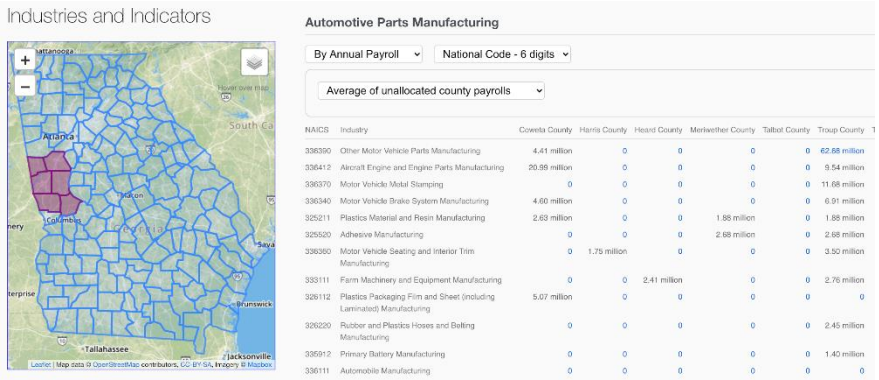
As an intern on the Environmental Protection Agency team, I had the opportunity to be a part of the project working on Community-driven application development using USEEIO models. The main goal of this program is to develop potential applications that could help communities identify sustainable economic development opportunities, measure the communities' environmental footprint, screen environmental performance and job-creation of potential industries to attract to the region, and lastly evaluate how technological improvements in a communities' industries, utilities, or consumption patterns could reduce its footprint. The two specific communities that we had the opportunity to cooperate with during this project included Lagrange/Troup County and Southeast Georgia Coalition.

The specific project that I was involved in during my internship was developing the industry impact tool. This application allows users to compare economic and environmental impacts of potential industries that they are interested in recruiting to their region.



As a basic preparation for this tool, we gathered, cleaned, and integrated industry data from census API and developed a user-interface, which allows users to sort this data by various factors for multiple regions. A big part of developing this tool was centered on creating multiple estimation techniques to fill-out the non-reported blank data. Another big part of this project was focused on developing multiple visualization widgets such as tables, bar charts and bubble charts, which helped facilitate the comparison on the economic and environmental data.

This internship helped me gain experience in two major areas of computing. First, developing back-end Python code to clean and integrate environmental and economic data from the local regions to be used in the GA version of the USEEIO model. Second, developing front-end D3 javascript to create visualizations of material flows and related economic and environmental data used in the GA version of the USEEIO model. The same full-stack development was then further developed to integrate the broader US versions of the USEEIO model and economic data.

Overall, the EPA internship was very rewarding. The work required close technical collaboration with the research mentors and GA Tech research partner, the USEEIO modeling team and other community-based interns. My supervisors were very helpful, patient, and creative in helping me resolve my issues. My direct supervisor, Loren Heyns created a friendly environment and was always there for me even during the weekends!

Nazanin Tabatabaei