Guiding Principles for Creating Your Public Image

Original Slides: Nicole Immorlica, Microsoft

Presenter: Matt Weinberg, Princeton

Themes and Disclaimers.

1. Disclaimer: Most of the advice given in this talk is subjective: mix of advice from Nicole and Matt.
    1. Nicole and Matt are both in CS Theory.

2. Recurring Theme: Always understand **why.**
    1. **Do** look to others for examples of good talks/websites/papers/etc.
    2. **Don't** try to "follow the rules" without understanding why.

3. Will try to ask questions.

outline.

Several aspects contribute to your public image.

1. Papers you write.
2. Reviews you write.
3. Talks/Posters you present.
4. Your website.
5. In-person networking.

This is a non-exhaustive list. Overview guiding principles/sample advice for each.

Writing Principles

Main goals:

- Engage/entertain the reader.
- Convince them your work is awesome (and correct).

Everything else is secondary.

- I really mean this! View everything through this lens.
- No “formatting requirements” (although norms exist).
- Next several slides break down how Nicole/I normally try to convince the reader our work is awesome.
- **But these are not hard/fast rules. Ask why!**

outline.

1. Title: phrase indicating what you did
2. Abstract: concise description of what you did
3. Introduction: motivate and informally define problem, emphasize intuition and key contributions
4. Related Work: how your work fits with the literature
5. Model: the mathematical setting you consider
6. Results: statement, important/interesting proofs

body

6. Appendix: remaining proofs, minor extensions

title.

Purpose: Briefly indicate why someone might be interested in reading your paper.

Example: Is it OK to be catchy/funny?

- Sure! If it is also descriptive.
- *Of the People: Voting is more Effective with Representative Candidates*, Cheng, Dughmi, and Kempe, EC 2017.
- *Prophet Inequalities made Easy: Stochastic Optimization by Pricing non-Stochastic Inputs*, Dutting, Feldman, Kesselheim, Lucier, FOCS 2017.

title.

Good	Bad
Descriptive (but brief)	Vague

title.

Bad:

Information Aggregation in Social Networks, Feldman, Immorlica, Lucier and Weinberg, 2014, working paper.

Good:

Reaching Consensus via non-Bayesian Asynchronous Learning in Social Networks, Feldman, Immorlica, Lucier and Weinberg, APPROX 2014.

title.

Purpose: Briefly indicate why someone might be interested in reading your paper.

Example: Why is vague bad?

- *Information Aggregation in Social Networks.*
- Is it a theory paper? Empirical study?
- No idea what makes it different from the 100,000 other papers on information aggregation in social networks.

abstract.

Purpose: Help someone understand what's in the paper (normally targeted at an expert), and whether they should read more.

Example: Should I sell the main results?

- You could state objectively **why the main result is interesting**, so an expert knows what's the point.
- You shouldn't go overboard, you have an entire introduction for that.
- E.g. "This is the first constant-factor approximation."

abstract.

Good	Bad
concise	wordy
fact-based	salesmanship
accurate	over-claiming
identifies keywords	inaccurate terminology

Pet Peeve: abstracts that are really introductions.

abstract (bad).

In a social learning setting, members of a society share their experiences to help others make better choices. Following the established path can boost an individual's utility but it can hurt the society as a whole since other options of higher value may never be explored. We show that when the population is diverse, this issue can be avoided as people may not be satisfied with the available choices and look for alternatives. High diversity, though, comes at a cost as past experiences become less valuable.

abstract (bad).

We model these situations in a standard setting of consumer search introduced by Weitzman and study how different diversity levels compare with each other. We … and quantify how the socially optimal diversity level changes …. Moreover, while high diversity can lead to anarchy and confusion in typical situations, we show that it can be really beneficial in settings where society may accidentally uncover a unanimously accepted hidden gem.

abstract (good).

We introduce a general model of bandit problems in which the expected payout of an arm is an increasing concave function of the time since it was last played. We first develop a PTAS for the underlying optimization problem of determining a reward-maximizing sequence of arm pulls. We then show how to use this PTAS in a learning setting to obtain sublinear regret.

introduction.

Purpose: Serves a few purposes, tricky to balance.

- Get the reader excited to read the rest of the paper.
- Tell a skimmer what's cool about the paper.
- In both cases, focus on **why** it's cool.

Example: Should I sell the main results?

- Absolutely! Don't be afraid to tell the reader exactly why it's cool.
- (From a selfish perspective: don't be afraid to tell the *reviewer* exactly what they should state as the "main contributions" in their review).

introduction.

Good	Bad
motivation from practice or existing literature	flimsy stories or cartoon realities
place results in context	abstracts of related work
identify take-aways and key intuition	overly-precise statement of results and techniques

Pet Peeve: Laundry lists of results with no motivation.

introduction.

Purpose: Serves a few purposes, tricky to balance.

- Get the reader excited to read the rest of the paper.
- Tell a skimmer what's cool about the paper.
- In both cases, focus on **why** it's cool.

Example: Should I overview techniques?

- **Only do so to emphasize a why**.
- Ex: "We first use a reduction of XYZ, then Chernoff bounds, then some calculus" contributes nothing.
- "The key to our approach is the recent reduction of XYZ, developed for an unrelated problem."

introduction.

Purpose: Serves a few purposes, tricky to balance.

- Get the reader excited to read the rest of the paper.
- Tell a skimmer what's cool about the paper.
- In both cases, focus on **why** it's cool.

Example: Should I overview techniques?

- Most theory papers choose to do this. Not required.
- Helpful if there is something exciting/digestible/etc.
- Really not helpful if the reviewer can't understand it.
  - Always ask: what would a reader get from this?

Related work.

Purpose: Provide context for your work.

- Most related stuff (ideally) already covered in intro.
- Also to assign scientific credit for prior work.

related work.

Good	Bad
comprehensive	skimpy
describes connections	reads like a list
cites work from multiple fields	unaware of related literature

Pet Peeve: sections that read like a list of abstracts!

Related work.

Purpose: Provide context for your work.

- Most related stuff (ideally) already covered in intro.
- Also to assign scientific credit for prior work.

Example: How much detail should I give?

- Enough to make your point!
- Ex: “Cai and Daskalakis give a PTAS for a single unit-demand buyer with independent MHR item values, to the optimal deterministic item pricing.”
- Useful if you give a PTAS for a related problem.
- **Not** useful just because you study pricing.

Related work.

Purpose: Provide context for your work.

- Most related stuff (ideally) already covered in intro.
- Also to assign scientific credit for prior work.

Example: How much detail should I give?

- Enough to make your point!
- Ex: “Works such as [CaiD11, …] also provide approximations in different models to ours.”
- Useful if you study unrelated pricing problem.
- **Not** enough if reviewer might reasonably wonder what your work contributes over CaiD11.

Model.

Purpose: Start being formal.

- Most intuition (ideally) already given in intro.
- Need to be precise, but also clear.

model.

Good	Bad
notation consistent with existing norms	overloaded or excessive notation
covers limited prelim results/background	contains major theorem statements and proofs
rigorous, yet clear	overly formal, or imprecise

Model.

Purpose: Start being formal.

- Most intuition (ideally) already given in intro.
- Need to be precise, but also clear.

Example: Should I give an example?

- Sure! If it serves a purpose.
- If complicated definitions, to illustrate definitions.
  - If simple, no point.
- To illustrate subtle counter-intuitive properties.
- To illustrate special case of main proof ideas.

Model.

Purpose: Start being formal.

- Most intuition (ideally) already given in intro.
- Need to be precise, but also clear.

Example: Should I give an example?

- "The buyer's utility is v – p. So for example, if v = 5 and p = 1, the buyer's utility is 4." Useless!
- "The buyer's utility is f(v) – g(p), for f,g convex. Observe that our model captures quasi-linear utilities (v-p) when f(v) = v and g(p) = p. We will use this as a running example to illustrate the main ideas." Helpful!

Results/Proofs.

Purpose: Thought experiment:

- Do I **want** the reviewer the read this?
- Yes, try to fit in body. No, put in appendix.

results.

Good	Bad
intuition in main text	list of theorems/proofs
interesting proofs that build intuition	boring proofs included because they're short
illustrative examples instead of tedious proofs	long unintuitive proofs

Results/Proofs.

Purpose: Thought experiment:

- Do I **want** the reviewer the read this?
- Yes, try to fit in body. No, put in appendix.

Example: Should I include complete proofs in the body?

- Sure! If full details are engaging.
- Sure! If full details resolve an interesting subtlety.
- No, if details are tedious.

Results/Proofs.

Purpose: Thought experiment:

- Do I **want** the reviewer the read this?
- Yes, try to fit in body. No, put in appendix.

Example: Overview entire proof in body?

- Don't leave reviewer confused, but…
- If back half of proof is "hard, but unilluminating", OK to summarize in a few sentences and move on.

Results/Proofs.

Purpose: Thought experiment:

- Do I **want** the reviewer the read this?
- Yes, try to fit in body. No, put in appendix.

Example: What about a subtle proof?

- Is the subtlety engaging/illuminating, or just “hard”?
- If engaging, try to explain in body.
- If just “hard”, OK to state subtlety, but move on.

Results/Proofs.

Purpose: Thought experiment:

- Do I **want** the reviewer the read this?
- Yes, try to fit in body. No, put in appendix.

Example: Is it OK to have only 13 pages (for EC)?

- Sure! If 13 pages of exciting material, and 20 pages of calculations, break it into 13+20.
- But, 5 remaining pages are opportunity to be extra clear, overview additional connections, etc.

Results/Proofs.

Purpose: Thought experiment:

- Do I **want** the reviewer the read this?
- Yes, try to fit in body. No, put in appendix.

Guiding Principle: **The entire body should be engaging.**
If you're bored writing, reviewer will be bored reading.
Make it exciting! Or maybe it belongs in appendix.

Try to make body as effortless to follow as possible.
If ideas too complex, distill main digestible aspects.

Appendix.

Purpose: Verify details that aren't necessarily engaging.

- Yes, very few people will read the appendix, but…
- Details matter.

Style suggestions:

- Appendix should be **easy to read.**
- It does **not** need to be engaging/stellar-ly written.
- Appendix should be **easy to navigate**.

Huge pet peeve: appendices with serious errors which were obviously never proofread.

appendix.

Good	Bad
clean to follow, but perhaps not engaging	unreadable
no pointers to/from body	disorganized

Reviewing Principles

impact.

You will be judged by the quality of your review.

People who read your review: Basically everyone you're meeting through this workshop (through the PC).

Every visibility opportunity counts! For some PC members, this may be the first time they see your name. Make a good first impression!

purpose.

Your job is not to directly decide whether to accept/reject the paper.

Your job is to give arguments/evidence/information to the PC so they can decide whether to accept/reject.

Parse remaining advice in this context.

content.

Briefly describe main results. Should contain enough context to explain why authors think its exciting.

Thought experiment: Would the authors agree?
This is not the place to disagree with authors.

Excellent: So clear that PC doesn't need re-read intro.

Bad: PC needs to read entire intro, ignore your summary.

content.

List major concerns. Is there an error in a proof, is the result a trivial generalization of existing work? (rare)

Excellent: “I might be misunderstanding something, but as stated, it seems that Theorem 2 is false. Here is a sketch of a counterexample. Is it possible that the authors meant to place additional assumptions?”

Point: You may be about to kill the paper. If it needs to be done, it needs to be done. But be thoughtful.

content.

List major concerns. Is there an error in a proof, is the result a trivial generalization of existing work? (rare)

Bad: “Theorem 2 is false, integral might diverge.” (Often resolved by: “It is easy to verify that if integral diverges, results still hold with notational updates.”).

Point: Totally valid minor concern to be rigorous with divergence (and this should be raised). But don’t kill papers for oversights which can be easily resolved.

content.

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.
This is the time to disagree with the authors!

Results: (In your opinion)

- What makes the results significant (or not)?
- Is there any context that the PC needs to appreciate?

content.

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.
This is the time to disagree with the authors!

Results: Rough scale to have in mind:

- So strong it doesn't matter how it's proved.
- Strong.
- Motivated enough if the techniques are awesome.
- Extremely specialized or toy.

content.

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.
This is the time to disagree with the authors!

Techniques: (In your opinion)

- Will they help you/others solve problems?
- Did you find them engaging/illuminating?
- **Don't ask:** "How much hard work?"
- Trivial proofs are bad because aren't engaging, don't help others, **not** because they're not hard enough.
- But simple, engaging, thoughtful proofs are great!

content.

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.
This is the time to disagree with the authors!

Techniques: Rough scale to have in mind:

- Super interesting, loved reading it even if results meh.
- A strength.
- Enjoyed reading, but not a strength.
- Trivial or entirely (hard but) tedious calculations.

content.

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.
This is the time to disagree with the authors!

Presentation: (In your opinion)

- Did the body back up the sale of the intro?
- Was it a pleasure to read?
- Do you understand everything you want to?
- Do you understand what the authors want you to?

content.

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.
This is the time to disagree with the authors!

Presentation: Rough scale to have in mind

- Truly a pleasure to read. (could help tie-break).
- Fine.
- I was truly miserable reading. (could kill paper).

content.

Briefly describe main results. Should contain enough context to explain why authors think its exciting.

List major concerns. Is there an error in a proof, is the result a trivial generalization of existing work? (rare)

Form subjective evaluation. Quality of results, general interest in techniques, quality of presentation.

Recommendation: Accept? Enjoy it? **Why or why not**?

Presentation Principles

(and poster principles)

additional disclaimer.

- Numerous presentation styles can be successful.
  - (Ex: Nicole and I disagree on some points).
  - (Ex: In 2019, I learned that Ariel and I disagree on even more points).
  - Concrete tips are my/Nicole's suggestions.

- **But**, general principles are universal:
  - **Your goal is to engage the audience**.
  - Everything else is just subjective tips to achieve this.
  - Constantly remind yourself of this during prep.
  - (And prep a lot!).

typical outline.

1. Background/Motivation: why it's important
2. (Related Work): context for your work
3. Results: what you did differently, and why

4. Model: the setting you consider
5. Intuition/proof/example: what drives your results
6. Conclusion: main take-aways
7. (Future Directions): open questions

content.

Identify at most three main take-aways!

content.

Everything should have a point.

Time is short, and brain capacity is scarce.

- Identify at most 3 main take-aways, e.g., a new objective, model, technique, practical insight, etc.
- State take-aways explicitly and repeat them often.
- Everything you say or write on a slide should serve a purpose in illustrating these take-aways, esp. proofs!

content.

Everything should have a point.

Thought experiment: for every slide, “what is the purpose of this slide?” should have quick answer.

Bad answer: “to cover related work.”
Bad answer: “to list open questions.”

Good answer: “convey that related work covers n=2.”
Good answer: “convey that model has rich questions.”

design.

Keep it simple!

design.

Fonts: Use a single font.

Fonts should come in three sizes.

Titles, **Main Text,** Figures

Choosing a minimum font size helps prevent you from trying to stuff too much stuff on a single slide, which overwhelms your audience and makes them squint.

design.

Colors: Use colors wisely and sparingly.

Each color should have a meaning, e.g.,

- Title of slide
- Type of statement: theorem, proof, etc.
- Emphasis: word being defined, main point

design (Nicole).

Text: White space is an undervalued asset.

Break paragraphs into small sensible chunks, use line breaks between chunks instead of bullets. Don't sacrifice grammar if you don't have to. Complete sentences are appreciated. So is spelling. Don't be too wordy. Say only what's essential. Remember, you can say things in words, not everything needs to be written down.

design (Matt).

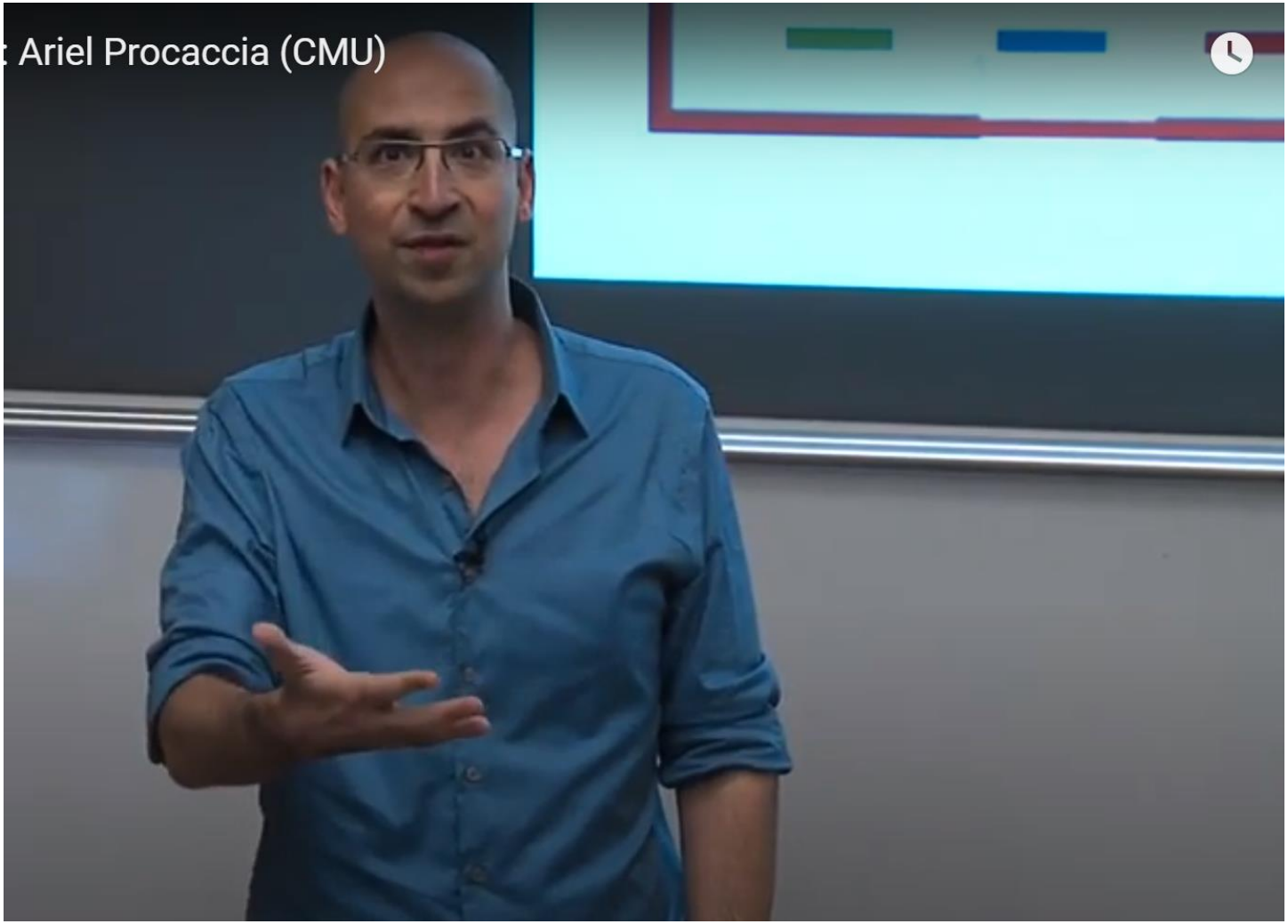
Text: White space is an undervalued asset.

Sacrifice grammar if saves space.
Complete sentences unnecessary (but spelling important).
Don't be too wordy. Say only what's essential.
Helps to give each idea its own line, when possible.

Match everything you say out loud to **something** on slide.

- Could be short bullet. Could be figure.
- Some listeners distracted for 30 seconds and want to jump back in. Can't rewind speech, but text remains.

design (Others).



design.

Animations: Can be helpful, don't go overboard.

A full page at once can be daunting.
Hard for audience to focus.
Good to break up arrival into connected chunks.

But per-line animation gets annoying.
Especially if there's any clicker lag.
Forces all audience to go exactly at your speed.

design.

Math: Minimize mathematical notation.

Mechanism ϕ inputs ordinal preferences $\succ$ and outputs a matching $\phi(\succ)$. Let $r_x\big(\phi(\succ)\big)$ be the rank of the match of agent x under preferences $\succ_x$.

Definition. Mechanism ϕ' stochastically dominates mechanism ϕ for agent x if for all ranks k,

$$\Pr[r_x(\phi'(\succ)(x)) \leq k] \geq \Pr[r_x\big(\phi(\succ)(x)\big) \leq k].$$

design.

Math: Minimize mathematical notation.

Mechanism ϕ inputs ordinal preferences $\succ$ and outputs matching $\phi(\succ)$.

Definition. Mechanism ϕ' stochastically dominates mechanism ϕ for agent x if for all ranks k and all $\succ$,

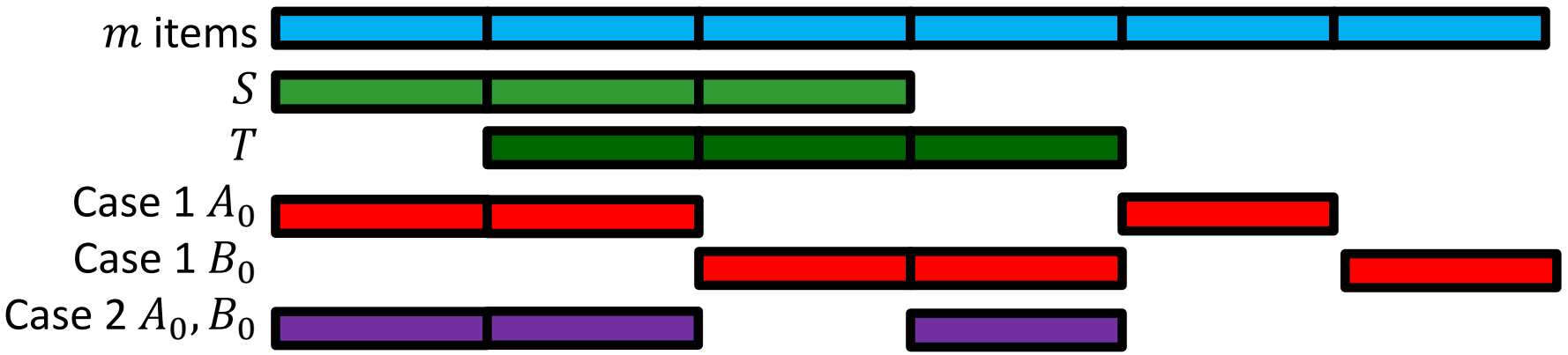
$$\Pr[x \text{ gets top k in } \phi'(\succ)] \geq \Pr[x \text{ gets top k in } \phi(\succ)].$$

design.

Use images when appropriate. Example:

Construction: S← random set of size m/2.

- $T \leftarrow$ random set of size m/2, **conditioned on** $|\boldsymbol{S \cap T}| = \boldsymbol{m/3}$.
- Alice gets one special set A_0. Bob gets B_0.
- $|A_0| = |B_0| = m/2$.
- $|A_0 \cap S| = |B_0 \cap T| = m/3$.
- Case 1: $A_0 \cap B_0 = \emptyset$. Case 2: $A_0 = B_0$.



speaking.

Entertain your audience!

speaking.

Working the crowd: Your job is to please the audience!

- Always better to under-estimate your audience.
- Ask and answer questions, when appropriate.
- Adapt to what the audience wants to hear.

Voice: Be confident!

- Speak up, slow down/pause, and use intonation.
- Trick: take a breath after each slide.
- Have a concrete plan for important talking points.

Timing: NEVER EVER go over your allotted time!

- Plan what to skip if you are running short on time.

summary.

Important elements.

1. Identify three main take-aways (at most).
2. Keep it simple (design and content).
3. Entertain your audience.

Website Principles

Why should you make a website?

- Visibility is important! Say you give a good talk/poster presentation and Daniela notices. She wants to learn what year you are, who your adviser is, or check out your other work. Make it feasible!

- Good to match norms. In CS, most senior PhD students have websites. If you don't have one, others might think you're disorganized.

1. Picture

James R. Wright

Hello, I'm James Wright. I am a postdoctoral researcher at Microsoft Research in New York City. In July 2018, I will start as an Assistant Professor at the University of Alberta. I completed my Ph.D. at UBC in 2016, advised by Kevin Leyton-Brown.

2. Bio/Affiliation

Research

rch interest is in using data-driven
; that is, behavior in interactions w
tions of other participants. My lon
ly designing algorithms for media
led agents rather than idealized, perfectly rational game theoretic agents.

Curriculum Vitae

My academic CV is available as both an HTML page and a PDF document. I also have a public Google Scholar citations page.

Contact

james.wright@ualberta.ca

3. Contact

Publications

1. Predicting Human Behavior in Unrepeated, Simultaneous-Move Games.
   James R. Wright and Kevin Leyton-Brown.
   Games and Economic Behavior, Volume 106, pages 16–37, November 2017.
   (supersedes Wright & Leyton-Brown [2010, 2012])
2. Learning in the Repeated Secretary Problem.
   Daniel G. Goldstein, R. Preston McAfee, Siddarth Suri, and James R. Wright.
   ACM Conference on Economics and Computation (ACM-EC), 2017.
3. Deep Learning for Predicting Human Strategic Behavior.
   Jason Hartford, James R. Wright, and Kevin Leyton-Brown.
   NIPS 20
   Oral p
4. Incenti
   Worse.
   Xi Alice
   Worksh
   Economics and Computation, 2016.

4. Research/Publications

Website Principles

Purpose: introduce yourself. Use this to guide design.

Example: What if I don't have any publications yet?

- OK to omit. OK to put "coming soon!"
- People still want to know you without publications.

Example: Should I list unfinished manuscripts?

- One reason: excited about not-yet-published work.
- One reason: make research activity look larger.
  - Still: please don't *mislead* readers.

Website Principles

Purpose: introduce yourself. Use this to guide design.

Example: Should I include personal information?

- Depends on what you want others to see!

Example: What if I'm bad at HTML?

- OK to copy a friend's source code (but ask them to avoid awkwardness…).
- OK to use generic (but clean) free layouts.
- People still want to know you if you're bad at HTML!

Website Principles

Purpose: introduce yourself. Use this to guide design.

Example: Should I list awards?

- Sure! If you want others to know about them.

Last suggestion: Be transparent.

- It's OK to brag a bit.
- OK to list unpublished work to appear more active.
- Just use same social norms: don't be coy about it.

Networking Principles

Context: researchers love meeting new students.

- But also super busy. Just be respectful of time.
- Any reason is a good reason to start a conversation.

Sample starters:

- I liked your talk. Can I ask you for more details re: X?
- I'm working in (your area), and wondering if you're aware of any prior work which does XYZ?
- If you happen to be sitting together at lunch, or another social event, OK to just say hi.

Networking Principles

Context: researchers love meeting new students.

- But also super busy. Just be respectful of time.
- Any reason is a good reason to start a conversation.

Best Case: they want to hear about you. Be ready!

- Good to have an outline answer prepared for:
- “Tell me about one of your favorite projects.”
- “What’s your research area?”

Appendix: How to Parse Feedback

Context: you'll constantly get feedback forever.

Some feedback is amazing and easy to parse.

- "I think you should do XYZ because ABC."
- And you completely agree immediately.

Most feedback is not. Especially when it's non-interactive from reviewers, course evals, etc.

- "The paper is OK I guess."
- But you can still get something out of it!

feedback examples.

Theme of advice: **Why** did this person give this feedback.

"I can't follow the proof of Theorem 1, why does Ax = b?"

- If you clearly stated why Ax = b, OK to complain! (I do).
- But don't **only** complain. Make it clearer.

"The results are fine, but incremental compared to [ABC]."

- If [ABC] is completely different, OK to complain! (I do).
- But adjust your next draft to better distinguish.

personal anecdote.

- Senior prof offered to skim my job talk.
  - Was ~50 minutes on my thesis work.
- Pretty blunt appraisal (paraphrased): “So my opinion on this stuff is that there were these open problems and you solved them. But it’s not really that relevant or exciting and it’s not clear what’s next.”
- That hurt a lot, but it turned into great advice: others thought this way too, I really needed to address this.

- Point: I disagree with the subjective evaluation, but the advice was needed. Radically improved my talk.

Themes and Disclaimers.

1. Disclaimer: Most of the advice given in this talk is subjective: mix of advice from Nicole and Matt.

2. Recurring Theme: Always understand **why.**
    1. **Do** look to others for examples of good talks/websites/papers/etc.
    2. **Don't** try to "follow the rules" without understanding why.