Victorine Castex's presentation on Bees and Big Data

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The presentation starts with an overview for why bees are important. Bees and their pollination accounts for around 35% of the world's food production. However, the bees are slowly disappearing, due to the death of colonies outpacing the generation of new colonies. Some of the causes of this decline is presented as due to viruses, bacteria, parasites, natural predators increasing, as well as climate change affecting flowers as well as the bees themselves. The presentation then proceeds onto how bees maintain a hive, and the necessary resources that they need, outlined in a calendar format. The presenters made a note that it is important thus, to keep track of bee colonies, since the colonies play an important part in the existence of food production. Monitoring bees can be done through a sort of smart-box, which is an artificial beehive that is teched out with sensors and many pieces of technology that keeps track of bee movement, honey production, pollination, temperature, luminosity, pressure, temperature, etc. All of this tech allows the data to be collected and analyzed, helping provide information on how the bee hive is doing (for instance, is the hive healthy, dormant, in trouble, is there no queen, is a new queen hatching, etc.) This code is also open sourced. There are tons of applications to this data, and a popular one is mobile apps. As presented, there are tons of reasons for obtaining this data, a few being, educating the public and providing information, as well as acting as agricultural aid, and aid in research and development. There are lots of useful applications to this data, and how it could help areas involving agriculture as well as biodiversity.

I often find that this type of use of technology is most palatable, providing data in aid of biodiversity/something good for the world. However, I am always cautious, since I understand that the intuition of humanity seems to be utilization of data to mass increase efficiency. Although good on the surface level, an example presented in the video (artificial bees) seems like a negative for the balance of the world, having high potential to lead to adverse side-effects. This said, I'm still really interested in using technology to help aspects of biodiversity as well as climate, as I do believe that there is a lot of helpful applications of technology in this regard. It would be something that I would be interested in learning more about in a professional capacity as well. Some of my good friends work as environmental-engineers, and we always talk about topics like these and it's always engaging and fascinating. Seeing the presentation, I guess it is one of the first times where I realize truly that I could perhaps bring something helpful to the table in the climate/biodiversity conversation.

I have no questions at this time.

Notes

- bees are important, their pollination accounts for a lot of the production of the world's food (35%)

- but bees are slowly disappearing (deaths of colonies outpacing the replacement of colonies)

- there are some causes to the decline of bees (viruses/bacteria/parasites, predators, and climate affecting flowers)

- (description on how bees maintain a hive, and the necessary steps/resources? according to a timeline)

- importance of keeping track of bees (use of tech to monitor bees and their status)

- monitoring bees involve keeping track of the statistics of the number of bees entering/leaving, honey production, pollination, etc...

- so there's a special beehive thats teched out. there's an app that provides the data, a platform online, and data mining that goes with it.

- lots of tech involved in finding: geolocation, humidity, luminosity, mass, pressure, temperature, and other data

- all of this tech is teched into the beehive box, that allows all this data to be collected on the bees. (there's solar paneling!)
*who makes the beehives? is there a special company that makes them, or are they responsible for construction?

- so the data that is collected is then monitored and fed into algorithms, in order to determine the state of the hive (i.e: weather the hive is healthy, dormant, there's a hatching queen, no queen, bee is collapsed, swarming is happening, etc...)

- the code for this is also open sourced

*so what happens after we monitor bee data, how do we take action that has intended effects?

- so there are a lot of these types of smartboxes to monitor bees.

- data sharing... -> there's a platform for visualizing the data and providing the data (like what you would see in a hackathon)

- there's also a ton of applications that gives data, and other interests, like educating people about bees and nature, etc...

- other applications (royal botanic gardens)

- reasons for monitoring -> providing information to the public, educating the people, research and development, providing agricultural aid, as well as intervening.

- identification of pollen is a task that can be aided by data and algorithms (i.e: detection of pollen bearing honey bees in hive entrance images)

*how efficient? in the case of artificial bees, are we planning for adverse effects? in case of regular data collection, how much are we intervening?