[SCC Internship Job Descriptions](http://smartcities.gatech.edu/2020-scc-internship-job-descriptions)

# Georgia 2020

## Paid Summer Internships - Programming and Data Science

### Develop Sustainability Tools with the US Environmental Protection Agency and the Georgia Department of Economic Development

Develop sustainability tools with the US EPA, the Georgia Dept of Economic Development (GDEcD), and Georgia communities as part of [project](https://www.epa.gov/research/regional-sustainability-and-environmental-sciences-research-program-reses) (see ‘Community-driven Application Development Using USEEIO Models’) to build open-source community web applications that use an EPA life cycle model of the economy ([USEEIO](https://www.google.com/search?q=USEEIO)) along with Georgia community data to assess community sustainability and economic development.

Job Description 1: [Community Material Flow Tracking and Analysis](#community-material-flow)

Job Description 2: [New Technology Scenario Analysis](#scenario-analysis)

Supported by: [GDIT](https://www.gdit.com/)

### Research Mentors:

Dr. Wesley Ingwersen, Principle Investigator at US Environmental Protection Agency, Office of Research and Development

Loren Heyns, Programmer Analyst, Georgia Department of Economic Development

### Georgia Tech Research Partner:

[Dr. Valerie Thomas](https://www.isye.gatech.edu/users/valerie-thomas), Georgia Tech Professor, School of Industrial and Systems Engineering

Job Description 1

Community Material Flow Tracking and Analysis

### Description

The candidate will develop Python code to translate community and industry material flow data – including on generation, transfer, recycling/reprocessing, and reuse – to relate them to EPA’s USEEIO model to enable sustainability analysis of alternative material uses.

The work will require close technical collaboration with the research mentors and GA Tech research partner, the USEEIO modeling team and other community-based interns.

The candidate will be expected to play a leading role in the September community application development event @GA Tech to leverage this tool to serve community applications.

The candidate will be exposed to the latest in sustainable materials management modeling, make contacts at federal, state agencies, GA Tech, in industry, and become part of a dynamic modeling and research team.

### Learning Goals

Learn essentials of environmentally-extended input-output modeling

Learn about material life cycles

### Top Desired Skills

Python with data science and API libraries (pandas, requests)

Github

Team code development in a git-environment

Strong interest in sustainability and economic development

### Deliverables

Python code and documentation to capture community material generation, transfer, recycling and reuse data and link it to USEEIO

Job Description 2

New Technology Scenario Analysis

### Description

Communities are interested in evaluating the costs and benefits of new technologies and investments on their sustainability. To evaluate this with the EPA’s USEEIO model, the new technologies need to be modeled as a change in the monetary production recipe (the purchases made by an industry) as well as in their direct resource use and emissions. The candidate will help translate new technologies models into this format using the useeior modeling framework to enable scenario analysis.

The work will require close technical collaboration with the research mentors and GA Tech research partner, the USEEIO modeling team and other community-based interns.

The candidate will be expected to play a leading role in the September community application development event @GA Tech to leverage this tool to serve community applications.

The candidate will be exposed to the latest in sustainable materials management modeling, make contacts at federal, state agencies, GA Tech, in industry, and become part of a dynamic modeling and research team.

### Learning Goals

Learn essentials of environmentally-extended input-output modeling

Learn how to model compare sustainability of new and existing technologies

Learn USEPA’s useeior (R language) modeling framework

### Top Desired Skills

R language

Github

Team code development in a git-environment

Strong interest in sustainability and economic development

### Deliverables

R code and documentation to model new technologies in USEEIO