

Project Sketches Space Enabled Group

This is an informal document just to give you an idea of some of the things I might work on as your graduate student.

Overall in Space Enabled I am most interested in:

- Utilizing my knowledge of GIS data to help build complex systems tools to enable developing communities around the world. In particular with data access when it come to GIS and satellite data of the nature.
- Considering interfaces that make data more accessible and useable in multiple platforms
- Understanding and exposing how different ethnic, racial, and socioeconomic groups experience urban and policy systems, as well as their access to various components of this system.
- Exploring affordable fabrication and modeling techniques to help developing programs build technology to deploy in their communities.

Below is just a sketch of an idea I was considering, consider this an informal brainstorm.

Much more refined work of my own is on my Portfolio at ninalutz.github.io

GIS Growth

What if GIS data and urban systems modeling was open source and easy to use without expert knowledge?

Project Objectives:

Building a piece of GIS software that easily allows communities to build models and understand their urban ecosystem in the hopes of these models giving them leverage in actual urban developments and improvements.

Project Process, based to work with the online process from Space Enabled:

Observe

- Find communities who are in need to urban modeling, redevelopment, or even development as a whole. Such could include communities recently effected by natural disasters or areas that are trying to incorporate refuge housing and integration (see Finding Places project from City Science Group).
- Identify the urban infrastructures that need to be focused on; transportation, housing, land use, energy infrastructure, water, etc.
- Understand if the goal is to propose developmental needs to government entities, simply understand the urban system to find and inform legislation, or to strategize development that is already underway.
- Consider what GIS data would be necessary and methods of collecting it
 - Satellite, sensors, government resources, etc
 - Along with considering the accessibility of the data, such as if there is a need for an open source data pipeline

Explanation

- Present this to community leaders and do outreach to citizens such that we can gain co-developers, stakeholders, and potential user groups.
- Expose the community to options this could lead to as well as what these types of data and systems mean in context of their lives

Co Design

- Gaining local planners or stakeholders in the community as well as local educators and engineers. If these are unavailable gaining citizens who would want to fill these roles or reaching out to other entities that could do so.
- Working to gather the data and develop models for the system
- Developing a tool to house these models and running user tests to identify key interactions such that users can interact with the tool not only as a modeling tool but as a decision support and intervention tool
- This tool would be online and have crowd source abilities to maintain data as well as understand what issues and decisions the community find important
 - If needed, providing communities with internet capabilities if possible. If not using manual crowdsourcing methods amongst our development team.
 - As well as crowdsourcing methods such that similar communities or experts from around the world can help the model and tool learn and grow
- Holding community workshops
- Leveraging the tool to push forward policy or urban development to the appropriate authorities

Evaluation

- Seeing if a successful data pipeline and adequate database was established

- Validating the system model as well as examining if crowdsourcing components hurt or helped the model
- Seeing if the interests of the community was truly addressed, as well as the appropriate infrastructures
- From user studies and workshops seeing if we were successful in working with a community to help enable improving their urban space or if we were just doing it over their heads; essentially accessing engagement
- Seeing if the solutions are realistic or attainable, either by policy or urban development