

Interactive Horticulture Visualization

Communicating water, soil, light needs to edible and medicinal plants and their uses.

Background

There is a lot of information on plants available in the world, but not a ton that is connected in a way that empowers someone to plan a garden with their specific variables accounted for. Interactivity incorporated could explore “build your own garden” workflows, predictive/suggestive data, and indoor/outdoor data.

The value add of this app would be to connect information on plant tolerances and needs to their uses in a way that helps individuals build towards food autonomy. This is particularly timely given a) threats to food production and distribution chains and b) growing interest in localized plants, foraging, and food.

Future research could incorporate local resource and transportation data, assessments of changing regional growth capacity or projected needs for artificially produced light, water, soil, etc.

Audience

The target audience for this would include both individuals and institutions. Individuals could include potential gardeners with any amount of experience/access, food producers, and sustainability/permaculture organizers. Institutional audiences could include educators, sustainability and permaculture researchers, local policy makers, and professional fundraisers/grant writers.

Data

The data in this space is presently extremely fragmented. [Plants for a Future](#) is a database connecting plants and their uses to environmental tolerances, care, and cultivation, which offers a student licensing option that should cover much of the data desired. [Food Plants International](#) is another database detailing all edible plants and their nutritional value, which could be used to extend the data. Regional grow timeline recommendations could also be incorporated, as with this paid [GrowVeg](#) subscription.

Supplies and Shortages Materials Map

Elevating awareness around immediate manufacturing issues in technology production.

Background

Consumers remain largely in the dark regarding the materials and supplies needed to produce technological goods, and overmining of these materials will have an immediate impact on supply chains in the near future. The mining, production, and distribution of 3-6 key materials used in the creation of technological goods would be explored to educate users on their own consumption. Highlighting a few materials would narrow the scope to include only materials that consumers may be surprised to discover are needed for technological goods. [Lithium](#), [sand](#), and [silicone](#) are some examples of materials that are currently experiencing shortages and are/will impact the availability of technological goods in the immediate future and would be part of exploring the overall sustainability of our current production methods.

This project would include a narrative storytelling element combined with geospatial data that shows the production, distribution, and dependencies in technology manufacturing processes. The geospatial, consumption and production data would need to be constructed to frame a user journey full of questions about the sustainability of our current systems.

Audience

The audience for this information would likely be determined by the accessibility of the data found. Most of the information on this subject is provided by and for manufacturing industry experts, so it would be for an audience learning from those industry experts. The audience could include technology consumers, ethics, sustainability and technology researchers, students, and policy writers, researchers, and consultants.

Data

There is not a lot of publicly available information about what materials are involved in the production of digital devices, but there is some amount of information available on the scarcity of elements that could be communicated. A new dataset would need to be constructed combining research from manufacturing organizations such as The European Chemical Society, who recently produced a relevant [Element Scarcity Periodic Table](#), with [global mineral mining geospatial data from USGS](#). Qualitative research from industry experts would likely also need to be incorporated, such as this project [“From Sand to Silicon: The Making of a Chip” from IBM](#).

News Bias and Credibility Sentiment Analysis

Language processing sentiment analysis for political bias and credibility in online news sources.

Background

Natural language processing and sentiment analysis provide so much potential for assessing the bias and credibility of online media outlets. While many organizations have begun to unpack how to leverage big data tools to tackle media literacy, much potential has been evaded at present. [Stanford](#) and [Earlham](#) researchers provide a lot of insight in how to continue building this work, as well as potential pitfalls.

This project would work on expanding a dataset, model, and index that factors in credibility of a publication and the platform on which it is published. Incorporating web scrapers to cross-reference other links publications are citing would also help expand this work in a valuable way.

Audience

The audience for this project would be wide-reaching: most people in America consume some kind of online media throughout their day.

Those interested in assessing the bias and credibility of those sources could include all internet media consumers, social media users and platforms, policy researchers and writers, educators, and anyone trying to win a political argument in their personal life.

Data

There are many datasets to build from and augment an new take on this kind of analysis. The [All the News](#), [Fake and real news](#), [Twitter sentiment](#), [Ad Fontes Media Bias](#), and the [IEEE News Credibility](#) datasets would be promising places to start.

Some problems may occur with attempting to connect these data to one another, and they may quickly lose relevancy as the language around current events evolves.