

Complimentary Origins Towards Demystifying Computer Science for Non-CS Teachers



bit.ly/CSforNonCS



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Agenda

- ❑ Our Stories
- ❑ What is computer science and who is for?
- ❑ Why equity and access to CS education?
- ❑ Computer Science in the World: Ethics and Social Impact
- ❑ CS+X - Computer Science + Any Discipline
- ❑ Q & A

Who's in the virtual room?

- ☐ In the chat share
 - ☐ School, Location, Subject Area, and Grade Level
- ☐ What is your experience with Computer Science?

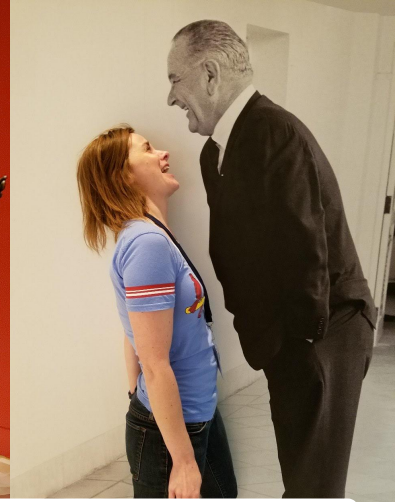
Go to **www.menti.com** and use the code **51 60 74 7**

Our Stories

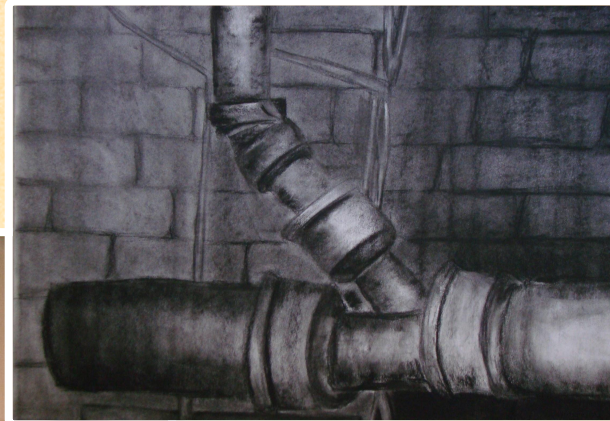
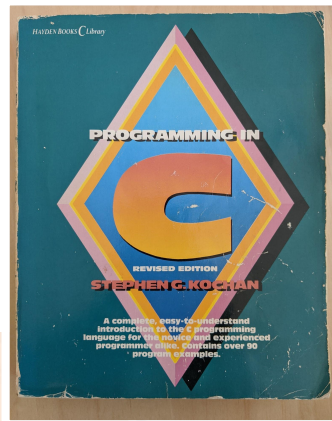
A tale of a social scientist turned CS teacher

A tale of a computer scientist and art lover

Rebecca's Story



Abigail's Story

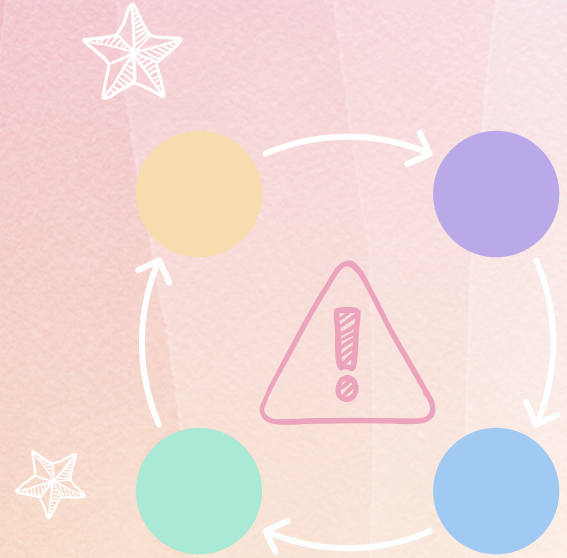


What is computer science and who is for?

The myths and the facts

CS Myths

Computer science is not for everyone.



What are some preconceptions about computer science?



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I don't teach math or science.
This is not helpful to me.

I could never learn to program

I Need to Have Studied Computer Science to Break into the Tech Field

CS is for Men, Geeks, Nerds, and Hackers.

I Don't Want to Sit in a Cubicle and Code All Day.

I Have to Be Good in Math.

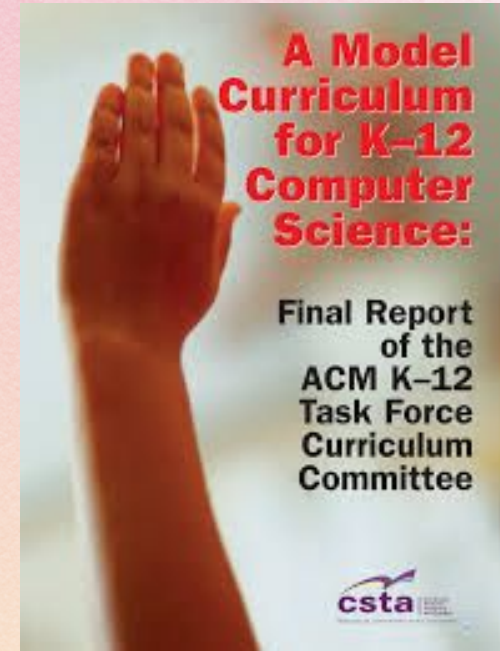
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CS Facts

What makes Computer Science
Computer Science?

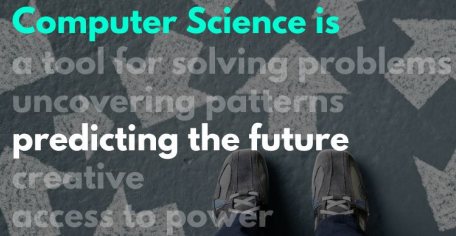


“As the foundation for all computing, computer science is defined as “the study of computers and algorithmic processes, including their principles, their hardware and software designs, their [implementation], and their impact on society” (Tucker et. al, 2003, p. 6).



What is Computer Science?

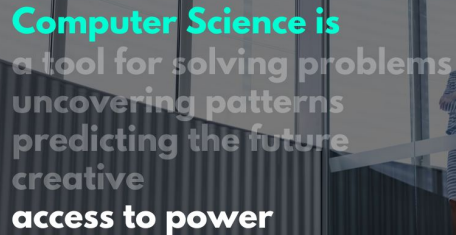




Computer Science is
a tool for solving problems
uncovering patterns
predicting the future
creative
access to power

#CSTAEquityFellow #CSEquity #CSEdWeek

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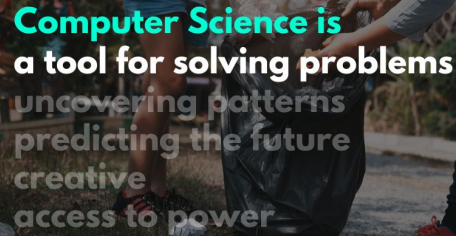
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Computer Science is
cooperative learning
access to jobs
social justice for communities
designing the world
relevant to all industries

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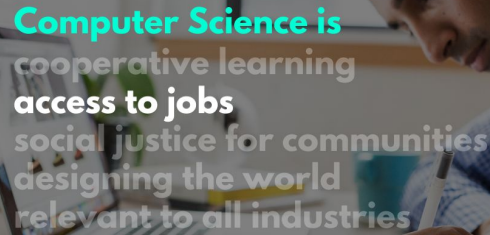
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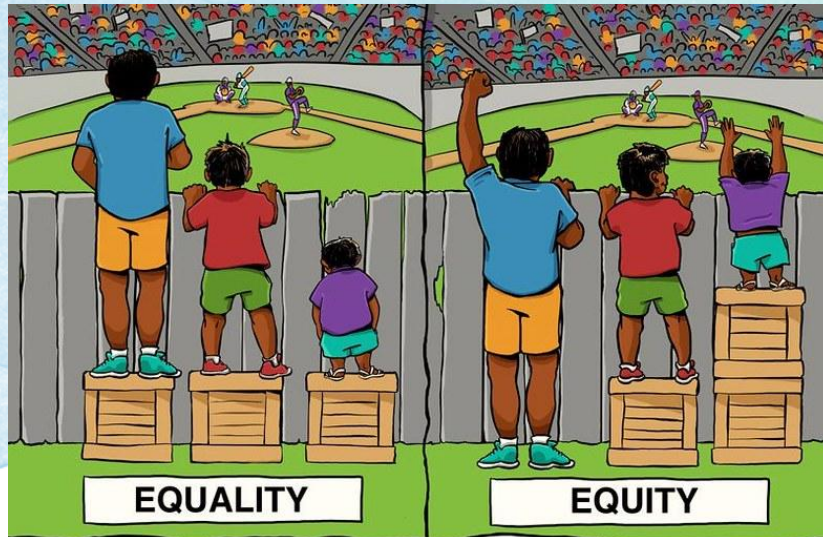
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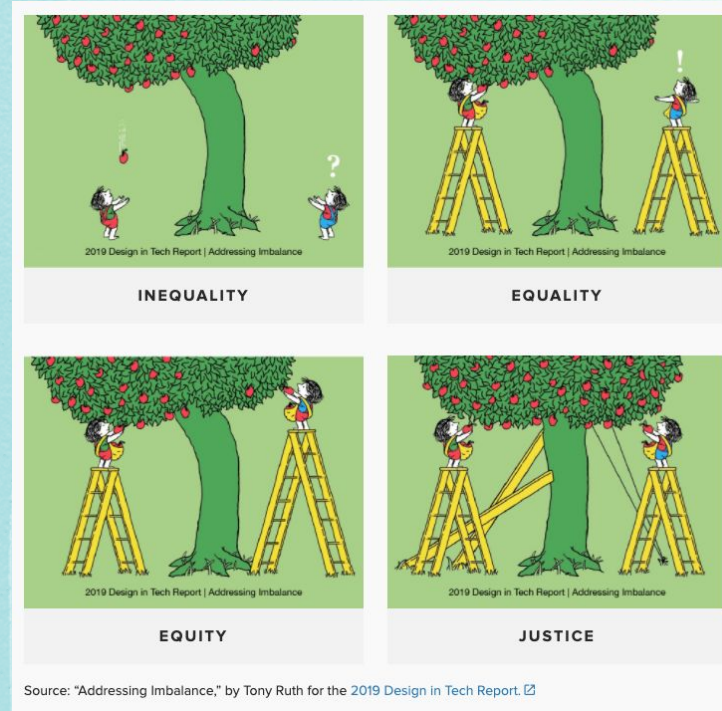
Why equity and access to CS education?

Is there a difference?

How are equality (access) and equity different?



“Equality means each individual or group of people is given the same resources or opportunities. Equity recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome.



TRANSFORM TECH. IMPROVE OUR FUTURE

Hoodlet

THE LEAKY TECH PIPELINE

ABOUT THE PIPELINE >



PRE K-12



HIGHER EDUCATION



TECH WORKFORCE



ENTREPRENEURSHIP

THE DIGITAL DIVIDE

SCHOOL FUNDING AND
RESOURCES

EXPERIENCED
TEACHERS

COMPUTER
SCIENCE
AND STEM
COURSEWORK

EXTRACURRICULAR PROGRAMS
AND ACTIVITIES

STEREOTYPES ABOUT
COMPUTER SCIENCE

STEREOTYPE THREAT

ENVIRONMENTAL CUES

ROLE MODELS AND
MENTORS

PRE K-12

Early disparities in Pre-K12 education limit the opportunities that all children have to engage with technology, take computer science and advanced STEM courses, and explore computing careers.

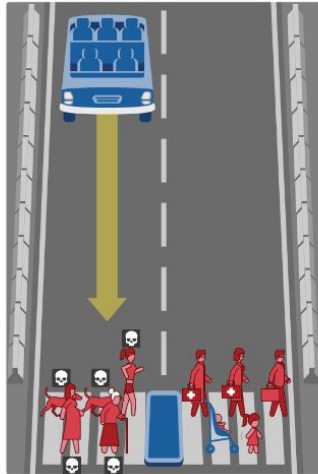
Computer Science in the World

Ethics and Social Impact

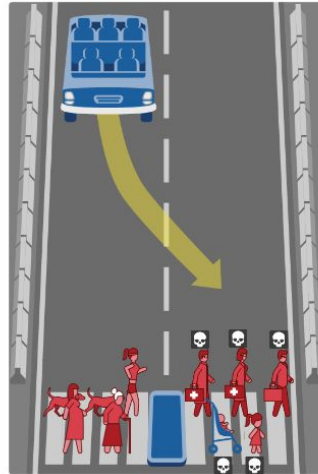
The MIT Moral Machine

Who will it be?

Share Link 0 Likes Random



Show Description



Show Description




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Ethics and Social Impact



- ☐ Who is designing?
- ☐ Who is programming the machines?
- ☐ Intent versus Impact





CS+X

Computer Science + Any Discipline

K-8 coding education should be integrated for best outcomes

Van Nood said that students need to be creators of their learning and that it's critical to establish best practices for engaging students with data-collection technology. While school districts are required to ensure that core curricula meets state and federal criteria, he also encouraged educators to find ways to integrate those materials in ways that inspire their students.



Got CS?




**CS
+
HISTORY**

explore places beyond
your imagination.

#VR #AR

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Got CS?



**CS
+
PHYSICAL
EDUCATION**

understand the body
in motion

#motioncapture #sports

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Got CS?



**CS
+
ART**

create worlds beyond
your imagination

#visualeffects #cgi

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Got CS?



**CS
+
WORLD
LANGUAGES**

connect with humans
everywhere

#language #translate

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Got CS?



**CS
+
MATH**

analyze, visualize, and
understand the world's
complexities

#fractals #visualization

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Got CS?




**CS
+
ENGLISH**

organize thoughts and
ideas

#writingtools #blogging

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Got CS?



**CS
+
SCIENCE**

interpret and question
the world in new ways

#crispr #ScienceSimulations

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Colleges and Universities developing CS+X

University of Illinois at Urbana-Champaign

Computer Science + Advertising

Computer Science + Animal Sciences

Computer Science + Anthropology

Computer Science + Astronomy

Computer Science + Chemistry

Computer Science + Crop Sciences

Computer Science + Economics

Computer Science + Geography & Geographic Information Science

Computer Science + Linguistics

Computer Science + Music

Computer Science + Philosophy

University of California - Berkeley

Alternatives to EECS/CS

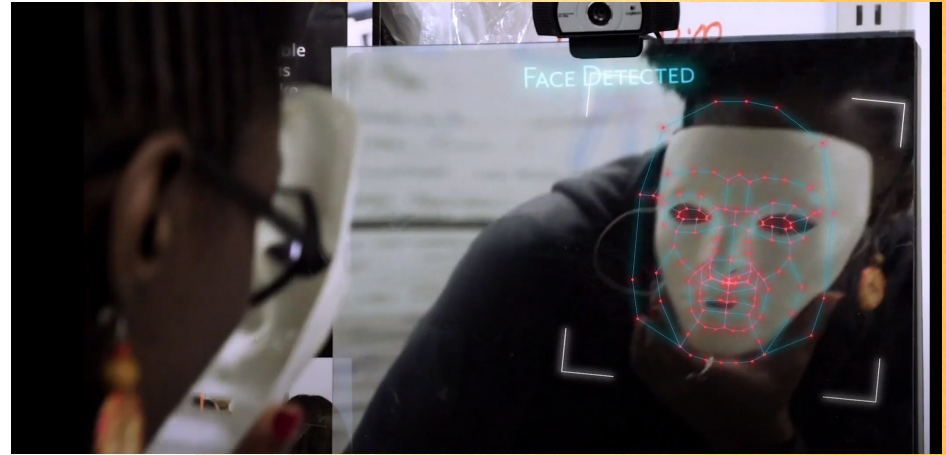
- Data Science
 - Our big new major
 - Fastest growing course in history
 - L&S: 900 majors declared
 - No GPA threshold
- Blended majors
 - CS+English
 - CS+Performance Art
 - CS+Linguistics (died)
 - CS+MCB

CS+X at Northwestern

The Computer Science + X (CS+X) initiative at Northwestern University explodes the possibilities of interdisciplinary research. CS+X actively fosters transformational relationships between computer science and other fields to create connections across the University and potentially spark entirely new fields of study.

What could this look like?

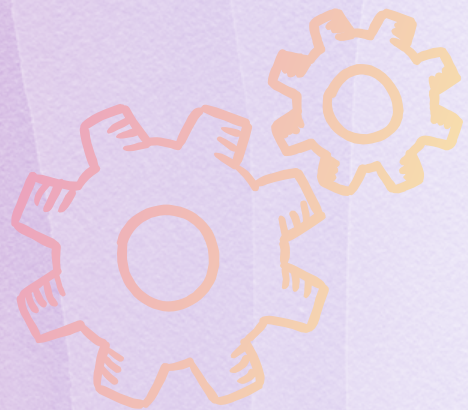
- Impact Videos
 - Computer Science is Changing Everything
 - Data + Medicine
 - Agricultural Science
 - Google Translate
 - How AI Works



What could this look like?

- CS + Literacy
 - Scratch
 - CS First
- CS + Social Science
 - Inflationary Impacts on Teacher Salaries
- CS + Math
 - Patterns
 - Creating Tools
- CS + Music
 - EarSketch
- CS + Science
 - Micro:bit
 - Simulations
 - Predator-Prey
 - Infection Spreading

Questions?





Let's continue the conversation

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Credits

Special thanks to all the people who made and released these awesome resources for free:

- ❑ Presentation template by [SlidesCarnival](#)
- ❑ Photographs by [Unsplash](#)