# COMPUTER SCIENCE UNIT H WEEK 1, TUESDAY APR 3RD + THURSDAY APR 5TH

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# THIS WEEK IN CS AND STEM

- A galaxy without dark matter?!?!?!?!
  - <u>https://futurism.com/df2-galaxy-no-dark-matter/</u>
- Thought we had found all our organs?
  - <u>https://futurism.com/undiscovered-organ-cancer-spreads/</u>

- Getting data from the cloud with CLOUD
  - <u>https://futurism.com/everything-need-know-cloud-act/</u>
- Google sound-recognition put to good use (not that language translation was bad!)
  - <u>https://futurism.com/ai-slow-deforestation/</u>

# FINAL PROJECTS

- 3 different project descriptions, you need to:
  - Complete the coding, using all of the skills we've learned
  - Write user documentation
  - Write a report
  - Give a 10 minute presentation showcasing your work (last day of classes, June 5<sup>th</sup>)
- Due dates:
  - Pick your project (1 of the 3 given): April 3<sup>rd</sup> tell me in person or in email!
  - Submit Report, code, supporting documents: June 4<sup>th</sup> at midnight
  - Give presentation: June 5<sup>th</sup> in class

#### STUDENT-LED LESSONS

- The last 2-3 classes will be based on what YOU want to learn about relating to Computer Science.
- Aim for  $1/3 \frac{1}{2}$  class per student, maximum of 2 topics per student.
- Send your topics to me by May 15<sup>th</sup>. Looking at May 24, 29 for topic discussions.

#### ENVIRONMENTAL STEWARDSHIP

- How do computers impact the environment? How do they impact human health? We touched on this briefly in September, but now we'll investigate these further.
- What are some things that come to mind for impacts on the environment?

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- What are some things that come to mind for impacts on the environment?
  - Increase in paper usage
  - Dissociation (out of sight, out of mind)
  - Power consumption from "branches" of tech (A/C, transport)
- Why is this a big deal for computers? What makes computers different from other inventions and tools?

#### Ubiquity

 Computers are everywhere, and we interact on a passive level

Magnification

- 1 error can affect millions of people, explosion of information
- Accessibility
  - Information and communication
- Reproducibility and Distributability

#### Lack of Accountability

 Hiding behind a screen, or no one wants to take responsibility for a mistake

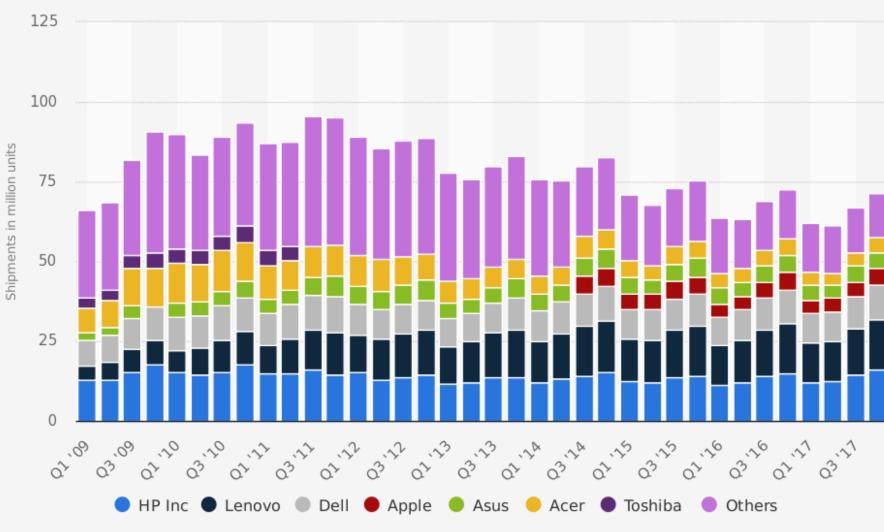
- Temporality
  - Both ways, everything needs to be done faster, AND information lasts forever
- Spatiality
  - Long distance learning, sharing data
- Surveillability
  - Not just camera and mics, but transactions
- Changing Protocols in Communication
  - Emails eliminating verbal and visual cues
- Illusian of Precision/ Black box
  - Assuming computers work to infinite accuracy, no checking required

## ENVIRONMENTAL IMPACTS

- We've mentioned a few impacts (paper, power, physical trash), so let's unpack them.
  - What kinds of pollution do computers contribute to and how intensely?
  - Do computers consume resources?
  - Is waste a concern?



# Quarterly personal computer (PC) vendor shipments worldwide, from 2009 to 2017, by vendor (in million units)



 227 to 270
 kilograms (or 500 to 594 pounds) of carbon dioxide are emitted in manufacturing a laptop computer (2011)
Laptops are more

energy efficient than desktops (why?), and don't use a whole lot of energy to run. It's better to make the manufacturing process more efficient.

statista 🖊

Source Gartner

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Additional Information: Worldwide; Gartner; 2009 to 2017

## HOW CAN WE MINIMIZE OR REVERSE THESE ENVIRONMENTAL IMPACTS?

• How can we avoid technotrash?

• How can we minimize power consumption?

• What else can be done?

# CAN TECH HELP THE ENVIRONMENT?

• What would this look like? Are some things ideological and unrealistic?

#### HEALTH IMPACT

• We've discussed the planet's health. What about the effect of tech and computers on human health and wellbeing?

• Can manufacturing impact health? How?

• Can using computers impact health? How?

• How can we prevent or dissuade these issues?

• Are there any positive effects?

#### MAKING THINGS BETTER

• We've discussed some issues with computers. Is anyone trying to help?

 See what you can find in Canada, Ontario, and/or Toronto for environment initiatives and health initiatives regarding computer usage.

• What could be improved?

#### REFERENCES

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