Tech Cone Tracker

Overview.

This project is a website based on some key papers in the theory of computation, internet history and the ever-expanding influence of the technology revolution, most recently including AI. The result will use graphics as well as text and html. We will explore the infinity of computer programs versus the even larger infinity of functions, which we think of as modeling human activities. As the tech expands, there are new interfaces between tech products and humans. This forms the tech "cone" that we will explore.

Research.

There are a couple of main ideas to explore, so there will be research along side the software engineering. Librarian Lauren Movlai will assist with the research.

One is idea to watch is publications. In the age of Large Language Models (LLMs), we can anticipate that publishers and/or authors get to choose whether to opt_in or opt_out of being included in the data that enters the LLMs. For privacy reasons, some would not choose it. Published information can be copyright.

A second idea is to watch jobs --- there are a lot of jobs in the world and now many involve using tech, to some extent. One recent approach is that you are likely to be able to find the job you design for yourself, using networking that leads you to humans who want you to do that job for them. AI is affecting many jobs in many ways.

A third idea is to think of the expansion of tech as a cone that keeps widening over time. Some like to say that the tech revolution developed from the mathematical work of Dedekind in the 1890s. The UMB CS Department belonged to the initial internet which was for sharing academic papers. By about 2006, the very much larger internet could still have all its member sites drawn on one piece of paper. Now we have the the internet of things with many mac addresses on many IPs and many router-enabled wifi nets serving printers, laptops, servers, phones and appliances, as well you and me at home, at work and out at Starbucks etc. and all wondering about various aspects of AI.

Within tech_cone, more theoretically, we look at the infinity of the number of computer programs (that could EVER be written) as compared to the (bigger) infinity of the number of functions that could ever be described and lined up with the full range of human endeavors. We draw on the work of Georg Cantor and the definitions and proofs in The Theory of Formal Languages with Applications by Dan A. Simovici and Richard L. Tenney (World Scientific, 1999).

SO we put these pieces together and we (hopefully graphically and by example) create a fun site to visit and explore and add to.

Functional Requirements.

As a minimum:
1. Create a website called TechConeTracker in the https://www.cs.umb.edu/cs410/s26/longprojects area.
2. Make a timeline for the cone and add key dates.
3. Working with Lauren, include estimates of how large the online libraries are, as well as estimates of numbers of hardcopy books, etc. Go world-wide!

4. Render the Tech Cone in webGL or some other graphics framework. Be sure that the area outside the Tech Cone can also expand, as humans add functions to perform to understand, track and be able to use the expanding tech features.
5. Scrum the project, each person serving as Scrum Master for a day and then rotating.
6. Reflect, redirect and continue.