Research Ethics

CS489 Computer Ethics and Social Issues

Shin Yoo

Outline

- Authorship

- Ethics board

- Promoting your research: how far can you go?

Authorship

Authorship

- "Who wrote this?"

- Major criterion with which employers evaluate academic personnel for employment, promotion, and tenure.

- In simpler scenario, one person will complete a research project and write about it: done.

- Collaboration introduces a lot of complexity.

Authorship matters because..

- People use various properties of how author names are recorded, and what role each author actually played, to measure the academic merit and contribution

  - Order of names

  - Designated roles

Fig. 1 Share of authors performing a particular contribution; stacked for each author position.
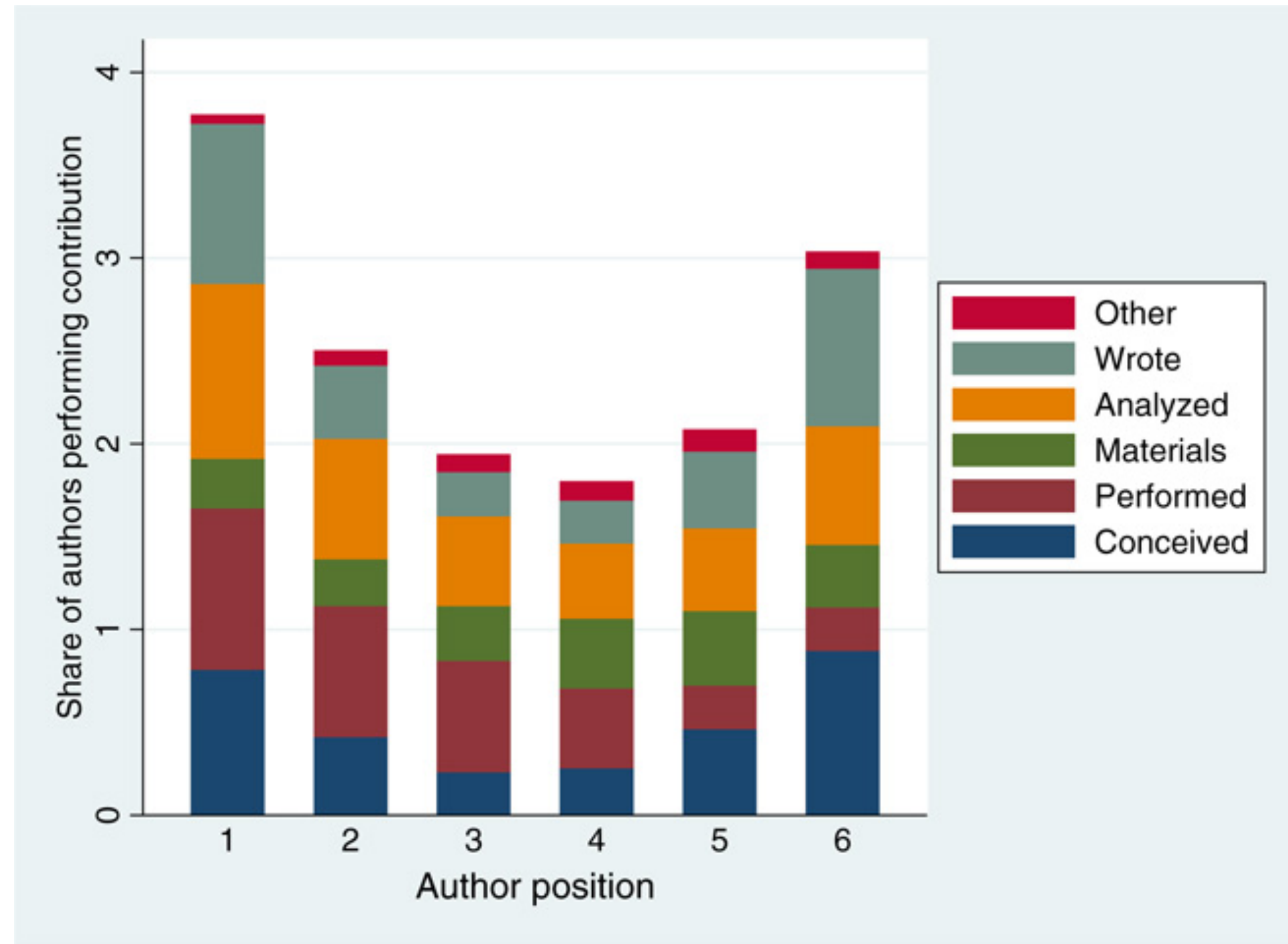
Henry Sauermann, and Carolin Haeussler Sci Adv 2017;3:e1700404

Authorship Order

- Rules of the order vary significantly across disciplines.

  - Some fields list authors in the order of contribution

  - Others list authors in alphabetic order

  - A recent trend is that the PI comes at the end (so PhD comics got this right)

Authorship Roles

- First Author: the position *implies* that this author contributed the most (if not in alphabetical order, that is)

- Corresponding Author: the person to contact if you have any inquiries about the paper

  - Responsible for the actual administrative pipeline of the publication

  - Primary contact point between the publisher and the authors

  - The person who uploads the manuscript online (to be reviewed)

ACM Guideline on Authorship

- Anyone listed as Author on an ACM manuscript submission must meet all the following criteria:

  - they have made substantial intellectual contributions to some components of the original work described in the manuscript; and

  - they have participated in drafting and/or revision of the manuscript and

  - they are aware the manuscript has been submitted for publication; and

  - they agree to be held accountable for any issues relating to correctness or integrity of the work.

- Other contributors may be acknowledged at the end of the paper, before the bibliography.

- https://www.acm.org/publications/policies/authorship (revised August 2018)

Ethics in Human Studies

Tuskegee Syphilis Experiment

✗ U.S. government studied the effects of <u>untreated syphilis</u> in African–American men in the rural South, under the guise of free health care

✗ Not informed they had syphilis

✗ Not treated even as proven, effective treatments like penicillin became available.

✗ 6–month study => 40 years (1932–1972)

National Archives Atlanta, GA (U.S. government)

Slide by Dr. Juho Kim, taken from Introduction to Research (http://intro2research.org)

Belmont Report:
Ethical guidelines for human subject studies

✗ Respect for persons
  ○ voluntary participation & informed consent
  ○ protection of vulnerable populations (children, prisoners, people with disabilities, esp. cognitive)

✗ Beneficence
  ○ do no harm
  ○ risks vs. benefits: risks to subjects should be commensurate with benefits of the work to the subjects or society

✗ Justice
  ○ fair selection of subjects

Slide by Dr. Juho Kim, taken from Introduction to Research (http://intro2research.org)

Menlo Report

- An ethical framework for research in Information & Communication Technology (issued in 2012: see https://www.impactcybertrust.org/link_docs/Menlo-Report.pdf)

- Adds the fourth principle: "Respect for Law and Public Interest"

  - Engage in legal due diligence; Be transparent in methods and results; Be accountable for actions.

The Menlo Report

Ethical Principles Guiding Information and Communication Technology Research

August 2012

Homeland Security
Science and Technology

Menlo Report: Respect for Persons

- Informed consent: "a process during which the researcher accurately describes the project and its risks to subjects and they accept the risks and agree to participate or decline"

- Justifiable exceptions are allowed, primarily when it is difficult to identify all individuals who may be affected

  - What if you send a PR, generated by a machine learning model, to an open source project used by hundreds of other projects?

Menlo Report: Beneficence

- Balancing potential benefits and harms: "ICT researchers should identify benefits and potential harms from the research for all relevant stakeholders, including society as a whole, based on objective, generally accepted facts or studies"

- "Researchers should systematically assess risks and benefits across all stakeholders. In so doing, researchers should be mindful that _risks to individual subjects are weighed against the benefits to society_, not to the benefit of individual researchers or research subjects themselves."

Menlo Report: Beneficence

- Mitigating realised harms: sometimes you have to take risk, and bad things and/or side-effects can/will happen

- Researchers should develop mitigation plan

  - anticipate the worst case scenario

  - prepare a list of parties to notify

  - involve institutional risk management mechanism if necessary

A Case Study

- A research team led by Richard Kemmerer, UCSB, hijacked a criminal botnet for 10 days, and collected the data stolen by the bots!

  - An impressive feat of security research/hack, but also

  - A fascinating story about balancing risks, risk mitigation, etc

  - "How to steal a botnet and what can happen when you do" - Richard Krmmerer, Google TechTalk, 2009 (https://youtu.be/2GdqoQJa6r4?t=3026)

Menlo Report: Justice

- "It is important to _distinguish between purposefully excluding groups based on prejudice or bias versus purposefully including entities who are willing to cooperate and consent, or who are better able to understand the technical issues raised by the researcher_. The former raises Justice concerns, while the latter demonstrates efforts to apply the principles of Respect for Persons and Beneficence and still conduct meaningful research."

Menlo Report: Respect for Law and Public Interest

- Was implicit in Belmont Report; made into the fourth principle in Menlo Report

- "There may be a conflict between simultaneously satisfying ethical review requirements and applicable legal protections. Even if a researcher obtains a waiver of informed consent due to impracticability reasons, this may not eliminate legal risk under laws that require consent or some other indication of authorization by rights holders in order to avoid liability."

- "Until REBs can overcome limited ICT expertise on committees and in administrative staff positions, they may not be capable of recognizing that certain ICT research data actually presents greater than minimal risk and may erroneously consider it exempt from review or subject it to expedited review procedures that bypass full committee review."

Menlo Report: Respect for Law and Public Interest

- Compliance: respect and try to follow the legal restrictions. "If applica ble laws conflict with each other or contravene the public interest, researchers should have ethically defensible justification and be prepared to accept responsibility for their actions and consequences."

- Transparency and Accountability

  - Transparency: clearly communicate the purpose of research, and how the results will be used

  - Accountability: research activities should be documented and made available responsibly

Institutional Review Board (IRB)

✗ Research with people is subject to scrutiny
  ○ Most research institutions have an IRB that approves research–related user tests
  ○ KAIST has its own IRB. Review meetings held ~6 times a year.

✗ IRB oversight is confined to research
  ○ "Research" is work leading to generalizable knowledge
  ○ "Practice" (clinical medicine, product development, class projects) does not require IRB approval
  ○ But all work with human beings should follow the IRB ethical guidelines, even if it doesn't need IRB paperwork

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IRB Approval

✗ Human subjects training for all researchers

✗ Main report
- ○ Objective
- ○ Descriptions of the system being tested
- ○ Task environment & material
- ○ Participants (minor, disabilities)
- ○ Methodology (deception study)
- ○ Tasks (cognitive, physical, emotional overhead)
- ○ Test measures (personal info)

✗ Seems tedious but helps debug your study

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Greeting!

The KAIST Institutional Review Board will hold the first regularly scheduled meeting to conduct review on research proposals involving human subjects or human biological materials for 2018 (according to the principle of prior review). Principal investigators who are planning to conduct researches subject to IRB review are asked to submit the documents for review, referring to the below.

| Researches subject to review			All human–and Human Biological Material(including embryo and stem cells) research conducted on–campus **(※ In principle, all new projects are subject to regular review)**
Required documents	Common		[Form#1] Protocol Review Application(*Please submit the CITI-training certificate without fail) [Form#2] Detailed overview of Research
	Additional (if applicable)	Human subjects	[Form#1-1] Research Proposal_for human subjects [Form#5] Informed consent form_for human subjects (If applicable) Other supporting documents including advertisement to recruit subjects & survey paper
		Human biological materials	[Form#1-2] Research Proposal_for human biological materials - Direct collection : [Legal documentation#34] Informed Consent form_for human biological materials, [Form#5] Informed consent form_for human subjects – Materials received from external institute : IRB Approval Form of the said institution & a copy of the informed consent.
		Embryonic stem cell lines	[Form#1-3] Research Proposal_for embryonic stem cell lines (if applicable) Please add a copy of the Material Transfer Agreement (MTA) from the institution which has established or imported the embryonic stem cell lines.
	Protocol Revision		[Form#3] Request for protocol Revision (if applicable) Please submit other supporting documents
	Review Exemption Confirmation		[Form#1-1 or #1-2] Research Proposal [Form#6] Review exemption request [Form#7-1 or #1-2] Self-evaluation for Exemption from review (If applicable) Please add documents provided to subjects including the survey paper.
How to submit			Please submit the file in e-mail (kaistirb@kaist.ac.kr). Upon receipt of a confirmation e-mail, please send separately the printed copy containing the signature of principal investigator to the person in charge of IRB of the Research Promotion Team via on-campus mail service.
Application period			Friday, Dec. 22, 2017 ~ Friday, Jan. 5, 2018

*Principal investigators and other participating researchers are required to take the Ethics and Safety courses before applying for a review. Please refer to the attached file (www.citiprogram.org).
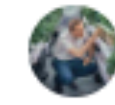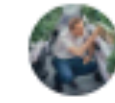
Promoting Your Research

Food Computer

- A table-top sized, controlled environment "platform" for growing food

- Controls climate variables (CO_2, temperature, humidity, oxygen, etc)

- Can create "recipes" for plants, allowing emulation of any climate anywhere
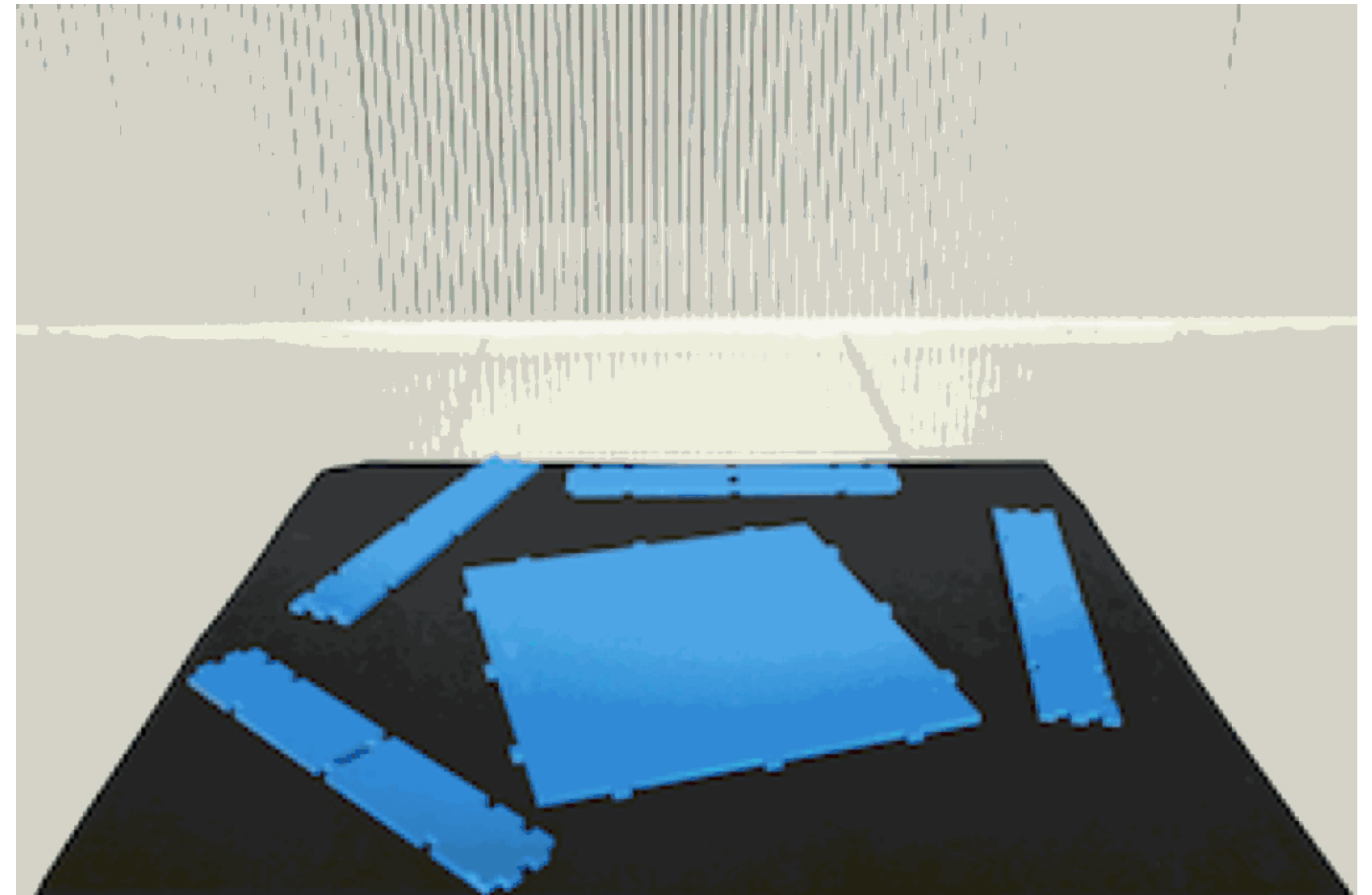
calebgrowsfood • Follow
Middleton, Massachusetts

calebgrowsfood Elena and Norman Foster and Nicholas Negroponte in an underground tunnel at my lab !!! What an AMAZING DAY 😄😬 - sharing our work and vision for the #futureoffood @mitopenag today. It was also personally intense and cathartic visit for me for so many reasons. Nicholas is a friend and mentor and to be able to show him how far my team and our work has come in 4 years 👌 and then Norman asked to read my 2014 architectural masters thesis - it was terrifying and exhilarating to have one of the most famous architects in the world find value in work that I struggled to convince my professors/thesis committee at the
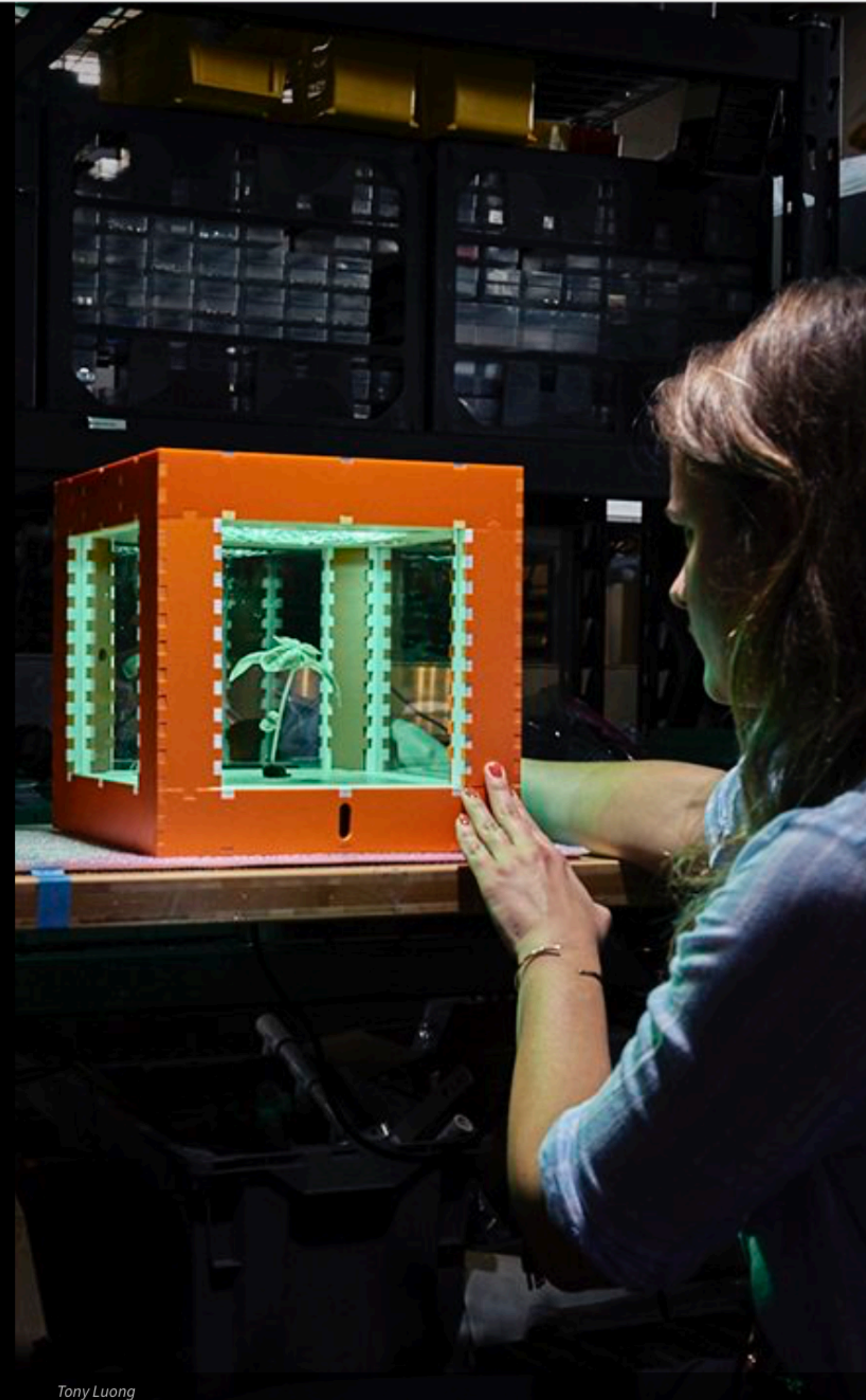
167 likes

JUNE 8

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Hype vs. Reality at the MIT Media Lab

By Nell Gluckman

Tony Luong

https://www.chronicle.com/interactives/201900910-MITmedialab-food-computer

- "On his tour, Foster was shown food computers filled with plants. But what he probably didn't suspect was that _the specimens hadn't been grown in the machines_. They had been ordered from another hydroponics system, according to a person with knowledge of the visit. They had been placed in the food computers, the person said, to make it look as if they'd been grown there all along."

- "One former researcher described _buying lavender plants from a gardening store_, dusting the dirt off the roots so it looked as if they'd been grown without soil, and _placing them in the food computer ahead of a photo shoot_. The resulting photos were sent to news media and put on the project's website."

- "Former employees also said that when Harper has given presentations on his work at the Media Lab, he has described research projects that either they didn't know about or believed to be exaggerated."

Caleb Harper Himself

(taken out of the Chronicles article, so may lack context)

- "It's vision versus reality, and both are necessary. I have a pretty good handle on where this field is going, so I talk about that. And because I'm so clear on that vision, I think people misinterpret that as reality."

- "Can you email a tomato to someone today? No. Did I say that in my TED talk? Yes. Did I say it was today? No. I said, you will be able to email a tomato."

The Power Pose

- "A controversial self-improvement technique in which people stand in a posture that they mentally associate with being powerful, in the hope of feeling more assertively"

- Published by Carney, Cuddy, and Yap, Psychological Science, 2010 (https://doi.org/10.1177%2F0956797610383437): this was a summary paper.

- Popularised by a TED talk by Cuddy in 2012 (https://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are?language=en)
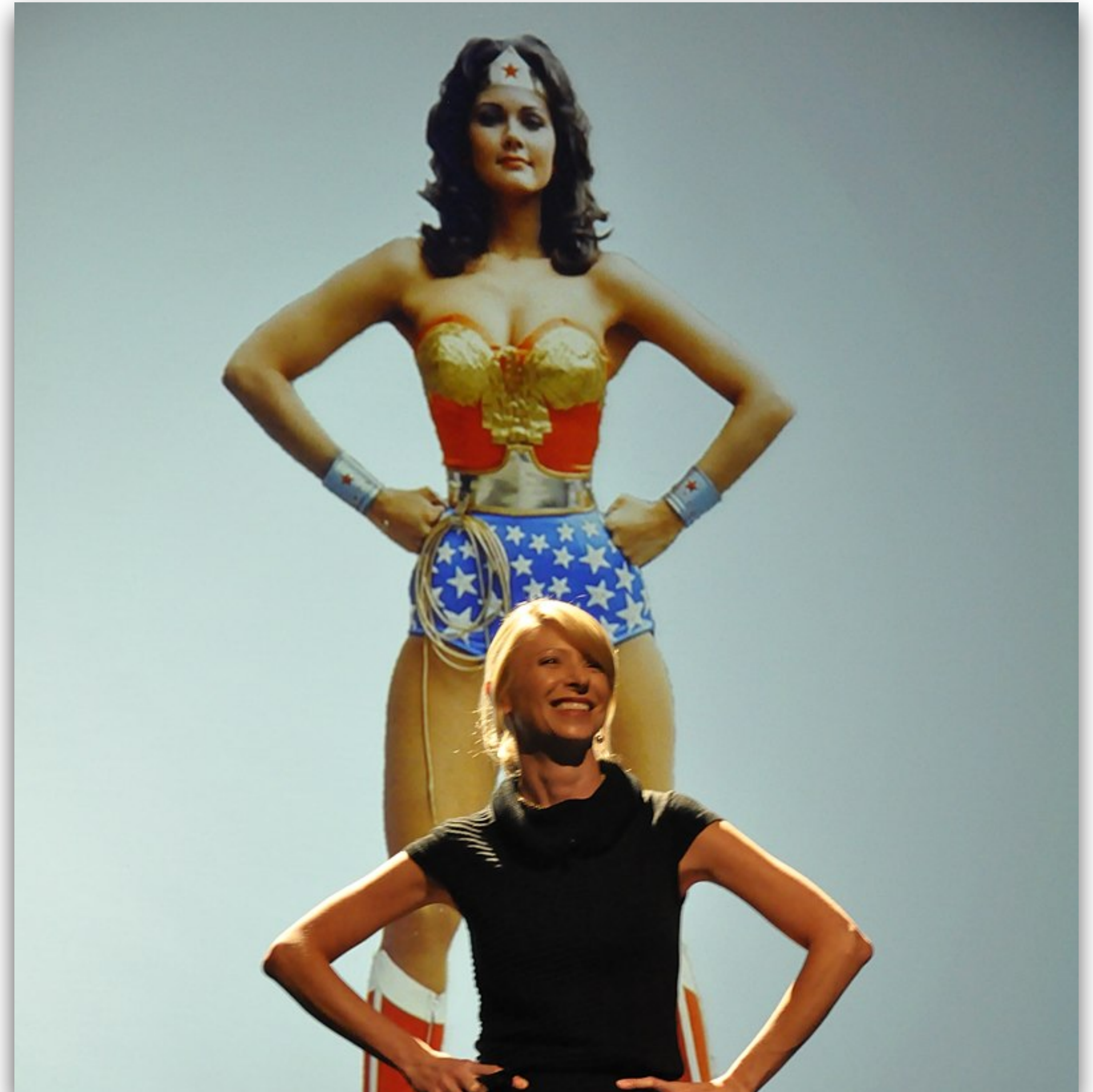
- In 2015, other researchers began to report that they could not replicate the results (e.g., Simmons and Simonsohn argue that the results were obtained by abusing statistical analysis https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2791272)

- In 2016, Carney, one of the original authors, made a public announcement that she no longer believes in the power pose effect (http://faculty.haas.berkeley.edu/dana_carney/pdf_my%20position%20on%20power%20poses.pdf)

- Amy Cuddy, one of the other authors, still believes in the results (https://www.thecut.com/2016/09/read-amy-cuddys-response-to-power-posing-critiques.html)

- Journal, Comprehensive Results in Social Psychology, published a special issue on power pose: it contained 11 replication studies, and concluded that the results could not be replicated (http://datacolada.org/37)
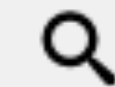
METRO

NEWS... BUT NOT AS YOU KNOW IT

135.6M
SHARES

Why do Tories keep standing like this?
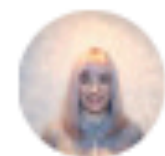
Jen Mills   Monday 30 Apr 2018 4:02 pm

What was the common factor between two academic scandals(?)…?

Pressure for Impact

- Funders increasingly want evidence that the money spent on research as some real impact.

- Information overload means that only really unique, eye-catching results stands out in the sea of news.

- Research fields are more competitive than ever, resulting in less opportunity to grab the attention of readers (shorter presentation time, fewer opportunity to give talk, etc)

- Combined, there is the risk of wanting to sensationalise your communication, going directly after public attention even at the cost of scientific accuracy

Science is Communication

- We have *obligation* to communicate our results to the general public: after all, we do research using public funding (i.e., tax money)

- With that obligation, also comes the need to explain it gently and kindly, using laymen's terms

- But hard things are hard: do not gloss over the important details

- And do not go for sensational catchphrase

Other Concerns That We Could Not Talk About

- Plagiarism (duh!)

- Proper use of statistics (don't do p-hacking)

- Transparent and responsible peer reviews

- Pressure to go open access

- Source of funding (https://www.technologyreview.com/2020/01/10/1/mit-jeffrey-epstein-donations-media-lab-seth-lloyd-funding-ethics/)

Concluding Thoughts

- (For those who have published anything) Was the author credit fair and appropriate?

- Whenever you read a newspaper article about AI, try searching for the original academic paper: will the article and the actual technical contribution precisely agree?

- What do you think of Caleb Harper? A visionary researcher who is trying very hard to break new grounds, or someone who is irresponsible?