Impostor Syndrome, Reviewer 2, and Other PhD Hazards

- How I Made It Out (Mostly) Sane -

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Disclaimer

- Based on my personal experience

- This will be very confessional and honest

- Take what applies to you and feel free to not care about the rest

- Consider that some things may apply to your friends and colleagues, or future students and collaborators
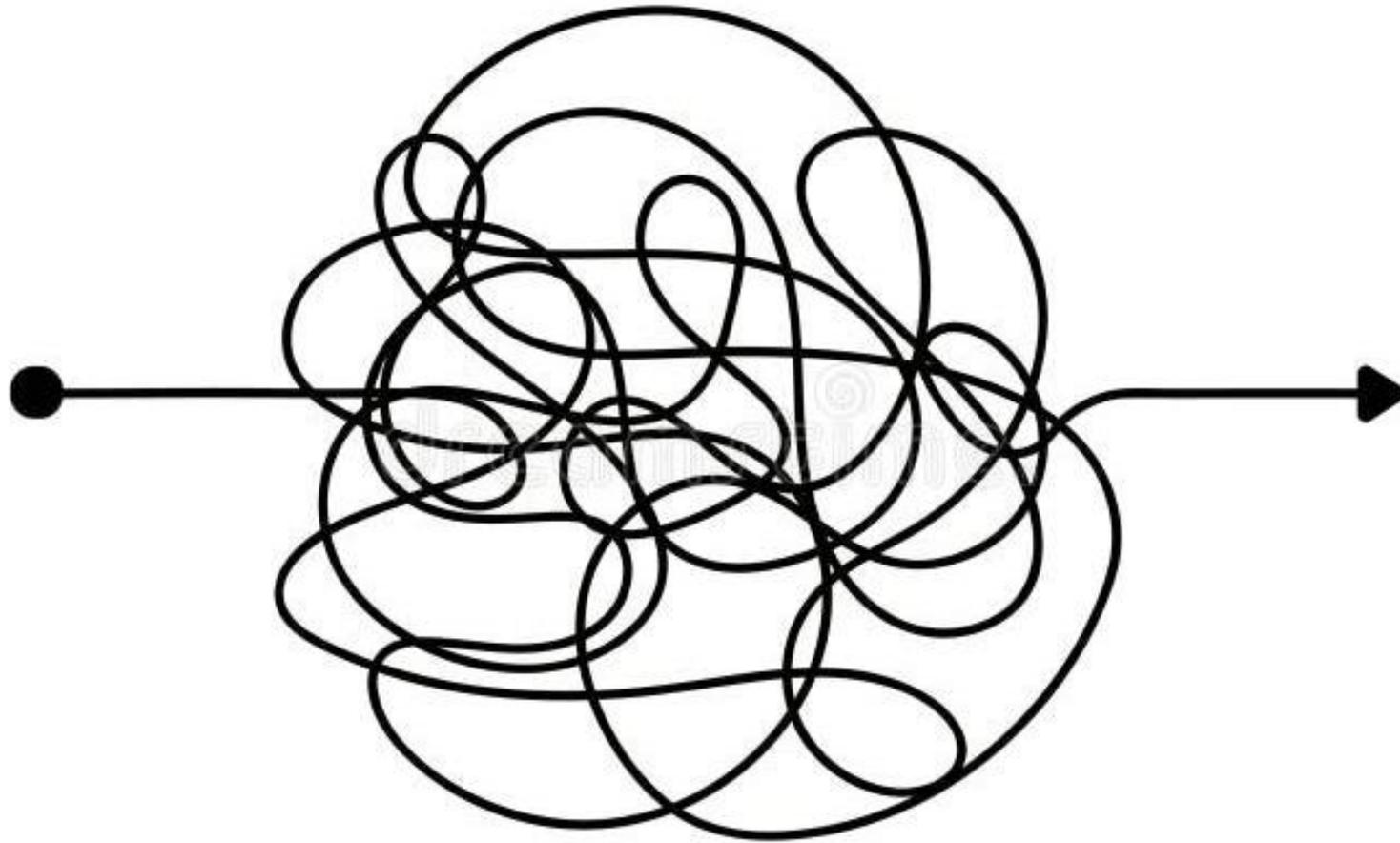
Short Bio

BSc in CS (2006)

MSc, PhD in SE (2006 – 2013)

2013 - now

My PhD Journey

PhD Hazard Landscape

- Reviewer #2
- Imposter Syndrome
- Mental Health
- Burnout
- Isolation & Comparison culture
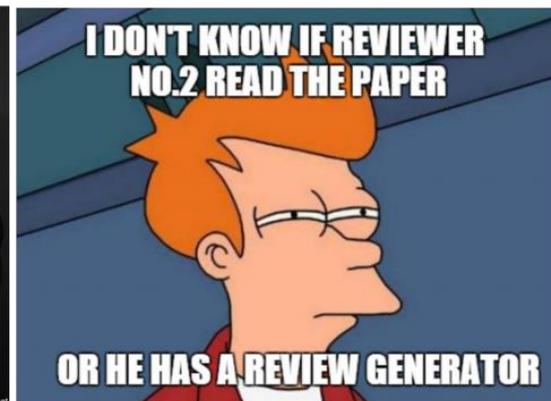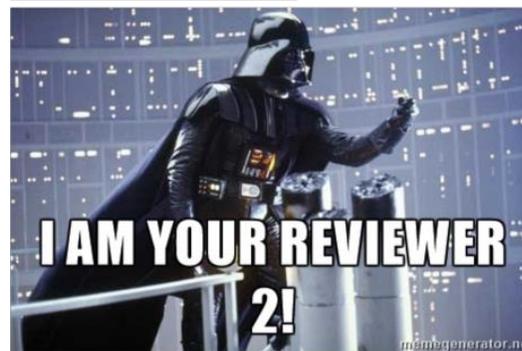
Good news: all survivable, many preventable
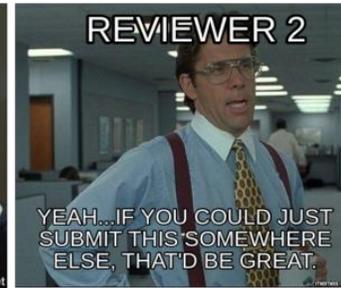
LET'S DO THIS!

Reviewer 2: The Nemesis of PhD Students Everywhere

Who is Reviewer 2?

- The mythical, faceless gatekeeper of your dreams and nightmares.

- Traits: overly critical, vague, nitpicky, sometimes… just wrong.

- A symbol of **harsh/unhelpful criticism** in peer review.

- Reviewer 2 doesn't just find a hole in your paper, they bring a shovel.

Why Reviewer 2 hurts more

- Negative feedback **weighs heavier** than positive.

- Reviews often refer to the authors and not the work

- Imposter Syndrome

- PhD = years of work, compressed into 10 pages → criticism feels personal.

The reality of peer review

- Peer review ≠ perfect: studies show variability, bias, and low inter-rater reliability.

- Reviewer 2 is a **systemic problem**, not just a personal nemesis.

- It's like asking a question on social media - you'll get several different answers and at least one will be angry.

You are not alone… Everyone has a Reviewer 2 story

- What is your funniest/weirdest/worst Reviewer 2 comment/story?

GO BACK TO THE SHADOW

REVIEWER 2!

memegenerator.net

Surviving Reviewer 2

- **De-personalize:** critique actually targets the paper, not your worth.

- **Find the signal:** extract what's useful, ignore the noise.

- **Get perspective:** advisors, peers can help filter comments.

- **Use rejection as iteration:** every resubmission makes the paper stronger.
  - Most MIPs have been rejected at least once

Reviewer 2 coping toolkit

- **Collect positive feedback** emails to balance perspective.

- **Reframe rejection**: high rejection rates = part of the game, not proof of incompetence.

- Create a "**Reviewer 2 bingo card**" (e.g., "Needs more experiments," "This is not novel," "English needs improvement").

Reviewer 2 Bingo 🎯

|				
Needs more experiments	Not novel enough	Cite my paper	Poor English	Too short
Wrong venue	Results not significant	Overly ambitious	Too descriptive	Revise & resubmit
Missing related work	Lacks theory	Confusing figures	Statistical flaws	Future work too vague
Incomplete evaluation	Unclear motivation	Should compare with X	Doesn't scale	Needs stronger conclusion
Too long	Incremental	Missing citations	Not reproducible	.....

The positive spin

- Reviewer 2 pushes us toward rigor (even if harshly).

- Thickens your academic skin → crucial for long careers.

- If you can survive Reviewer 2, you can survive anything in research.

Imposter Syndrome
(and why even the smartest feel it)
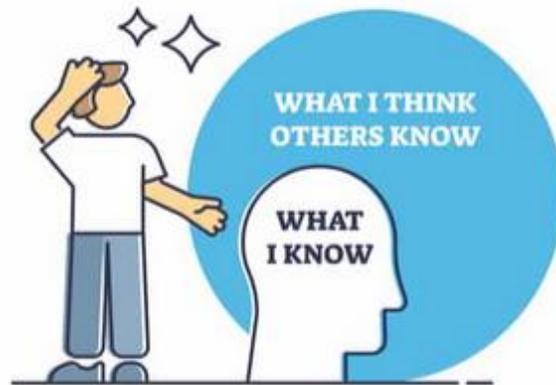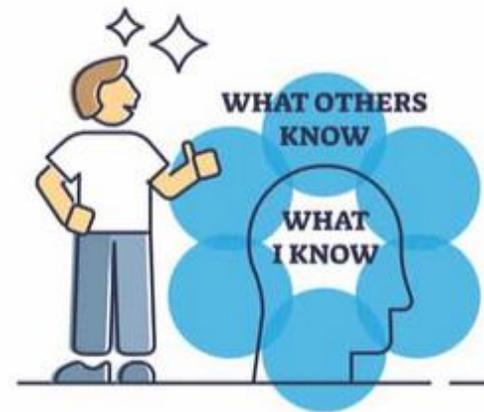
What is the Imposter Syndrome?

- The sneaky feeling: *"Any minute now, they'll realize I don't belong here."*
  - Origin: Clance & Imes (1978), "Impostor Phenomenon" → now infamous as *Impostor Syndrome.*

- **Not a disease**, more like a *thinking bug*: recurring doubts that persist despite evidence of competence.
  - A "runtime error" in the mind: your compiler says your skills don't match the codebase, but reality says otherwise.
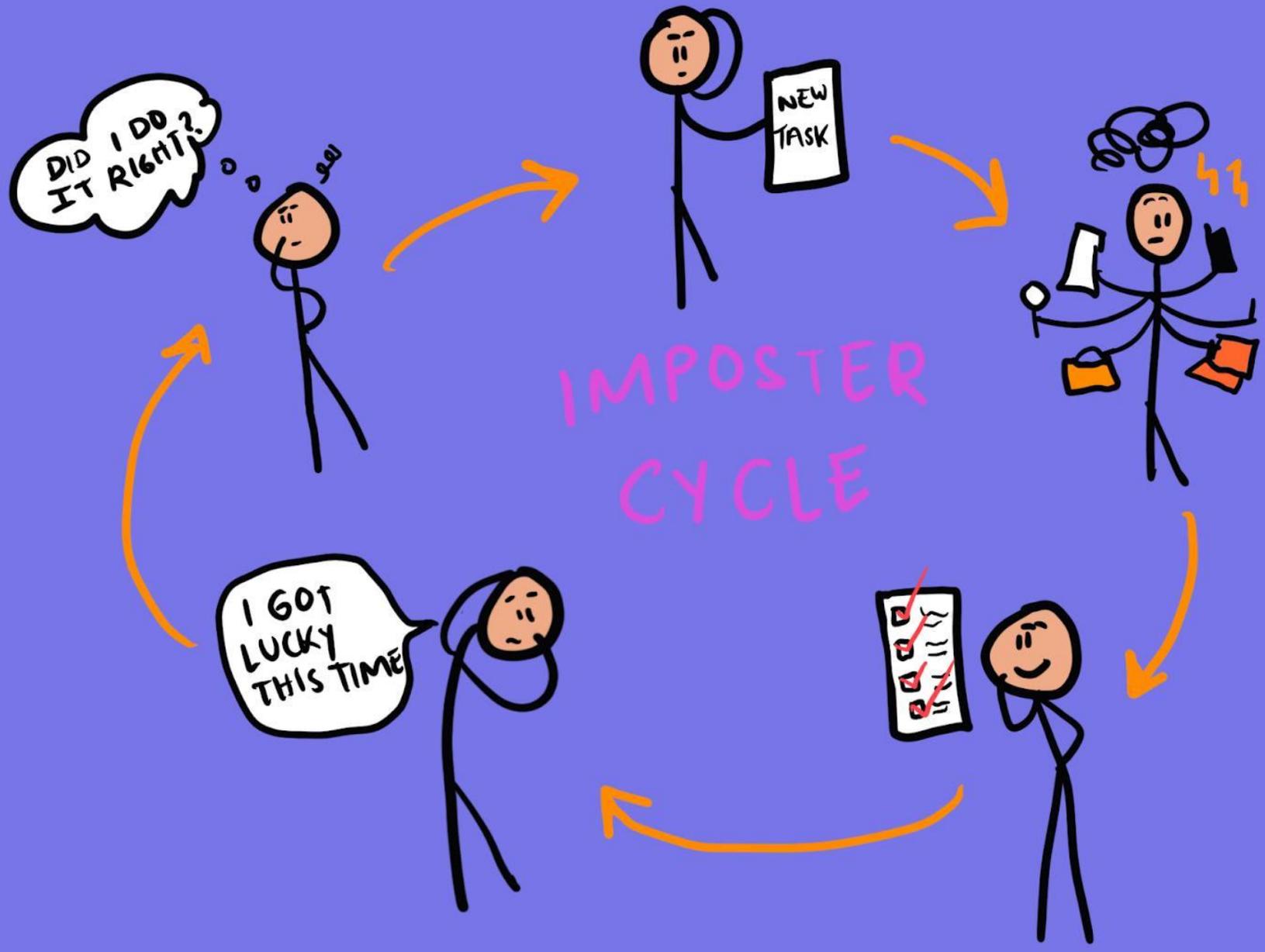
Some warning signs of Imposter Syndrome

- Overpreparing for talks and still feeling unready.

- Refusing opportunities due to fear of not being good enough to complete the task

- Procrastinating on submissions or tasks until the night before.

- Dismissing praise ("They're just being nice").

- Stress spikes before deadlines, defenses, and notifications.

Types of Imposter Syndrome

SUPERHERO:
overwork themselves to make up for how inadequate they feel

NATURAL GENIUS:
set exceedingly high goals, feel crushed when they don't meet them

EXPERT:
never satisfied with their level of understanding, always trying to learn more

PERFECTIONIST:
never completely happy with their work, fixated on flaws instead of strengths

SOLOIST:
prefer to work alone, won't ask for help for fear of appearing weak or incompetent

Imposter Syndrome - How common is it?

- Impostor syndrome is like Git conflicts: everyone has them, nobody admits them, and they take forever to resolve.

- Studies show prevalence between **9% and 82%,** even in the highest performers!

- In STEM/CS/engineering PhDs, scoping reviews show it's almost a rite of passage.

- MSR 2019 informal poll: **90%!**

- If you're feeling it, look left and right… odds are your colleagues are too.

Why PhD students (and PhDs) are especially prone

- You're surrounded by brilliant peers → constant social comparison.

- Field evolves at breakneck speed

- Culture of **Reviewer 2**: hypercritical, perfectionistic feedback cycles.

- Long timelines, unclear milestones, rejection rates > 80% in top conferences.

Measuring it (yes, there's a scale)

- **Clance Impostor Phenomenon Scale (CIPS)**: 20-item quiz; score ranges 20–100.

- **Categories**: moderate, frequent, intense impostor feelings.

- Not a diagnosis, just a snapshot of your brain's "self-doubt index."

Impacts

- Linked to higher stress, anxiety, burnout.

- Can slow publication output (hesitation to submit, avoiding talks).

- BUT: also linked to **drive for mastery, thoroughness, humility**.

- **Positive spin**: impostor feelings can push us to learn faster, collaborate more, and stay humble - if balanced with self-compassion.

IMPOSTER SYNDROME

I'm a fake.

No one should
listen to my advice.

I'm not smart
enough for this job.

VS. SELF-COMPASSION

This is new
to me.

My experience is
useful and valid.

I made a mistake.
I'm still learning.

Tough thoughts are normal. They're often a form of self-protection.
But don't let them call the shots on who you are and how you live.

SUSAN DAVID

Coping strategies

- Keep a "brag document" or email folder (track successes, however small).

- Celebrate milestones, not just publications.

- Watch for social media impact - learn about failure stories too, not only success stories

- Practice "debugging your thoughts" → replace "I got lucky" with evidence of skill.

- Peer normalizing: talk about it; the silence makes it worse.

- Self-compassion: treat yourself like a friend, not as Reviewer 2 would.

- Call/text a cheerleader (friends, peer network, mentors)

Quick reflection exercise

- Think of a moment you felt like an impostor.

- Reframe it as a **feature, not a bug**: what did it push you to learn/do?

- Pair up: share one skill you gained because of self-doubt.

Mental Health

Depression and anxiety in academia

- Some studies found 11-54% of graduate students experience depression

- 75% of college students said the Covid-19 pandemic has worsened their mental health

- A recent study found that:
    - 28% of faculty/staff and 31% of students experience *severe* or *extremely severe depression*
    - 38.6% faculty/staff and 41.8% of students experience *anxiety*

Symptoms

Depression
- Low mood/sadness
- Decrease in motivation
- Loss of pleasure and interest
- Loss of concentration
- Feeling hopeless
- Feeling guilt-ridden
- Loss of appetite/overeating
- Isolation
- Self-medication

Anxiety
- Feeling nervous, restless or tense
- Sense of impending danger or doom
- Increased heart rate
- Breathing rapidly (hyperventilation)
- Loss of concentration
- Troubles sleeping
- Experiencing gastrointestinal problems
- Difficulty controlling worry
- Urge to avoid stressful things

Combatting Depression and Anxiety

- <u>Seek professional help</u>
- Get support from friends and family
- Exercise
- Spend time in nature, in the sun
- Healthy diet
- Get enough sleep
- Avoid alcohol
- Practice gratitude
- Do activities you enjoy
- Reduce stress

Burnout

Burnout

- **Burnout** (aka burnout syndrome) is the emotional, mental, and physical exhaustion that comes from long-term exposure to:
  - stress
  - emotionally demanding situations
  - overworking
  - pushing yourself too hard without taking care of yourself and honoring your needs

- A recent survey found that **70% of PhD students** and **73% of master's students** experience **moderate to severe burnout**.

- **Technical disciplines are particularly affected**: Students in informatics/computer science report some of the highest burnout rates.

- In a 2023 survey, **64% of college and university faculty** reported feeling burned out due to work. Rates were even higher for **women (69%)** and **gender minority faculty (71%)**, compared to **57% for men**.

Symptoms

- Exhaustion
- Trouble with thinking or decision making
- Reduced work performance
- Loss of empathy
- Loss of motivation
- Increasingly cynical and negative outlook
- Decreased satisfaction and sense of accomplishment

Combat Burnout

- **Prioritize sleep!** Rest is strategic recovery, not wasted time.
- **Set boundaries**: treat research like a marathon, not a hackathon
- **Learn to switch off after work** (focus on cooking, a hobby, etc.)
- **Say no** to extra work when you can
- **Socialize** and spend time with friends and family
- **Take a break** or a vacation
- Do things you **enjoy**

Isolation and Comparison

Isolation and Comparison

- Working alone on niche topics = loneliness risk.
- Social comparison in competitive cohorts fuels impostor feelings.
    - Papers, presentations, graduation time, …

How to survive:
- Build community: lab socials, conferences, writing groups.
- Share struggles as well as wins.
- Collaborate broadly; academia is not a zero-sum game.
- Avoid social media if it's detrimental to your wellbeing.

Final thoughts

- Seek advice, but remember to be picky and only choose the one that benefits you and who you are.
- Your work is very important, but it does not define you as a person. You are much more than that.
- Setbacks are part of the process. Trust the process. Celebrate victories and progress, big or small.
- **Build a community and a support network:** family, friends, peers, mentors, collaborators
- **Take care of yourself** - it's an essential part of being "productive"
  - Sleep, eat, play
  - Spend time with loved ones