Weichenthal Paper:

Basic Premise:

* Use AI and deep learning to confront challenges with environmental epidemiology
* Focused on using Deep Convolutional Neural Networks to estimate environmental exposure
* DCNN approach is compatible with GIS data and could reveal previously unseen patterns
* Can also become a predictive model once built and tested
* It is a supervised learning, which means there are labels and predictive features and capabilities for the model.
* Train model with a lot of training images with the subject identified.
* The advantage of this method is that we can see which aspects of the images are being used to make the predictions
* They used a technique like this in Beijing from 2013-2017 to classify airborne PM2.5
* Uses different sources of images to stitch together and get a better understanding
* Can incorporate multiple streams of data in the future
* Can use this technology on audio to measure sound pollution as well.
* Takes geospatial data and environmental measurements and does some metric sampling and extraction
* Then you model it using regression and you can get estimated environmental concentrations
* This is focused on high quality exposure measurements
* Deep learning could be the future of environmental sciences