Giving Great Technical Talks

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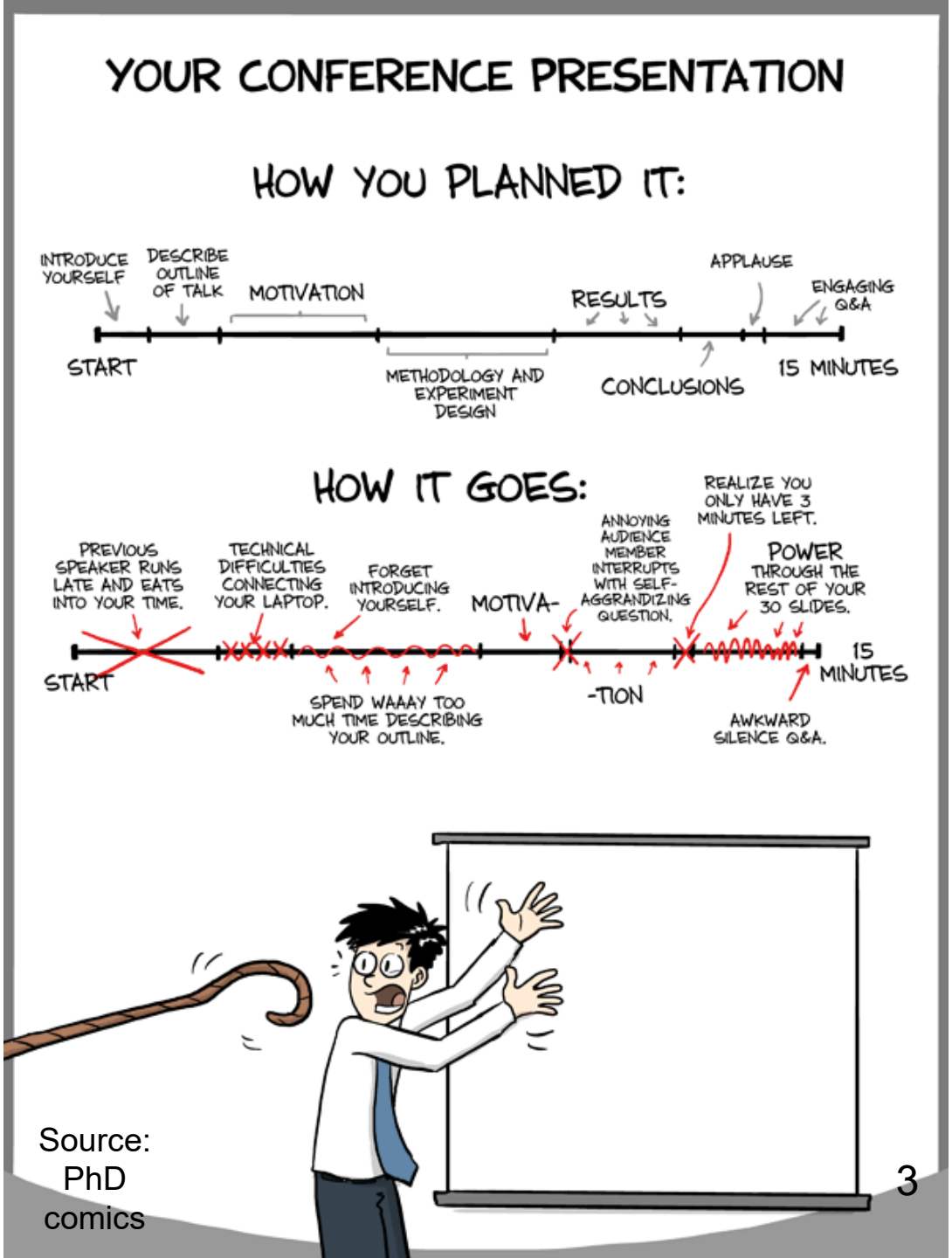
Outline

- Motivation
- Preparing your talk
- Making the slides
- Giving the talk
- Afterwards

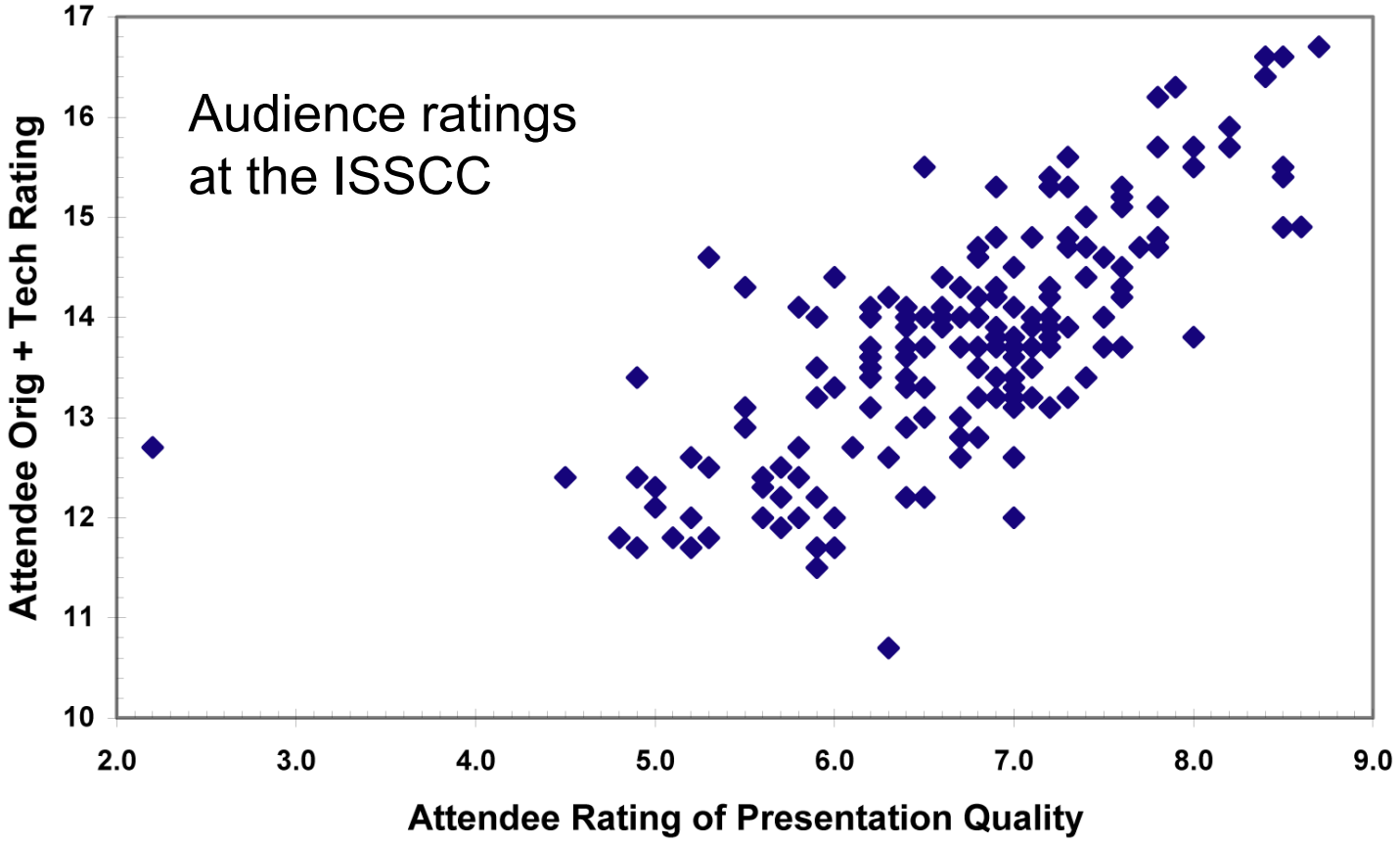
Motivation

- Because things can go wrong!



Source: PhD comics

Motivation



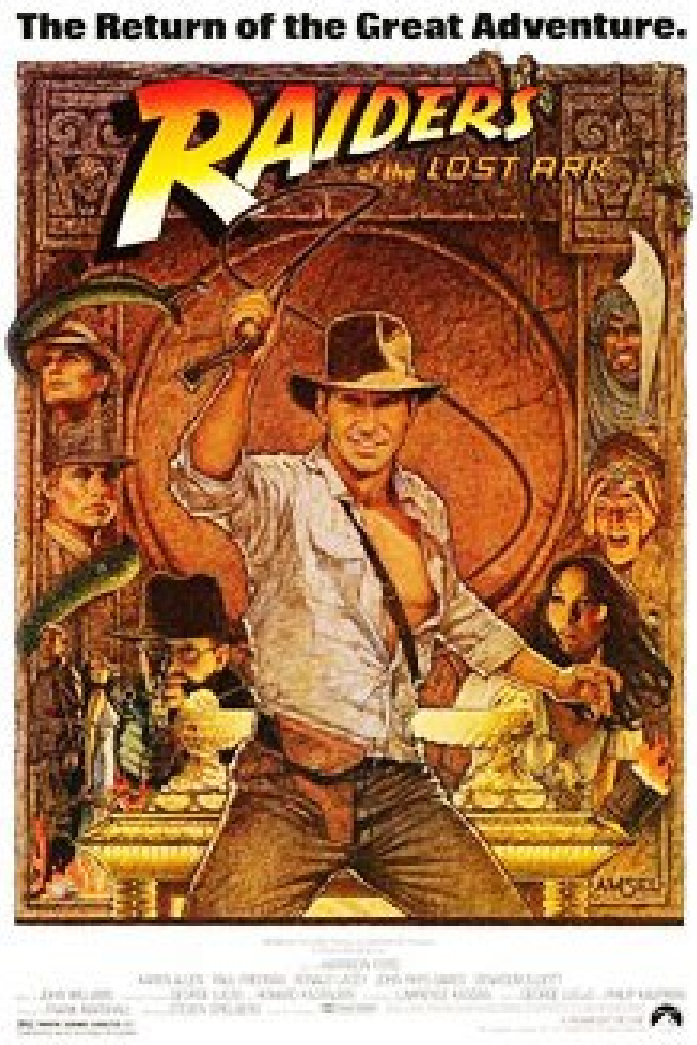
- Perceived **technical content** and **originality** correlates very well with **presentation quality**!

Great Technical Talks

- Are like adventure films
- They have a beginning (the problem)
- And an end (your solution)

- There is a hero (you!)
- But also bad guys (scientific challenges)
- And fallen heroes (prior art) who didn't quite succeed

- Finally, there is a worthwhile goal (the Ark of the Covenant)



Your Mission

Make your audience **care** about your work
➔ convey your passion
➔ introduce your work

- Explain its relevance and importance ➔ Why?

- Explain the major goal/challenge/problem
➔ research question, target specification

- Explain the **significance** of your achievement
➔ benchmarking, benchmarking, benchmarking

- **Then** come the details (What? How?)

Preparing Your Talk

- Know your audience, because ...

  Communication begins with the receiver! Earl McCune

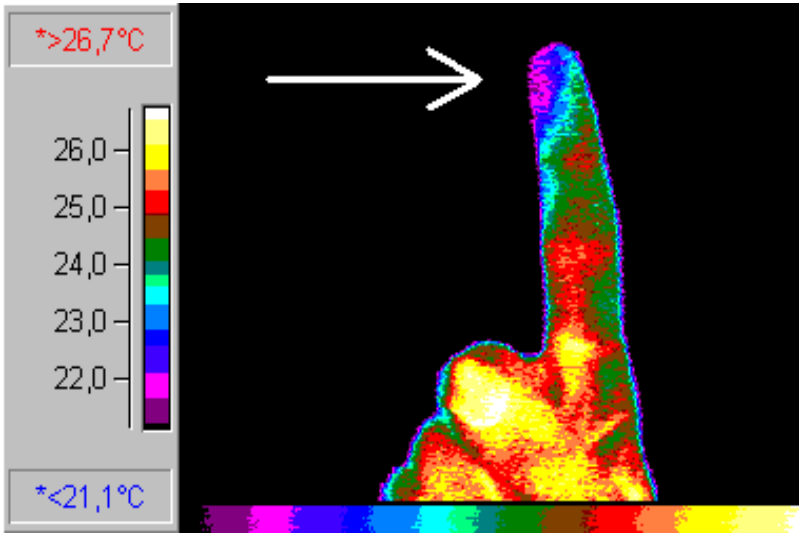
- Make a story line (bullet points), **then** the slides

- Keep it super simple (KISS), remember …

  Your presentation is the trailer, not the movie!

- Describe the problem first, **then** the solution.

A Picture is Worth a Thousand Words!

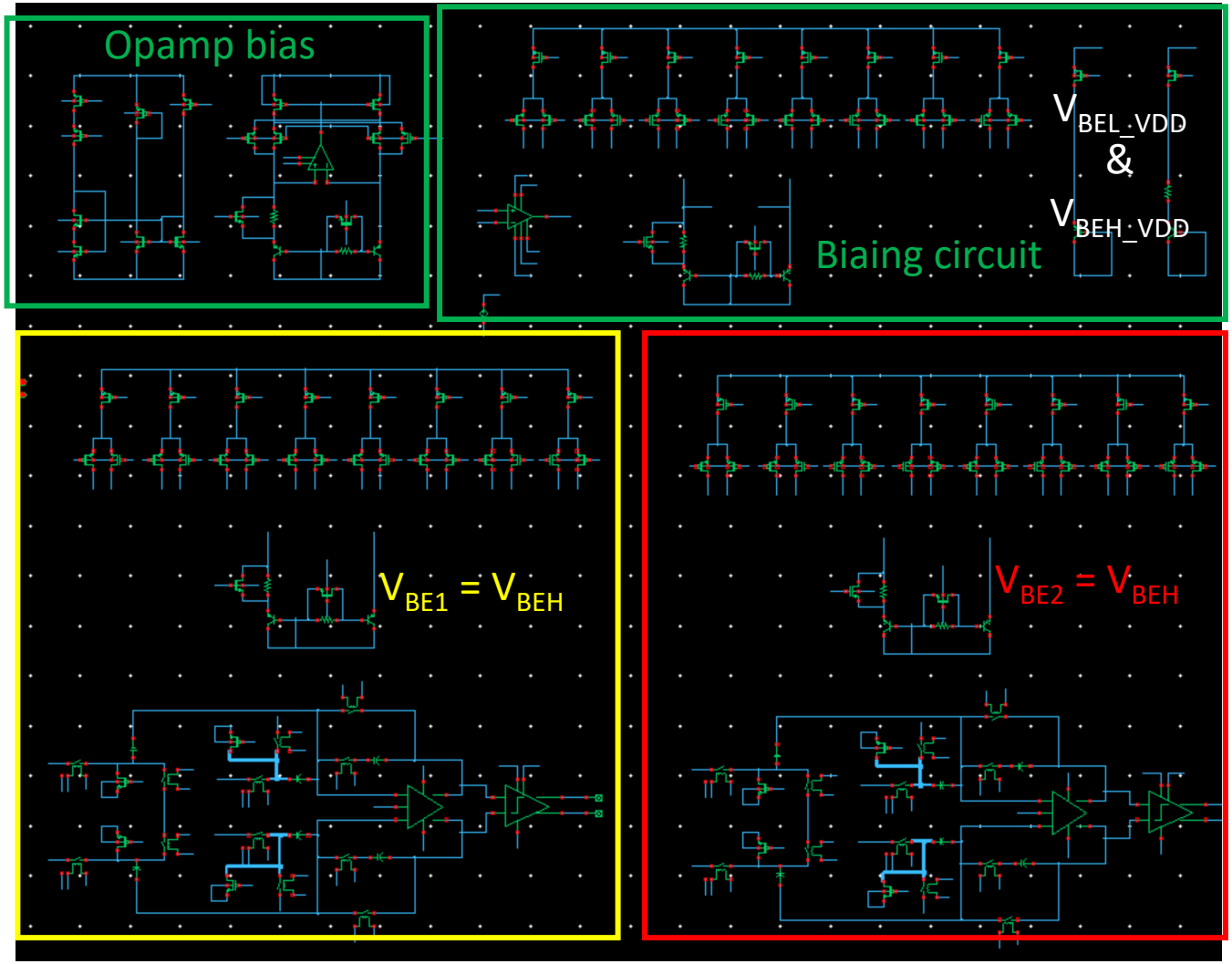


⇒

- Helps to go from the **known** (a finger) to the **unknown** (a thermal wind sensor)

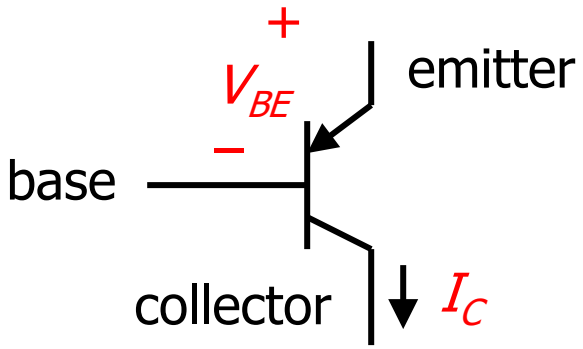
A Picture is Worth a Thousand Words?

- Not always!
- Edit Cadence schematics!



Avoid Equations

- For $I_C >> I_S$



$$I_C \approx I_S \exp\left(\frac{qV_{BE}}{kT}\right)$$

$$\Rightarrow \quad V_{BE} = \frac{kT}{q} \ln \frac{I_C}{I_S}$$

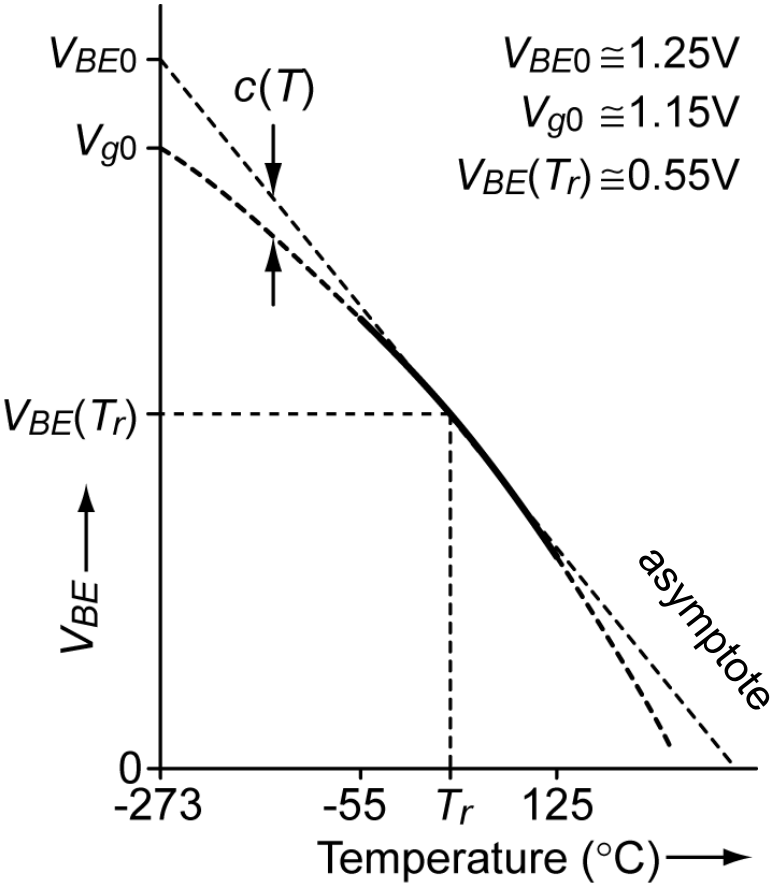
$$I_S = A_E C T^{\eta} \exp\left(-\frac{qV_{g0}}{kT}\right)$$

- **As you can see**, V_{BE} is a near-linear function of temperature ??

A Picture is Worth a Thousand Words!

- Graphs rather than equations (and explain the **axes**)

- V_{BE} (bold) is a near-linear function of temperature
- With a slope of ~ -2mV/°C
- And a small, parabolic *curvature c(T)* < 5mV from -55°C to 125°C



KISS

- People **cannot** read and listen at the same time!
  ➔ use bullet points instead of sentences
  ➔ If you don't talk about it, don't show it!

- Only 1 or 2 ideas per slide

Less is **More!**

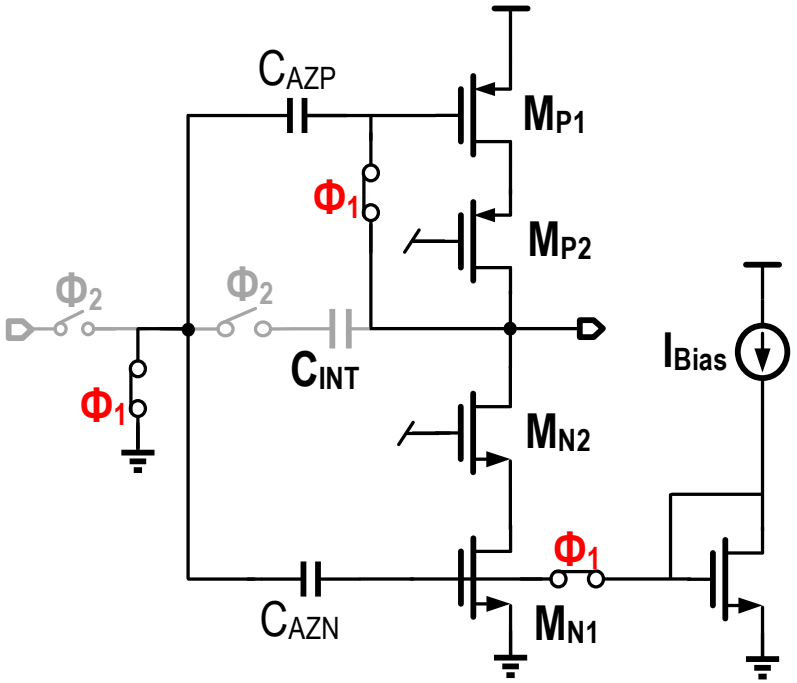
- Make back-up slides
  - to cover material that you could not present
  - and to answer "obvious" questions
    ➔ you'll look like a genius during the Q&A

Animate Complex Slides

Auto-Zeroed integrator

- **Sampling Phase:** Φ_1
  - Sets well-defined I_{Bias}
  - $C_{AZP,N}$ sample the Vgs required by $M_{P1,N1}$

  ➔ Low offset and 1/*f* noise



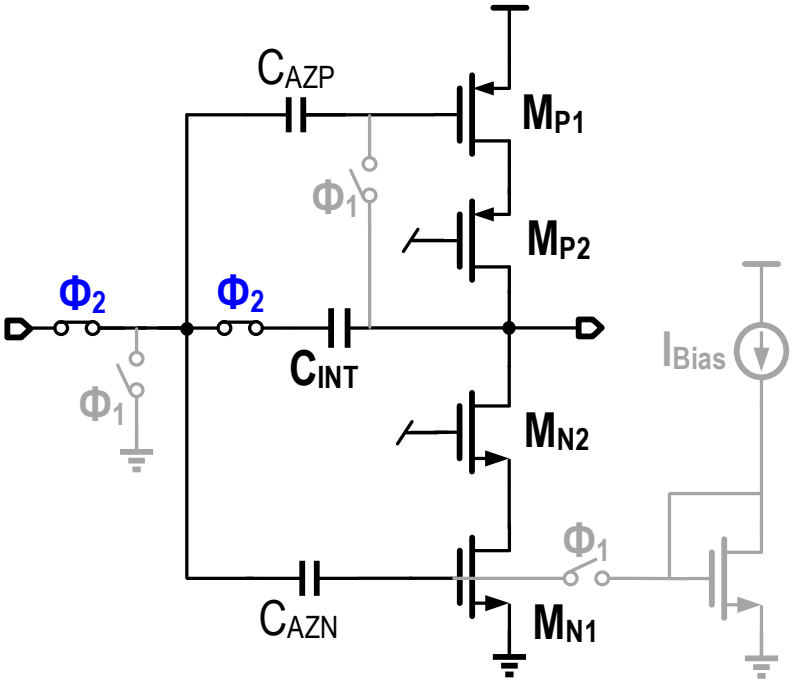
Animate Complex Slides

Auto-Zeroed integrator

- **Integration Phase:** Φ_2
  - Connect input & C_{INT}

➔ Low supply voltage
= Vgs+2Vds < 1V

➔ Large output swing
= V_{DD} – 4Vds



On the Day

- Test all animations, movies etc
- Test all the equipment (pointer, microphone etc)

- Introduce yourself and the title of the talk
- Memorize your opening sentences
- **Connect** with your slides ➔ use a pointer!
- When showing a graph, **begin** by describing the axes

- Convey your passion!
- Speak to the back of the room
- Connect with your audience: **make eye contact**, smile
- Don't be evasive or defensive during the Q&A
  (no-one knows everything)

Summary

- Your goal is to make your audience **care** about **your** work

So you must clearly explain

- Why its worth doing ➔ relevance and importance
- What the goal was ➔ research question, target specification
- The significance of your result ➔ benchmarking

➔

And <u>show</u> them that **you** care

- Its not rocket science! **You** can do it too!

Common Mistakes

- No eye contact
- Reading from a script
- No introduction
- No benchmarking
- Unreadable text (< 20-pt Arial)
- Too many
  - Details
  - Equations
- Going over (or under) time ➔ Practice your talk!
- Grammatical and spelling mistakes
- Not numbering your slides
- Introducing new points in the conclusions
- Being defensive or evasive during the Q & A