IMPOSTOR SYNDROME & WHAT RESEARCHERS NEED TO KNOW

Danfeng (Daphne) Yao
Professor of Computer Science

https://youtu.be/JqFKv9Rg0k8
To share my personal experiences in my decades-long journey overcoming impostor syndrome

The sooner you know about it, the sooner you become a better researcher
“News anchors’ jobs are easy”
My ultimate goal for you –

Ability to think and speak while being questioned/criticized
“Don’t act differently when you’re around important people.”

-- George Clooney’s advice to a young actor

Hmm... but being yourself is easier said than done
Presentation at Stanford

I'M FULLY CONFIDENT

Presentation at a R2 university

SIT BACK AND RELAX

I GOT THIS
WOMEN IN CYBERSECURITY
Cybersecurity is a tough field -- many people with a hackers’ mentality, not a scientist’s mentality
Jessica Alba discussed overcoming impostor syndrome

“For a long time, I felt like an impostor. It's not until you feel whole in yourself that you fit in anywhere.”

The Honest Company Expands in Canada
Canadian consumers will now see more products by The Honest Company at retailers.

Impostor syndrome (also known as impostor phenomenon, impostorism, fraud syndrome or the impostor experience) is a psychological pattern in which one doubts one's accomplishments and has a persistent internalized fear of being exposed as a "fraud".

Public key infrastructure (PKI) episode during my graduate school (in 2003)

My collaborator from Sun Microsystems causally asked: “Are you familiar with PKI?”
Post-tenure depression (2014)
San Diego sabbatical (2016)
In that beautiful beautiful San Diego Torrey Hills Community Park in 2016, I had a profound and overwhelming sense of **FAILURE** -- as a researcher

I wanted to quit
I felt like a loser. My past achievements didn’t matter to me.

ARO YIP Award (2014)
NSF CAREER Award (2010)
CACI Faculty Fellow (2014)
Outstanding New Assistant Professor Award (2012)

Brown University PhD (2007)
Indiana University MS (2002)
Princeton University MA (2000)
Peking University BS (1998)
3rd US Patent application ongoing by 2016 (approved in 2018)
Impostor syndrome is not just a female issue

- High achieving individuals
- People of color
- Immigrants
- Poverty
- Mental diseases
- Traumatic childhood
- Perceived incompetence of parents
- Not looking nerdy enough
“When are they going to discover that I am, in fact, a fraud and take everything away from me?”
– Tom Hanks (2017)
How to use your impostor syndrome as an asset

Take one look at my title, and you’d think I know what I’m doing when I turn up to work every day.

Over a decade ago I started a company straight out of university with a mate, Scott. We had no prior business experience and no grand plan. Today we have thousands of awesome employees, and millions of people across the planet use our software every day. Surely that kind of success comes from massive expertise and experience, right?
Public faces of impostor syndrome

Michelle Obama: 'I still have impostor syndrome'

Emma Watson: I suffered from 'imposter syndrome' after Harry Potter – I felt like a fraud
Not looking nerdy enough to be a scientist

My former student -- A masculine white male software engineering intern at Overstock.com mistaken as a janitor

For 22 years, people telling me “You smile too much.”

Not looking old enough to be a professor

“You’re the lead author of the work?”
Where does the society’s bias come from?
To smile or not to smile – that’s the question

Google search “University Professor”
Immigrants’ kids don’t think their parents know America
But... people with impostor syndrome get things done

Wake up at 5am and start working

Feel like I don’t deserve anything

Feel like I need to always do more (to prove myself to others)
If impostor syndrome is a motivator, then why do researchers need to be aware of it?

Why do researchers need to get rid of impostor syndrome?
Doubting yourself – thinking “I suck at research” or “I don’t belong” -- is devastating
DOGGED PERSISTENCE

WHAT IT MEANS TO “SCIENCE”
#smallworldinitiative
Time spent

Research skills
Quality of papers
Coding skills

Diminishing return
Rapid growth
Slow start phase
Why do researchers need to get rid of impostor syndrome?

Research is a luxurious activity; Creativity requires confidence & a peaceful mind

Research requires determination & persistence – big time

- Feeling like a fraud
- Doubting yourself
- Profound sense of faking, pretending
- No sense of belonging
My impostor syndrome usually kicked in when I was being interviewed (TV, news, radio stations reporters) for the achievements/inventions/discoveries I had...

I did well in my last interview (fall 2019) -- may have outgrown it!
Researchers need to be aware of impostor syndrome

Research Faith Graph

- Researchers
- Graduate research assistants
- Professor
- Paper reviewers
- Funding agencies
- Dept head/Dean

Has faith in

VT
Research requires confidence & persistence & passion & faith

Impostor syndrome erodes them
Passion meter -- Where are you as a researcher?

I want you to be here

Dropout or semi-dropout zone

https://dribbble.com/shots/2002802-Passion-Meter
Negative side effects of impostor syndrome – quit trying, compromise prematurely

**Quiz (pick one):**

PhD is for people who are

A) Smart  
B) Patient  
C) Pulling all-nighters  
D) Creative
Another negative side effect of impostor syndrome – afraid of taking risks

Afraid of stepping into leadership positions & taking responsibilities

Afraid of failures, risk averse

Feeling unqualified or

Feeling others saying you’re underqualified
Research involves risks and uncertainties all the time

RISK IS MY MIDDLE NAME
A common pitfall in computer science graduate research

A profound sense of knowledge gaps

- “I need to read all these books first before I do research”
- Non-stop reading literature
- Unable to recognize novelty in own work
If your advisor had a better choice, he/she would not have asked you to do it

So, you’re the best qualified person to do this work
Learn from Janet Yellen

Former Chair of the Federal Reserve

However, there were doubts about her qualification when she was nominated
People say – No, Larry Summers would be a stronger candidate.
To criticisms, Janet Yellen replied:

“Don’t count me out yet.”
Yet another negative side effect of impostor syndrome – unable to defend your work against criticizers

“You don’t have new math”

“You should work on Y, instead of X”

“Your result is not surprising”

“Your work is not useful”

“Your work is too rigorous for security conferences”
Impossible to achieve perfect security

There’ll always be attacks that evade detection

Impossible to please everyone

There’ll always be people who think you suck
How to cope with impostor syndrome?
It’s not to say that you should not work hard

Working hard  ==/==  Having impostor syndrome

Hard working (being a subject expert) is a starting point of a researcher
Also don’t go to the other extreme

Don’t be Elizabeth Holmes
(Google “Theranos”)

Don’t be Billy McFarland
(Google “Fyre Festival”)
Know your strengths
MY WEAKNESS IS MY STRENGTH?
Daphne’s biggest moments of clarity

My weakness (e.g., abstract thinking) is precisely my strength!

Wait, people actually need me?
Daphne’s No. 1 tip for coping with impostor syndrome

1. Know/find your strengths

2. Let your strengths shine

3. Repeat
What if having no strengths?
Great minds don’t think alike

Recognizing other researchers’ style/strengths brings clarity to yours
What about your weaknesses?

Fake it till you make it?
What about weaknesses?

Weakness

Is it a critical weakness?

NO

Do nothing or improve later

YES

Do you need it to get things done now?

YES

Can you delegate?

NO

WORK VERY HARD TO IMPROVE NOW!

YES

Delegate, use tools, or collaborate, ask for help

NO

Do nothing or improve later
Watch sports movies – overcoming self-doubt

The Replacements (2000)

The Waterboy (1998)
Have role models

They don’t have to look like you to be your role models

You can have more than 1 role model

Having role models for different scenarios

Role models don’t have to be famous
Find and build your support system
Find and build your support system

Women in Cybersecurity Research (CyberW) 2020 workshop speakers/organizers
I organize many inclusive excellence events
Find your allies

Women’s Reception at ACM CCS 2019, London UK
Celebrate every achievement!
Celebrate when a paper got published
What else to do to cope with impostor syndrome?

To watch out for impostor-syndrome-inducing incidents
GUARD your confidence

“Professor, are you sleeping?”

“Women usually suck at computer science and engineering.”

Sexual harassment incidents
Growing thick skin alone is not sufficient

“Lean in” alone is not enough

[Diagram: Female population at different tiers of the Columbia University Vagelos College of Physicians and Surgeons hierarchy as a percentage of the total]

https://www.columbiaspectator.com/eye-lead/2018/04/05/ps/
Science will be better if everyone contributes and shines
Daphne’s comments on a recent women in tech panel


What challenges have you faced as a woman in technology and how were you able to overcome them?

Last Saturday, a remote family friend told me that he was surprised by my achievements, because women "usually suck at technological fields." This type of stereotypical and impostor syndrome-inducing microaggressions routinely happens to women in technology. They drag women down, making their work less and less enjoyable. It is like running in mud. Overcoming these challenges requires the society to improve, which unfortunately happens very slowly. The current system is not perfect. All women in technology need to read about impostor syndrome. Do not let gender-related issues negatively impact your self-esteem.

What can technology companies do to empower their women employees?

Technology companies need to put women in powerful decision-making positions. Give the benefit of the doubt to women. Women might not always look like or talk like the executives, board members, or presidents in stereotype-perpetuating Hollywood movies. That does not mean women cannot do the work. I have seen so many truly brilliant, devoted, and decisive ladies in the technology profession. Give women the opportunities to shine. Have faith in women.
YouTube Video Recording: https://youtu.be/JqFKv9Rg0k8