "Venus Project" name doesn't sound serious to me, it sounds childish. Also the name of the movement, "Zeitgeist", is not only needlessly non-self-descriptive (we're wasting valuable exposure time with a mysterious name - losing the opportunity that on each occasion when the name of the organization is mentioned, that in itself could be sending an introduction to a new idea, like if the name were "Technology Solves All Movement for a sloppy example), but it will also forever tie the movement to what some will call the conspiracy stuff (9/11, religion, etc.) because of your identically named movie Zeitgeist, and this will only distract and alienate from the RBE prize. I was in the 9/11 Truth Movement and saw up front & personal so many who had an instinctively negative visceral reaction to any suggestion that 9/11 was an inside job, that they would hear no more. Also, why alienate those with strong beliefs in their religion? Is it really necessary for us to first convince everyone they've been lied to about everything their whole life before introducing a sane alternative to a profit based society when there are no good jobs anymore even in the first world? People are desperate for an alternative and these other things I think are unhelpful distractions to a beginner's introduction to the possibility of another way. Activists for a new system won't get so many bites at the mainstream media exposure apple that we can afford to squander any by tying a hand behind our back with unimportant inconsequential stuff like names and logos. Perhaps if we eliminate these easily changed hurdles, the movement will grow faster and have less fuck and debunking charges to respond to. Trust me, I know that responding to 9/11 debunking charges is a full time job in itself, it's a rabbit hole. Unless we get away from the Zeitgeist movie name, we will be linked to the what people call the 'conspiracy' stuff. Of course, this suggestion should not in anyway detract from your contribution, Peter. You actually created the movement, right? and probably lots of us learned of BECAUSE of your movie's addressing of the 'conspiracy' stuff. This is truly only a request for a superficial and easily made change to de-link the V.P. and a R.B.E. with the unrelated items others deem conspiracy and/or non-positive theories. I say easily made because people's flyers, dvd sleeves, logos, stuff that is printed when needed, can be changed digitally on computers through existing technology generally available to those who print the stuff (just retyping, or simple editing, right?) and there are stockpiles of stuff with the current names on it that would be wasted I assume? Thanks in advance for your consideration, and please also address whom you think such a decision as to the movement's name should be made.

descriptive (we're wasting valuable exposure time with a mysterious name - losing the opportunity that on each occasion when the name of the organization is mentioned, that in itself could be sending an introduction to a new idea, like if the name were "Technology Solves All Movement for a sloppy example), but it will also forever tie the movement to what some will call the conspiracy stuff (9/11, religion, etc.) because of your identically named movie Zeitgeist, and this will only distract and alienate from the RBE prize. I was in the 9/11 Truth Movement and saw up front & personal so many who had an instinctively negative visceral reaction to any suggestion that 9/11 was an inside job, that they would hear no more. Also, why alienate those with strong beliefs in their religion? Is it really necessary for us to first convince everyone they've been lied to about everything their whole life before introducing a sane alternative to a profit based society when there are no good jobs anymore even in the first world? People are desperate for an alternative and these other things I think are unhelpful distractions to a beginner's introduction to the possibility of another way. Activists for a new system won't get so many bites at the mainstream media exposure apple that we can afford to squander any by tying a hand behind our back with unimportant inconsequential stuff like names and logos. Perhaps if we eliminate these easily changed hurdles, the movement will grow faster and have less fuck and debunking charges to respond to. Trust me, I know that responding to 9/11 debunking charges is a full time job in itself, it's a rabbit hole. Unless we get away from the Zeitgeist movie name, we will be linked to the what people call the 'conspiracy' stuff. Of course, this suggestion should not in anyway detract from your contribution, Peter. You actually created the movement, right? and probably lots of us learned of BECAUSE of your movie's addressing of the 'conspiracy' stuff. This is truly only a request for a superficial and easily made change to de-link the V.P. and a R.B.E. with the unrelated items others deem conspiracy and/or non-positive theories. I say easily made because people's flyers, dvd sleeves, logos, stuff that is printed when needed, can be changed digitally on computers through existing technology generally available to those who print the stuff (just retyping, or simple editing, right?) and there are stockpiles of stuff with the current names on it that would be wasted I assume? Thanks in advance for your consideration, and please also address whom you think such a decision as to the movement's name should be made.



What is the right amount of text?

As little as possible.

The unforgivables....

Have a title slide

Number your slides

Plot axes and labels

*Title every axis on every plot you EVER show.
When showing multiple similar plots, label their
differences clearly and consistently.*

Not citing or crediting people/organizations

The unforgivables...



Phrase everything carefully

If you use a term, you MUST understand it.

*Avoid colloquial use of technical terms.
(do not assume expertise but assume expertise)*

In general, be literal and accurate.

Calibrate your language to your audience!

Title correctly

Other general pointers

Bold

Medium

Regular

Thin

Light

Ultralight

Have an abstract on your title slide.

Use the time your title slide will be up for more than waiting.

Be mindful of your text-to-image ratio.

Use font weights to highlight, separate, and distribute content.

Use consistent formatting on every slide

Insert visual breaks.

Especially during long talks and talks with multiple topics

Pointers on using color



Use color to convey meaning.

Highlights, labels, notes, your own color scheme.

Use plot colors consistently as much as possible.

Use slide transitions and plot placement to tell a story.

Use colors that reasonably match

Check out <https://colors.co/> for ideas.

Colors and style are not vane! They aide your audience, guide their eyes, and aides communication.

Avoid low contrast images and light colors which might not be readable on a projector.

More tips on style choices

Look at other slides, see what you like and what helps deliver the message.

Use appropriate text size.

Alignment: Guides your eye and determines hierarchy.

Colors: Consider limiting color usage to serve a purpose.

Space: Use it hierarchically and efficiently.

Style is not just about “pretty” it’s about efficiency to communicate

Presenting your slides

DO NOT IMPROVISE

Do I need to practice?

YES

How many times?

*As many times as you can.
(At least 3)*

Practice transitions, they are especially important.

Be disciplined

Read your audience

Be personable

NOvA Practice talks

If you give a NOvA talk, you are **REQUIRED** to give a practice talk at least 1 week before your talk.

This is a serious requirement. Please treat it as such.

Practice talks also demonstrate your knowledge to your fellow collaborators.

Attending practice talks is an excellent way to contribute to how we present results as a collaboration.

Practice talks are where I learned the best practices and how to present our experiment and our results.

My own pet-peeves and advice



kBlue and kRed

Skipping slides

Excessive laser pointer

Reading your own name out loud

Outlines when not necessary

Not explaining plots

Low resolution images

Comic Sans

Reading most of the text

Using acronyms without introducing them

Not looking at your audience

Monotone

Dismissing questions

Ambiguous language like “mostly” or “basically”

My own pet-peeves and advice

*Not giving
people
credit*

*Not
being
truthful*

Always remember that your presentations say something about your scientific integrity

What you think your talks say about YOU?

Am I knowledgeable?

Am I able?

What your talks REALLY say about YOU?

Do I understand my analysis?

Am I knowledgeable?

*Am I a trustworthy
source of information?*

Is my result correct?

Am I able?

Am I articulate?

*Am I someone you
want to work with?*

Do I have scientific integrity?

*Am I someone you would
want to work with?*

*Would I be good
at teaching?*

Handling questions

Handling questions begins when you are making your talk.

Make a list of backups as you are writing your talk

YOU control most questions that get asked during your talk.

Questions are based on the content on the talk.

Questions are directed at your TALK, not YOU

Questions are usually motivated by general curiosity WAY more often than intending to make you stumble.

Sometimes, questions are trying to make a point. Try to catch that and respond appropriately.

Tips on how to handle questions



Be polite

Be respectful

Be appreciative of the question

Do not be nervous

Use backups IF and WHEN they are necessary

Be truthful

Be accurate

Be clear about answers you know and answers you are trying to make sense of.

Tips for the day of your talk

Check your slides on a projector if possible.

Aim to not be surprised. Be prepared for eventualities.

Get enough sleep, food, water, etc.

Know what you are going to wear

SMILE

Good public speaking is a skill. Be confident in that every talk is just one more opportunity to practice it.

Content tips and good practice

Tell a story

Don't say too much

Making your sentences short & to the point.

Add context, point to resources.

Try to factorize content into sections that people can focus on.

Don't cram too much in, but don't shy away from technical details.

Assume no previous knowledge, but don't explain every detail.

Don't forget!

Thank yous!

Logos.

References.

QR codes/links