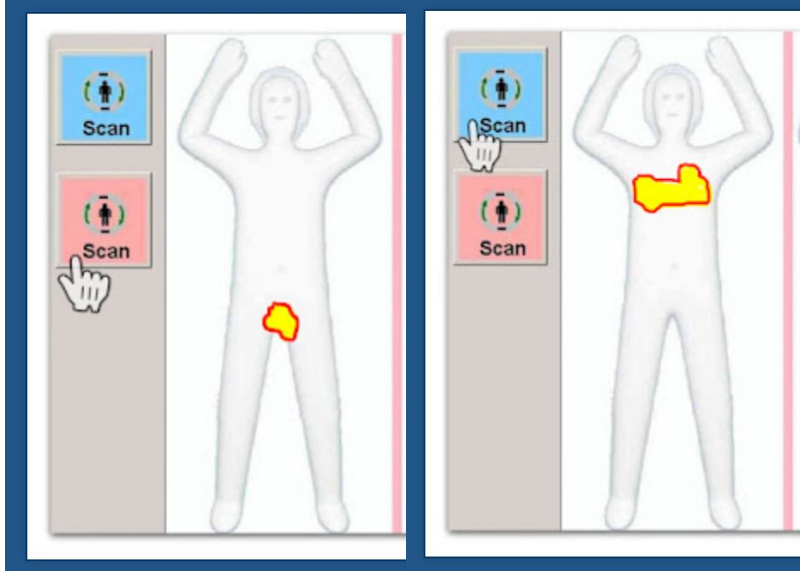


# Module 6: LGBTQIA+

# Technology encodes assumptions



source: <https://trans-fusion.blogspot.com/2016/01/traveling-while-trans-false-promise-of.html>

APPLE / TECH

## Apple promised an expansive health app, so why can't I track menstruation?



By [Arielle Duhalme-Ross](#)

Sep 25, 2014, 12:55 PM EDT | [0 Comments](#) / [0 New](#)

Whose health and safety do our technologies serve?

Who does our technology label as dangerous?

# Definitions (and Complications to those Definitions)

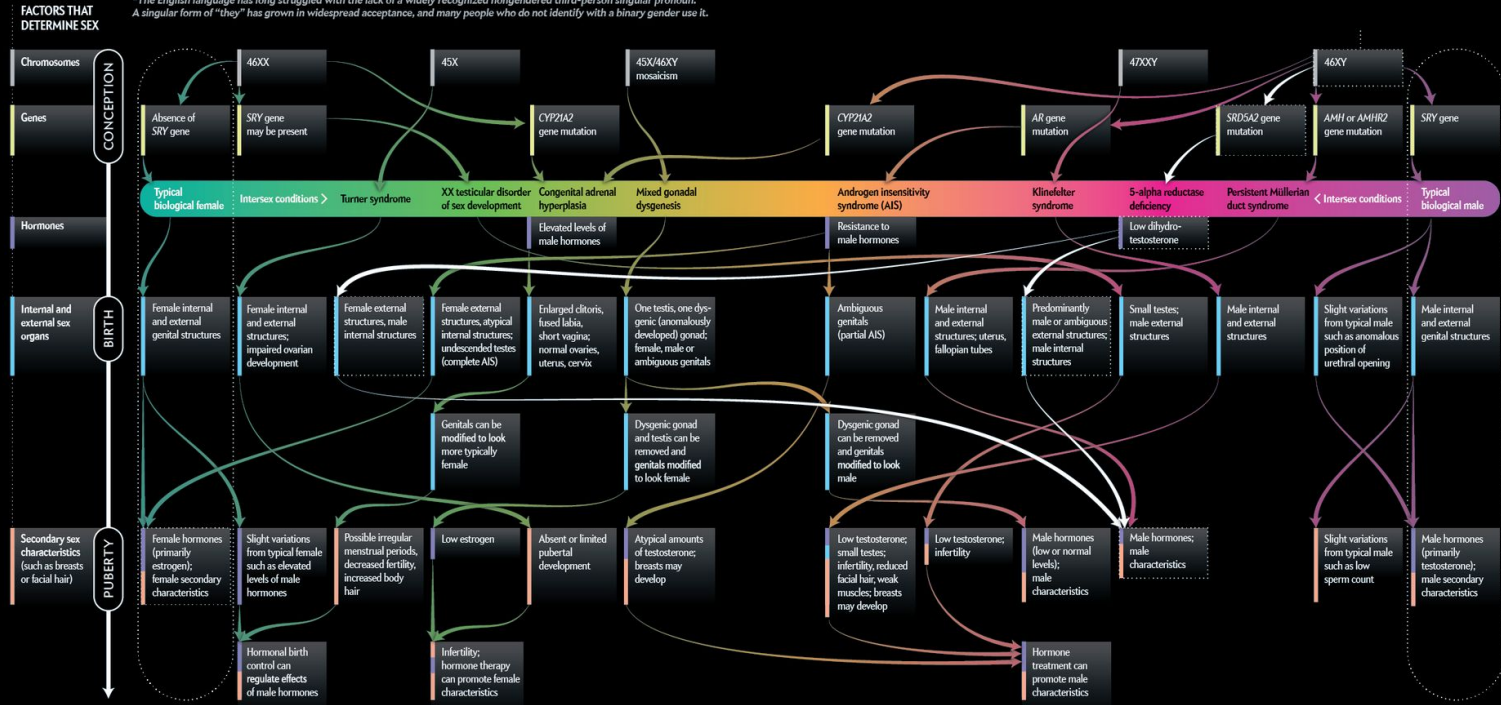
- Sex: a categorization on the basis of biology, chromosomes, physical traits, usually assigned by doctor at birth
  - But sex can be expansive and complex:
    - Intersex people have biology/chromosomes/physical traits that don't align with normative expectations around male/female bodies.
- Gender:
  - Involves gender expression, gender identity, perceived gender
  - Relates to societal and cultural norms and associations
    - behaviors, expectations, ways of describing people
  - Expansive, complex, on a spectrum
    - Nonbinary: gender not sufficiently described within man/woman binary.
    - Trans: gender differs from assumptions based on assigned sex at birth.

# BEYOND XX AND XY

A host of factors figure into whether someone is female, male or somewhere in between

Humans are socially conditioned to view sex and gender as binary attributes. From the moment we are born—or even before—we are definitively labeled “boy” or “girl.” Yet science points to a much more ambiguous reality. Determination of biological sex is staggeringly complex, involving not only anatomy but an intricate choreography of genetic and chemical factors that unfolds over time. Intersex individuals—those for whom sexual development follows an atypical trajectory—are characterized by a diverse range of conditions, such as 5-alpha reductase deficiency (circled). A small cross section of these conditions and the pathways they follow is shown here. In an additional layer of complexity, the gender with which a person identifies does not always align with the sex they\* are assigned at birth, and they may not be wholly male or female. The more we learn about sex and gender, the more these attributes appear to exist on a spectrum. —Amanda Montañez

\*The English language has long struggled with the lack of a widely recognized nongendered third-person singular pronoun. A singular form of “they” has grown in widespread acceptance, and many people who do not identify with a binary gender use it.



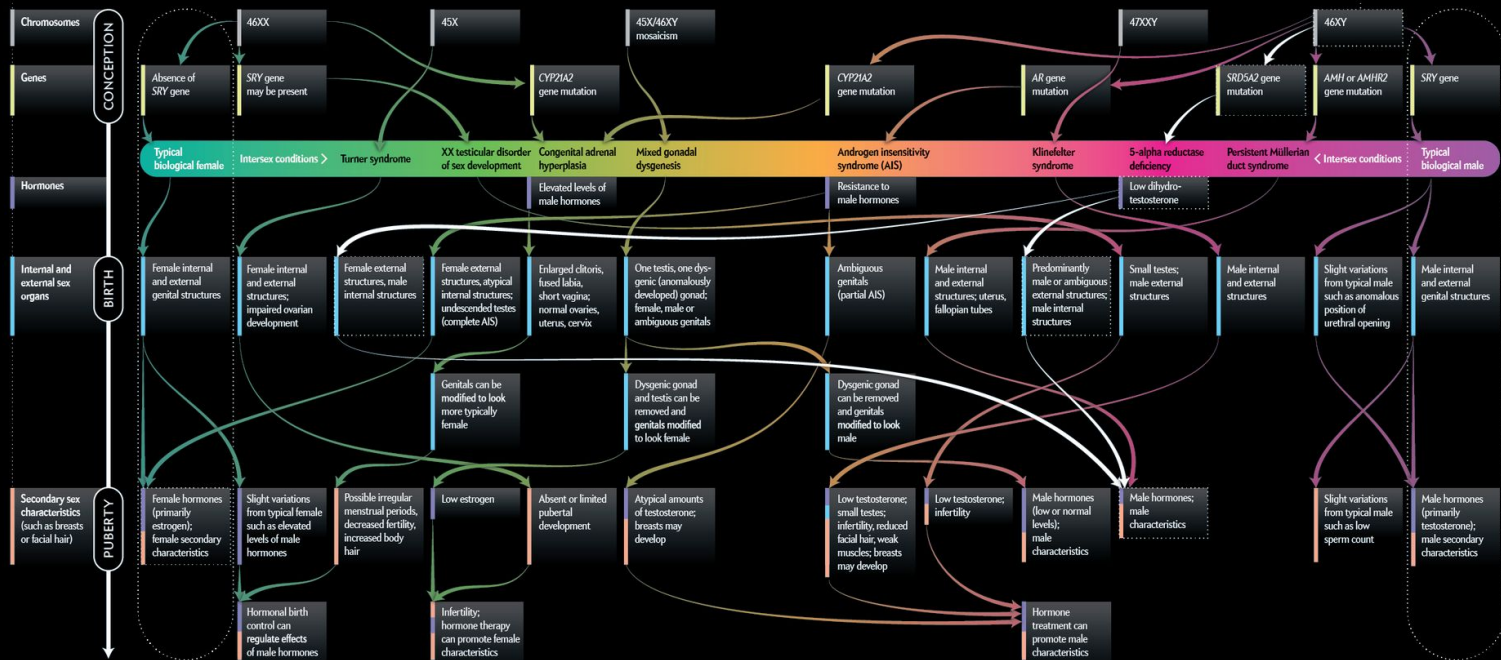
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## FACTORS THAT DETERMINE SEX



## The Gender Spectrum

A transgender woman is a person who was assigned male at birth based on her anatomy but who identifies as a woman.

A transgender man is a person who was assigned female at birth based on his anatomy but who identifies as a man.

A cisgender woman is a person who was assigned female at birth based on her anatomy and who also identifies as a woman.

A cisgender man is a person who was assigned male at birth based on his anatomy and who also identifies as a man.

A nonbinary person is someone who identifies as neither completely female nor completely male. Such an individual may identify with both genders or neither gender, or they may be gender fluid, meaning their gender fluctuates between female and male.

Sexuality refers to an individual's sexual orientation or to the kind of person to whom they are attracted. Sexuality is also a spectrum but is separate from both sex and gender.

5-alpha reductase deficiency is an intersex condition that can follow multiple pathways throughout development. Affected individuals have a chromosomal makeup of 46XY, like a typical biological male, but a genetic mutation causes a deficiency of the hormone dihydrotestosterone. Patients' external anatomy can vary, so an individual might be assigned to either sex at birth, but at puberty a surge of testosterone promotes male characteristics. As a result, patients who are raised as girls often end up identifying as male.

# Common Assumptions that can harm LGBTQIA+ Folks

- 1) Biological sex can be described with a single bit of information
- 2) Gender can be described with a single bit of information
- 3) These two bits of information **always match, never change, and are always obvious.**

# These Assumptions are Encoded in our Technology

## The Misgendering Machines: Trans/HCI Implications of Automatic Gender Recognition

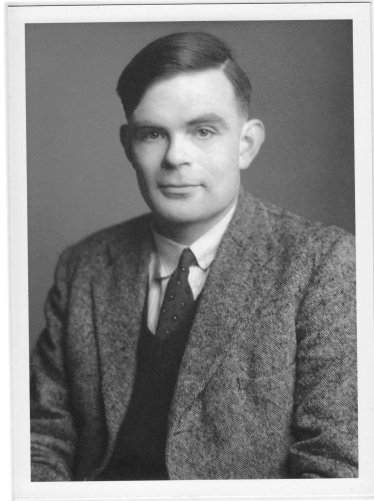
OS KEYES, University of Washington, USA

<i>Paper type</i>	<i>Binary</i>	<b>Analysis results</b>	
		<i>Immutable</i>	<i>Physiological</i>
Focused on gender	92.9%	71.4%	82.1%
No gender focus	96.7%	73.3%	40%
<b>Overall</b>	94.8%	72.4%	60.3%

# Histories of LGBTQIA+ Discrimination in STEM

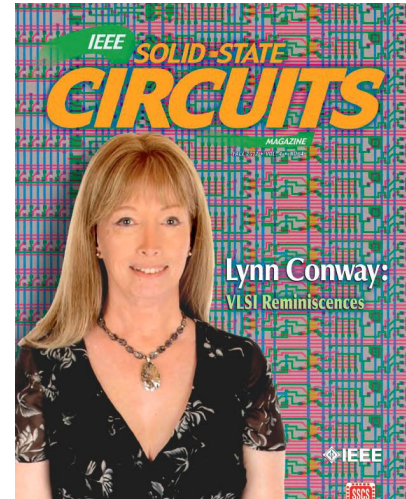
Alan Turing:

- Ideas core to the theory of computation (Turing machine)
- Chemically castrated for being gay
- Died of suicide at age 41



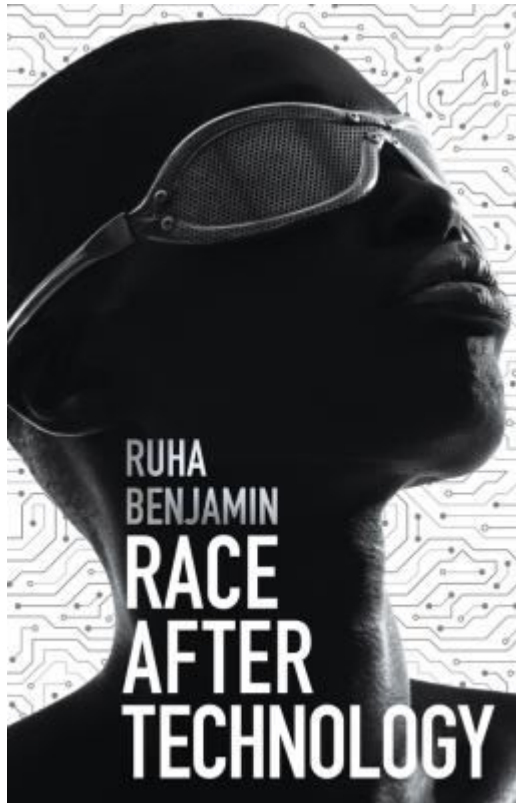
Lynn Conway:

- Mead-Conway VLSI microchip design revolution
- Transgender; fired from IBM in 1968 for transitioning
- Successful faculty at U Michigan, living in “stealth”





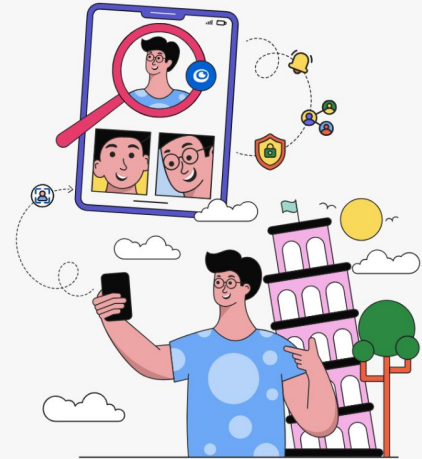
# The Paradox of Visibility



## Face Search Engine Reverse Image Search

UPLOAD PHOTO AND FIND OUT WHERE IMAGES ARE PUBLISHED

Or you can take a photo with the device's camera. Don't worry, we will not store it!

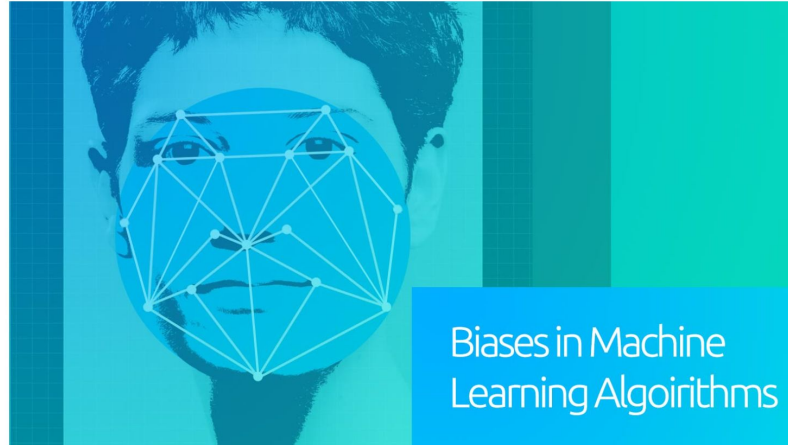


“Coded Exposure highlights the underside of tech inclusion, how the invisibility or technological distortion of those who are racialized is connected to their hyper visibility within systems of surveillance.”

- Ruha Benjamin. <https://400years.berkeley.edu/videos/newiimcode>

# Technology encodes existing inequities

Discriminatory practices can self-amplify with AI:



*October 11, 2018*

Amazon Scraps Secret AI Recruiting Engine that Showed Biases Against Women

AI Research scientists at Amazon uncovered biases against women on their recruiting machine learning engine

# Gaps and Further Readings

General gender resources:

[Understanding Gender Identities | The Trevor Project](#)

[Visualizing Sex as a Spectrum - Scientific American](#)

Gender and Computer Science Education:

[Broadening Gender in Computing for Transgender and Nonbinary Learners | IEEE Conference Publication](#)

[An LGBTQ-Inclusive Problem Set in Discrete Mathematics | Proceedings of the 53rd ACM Technical Symposium on Computer Science Education - Volume 1](#)

Gender and Technology:

[Trans Tech | Oliver Haimson](#)

[The Misgendering Machines: Trans/HCI Implications of Automatic Gender Recognition](#)

# Additional Problematic Assumptions

- Names:
  - Do not always correspond to gender
  - May change for many reasons, including name changes for transgender individuals. This can cause issues when not designed for. As one example, see [Towards A Trans Inclusive Publishing Landscape | by Theresa Jean Tanenbaum | The Name Change Policy Working Group | Medium](#)
  - Have many different structures and exceptions, for reasons that can extend well beyond lgbtqia+ identities:
    - <https://www.w3.org/International/questions/qa-personal-names>
    - <https://www.kalzumeus.com/2010/06/17/falsehoods-programmers-believe-about-names/>