



GEOSPATIAL DATA SCIENCES MASTER OF SCIENCE

TO SOLVE WICKED ENVIRONMENTAL PROBLEMS, THE WORLD NEEDS PROFESSIONALS AND RESEARCHERS WHO CAN MANIPULATE AND ANALYZE COMPLEX ENVIRONMENTAL DATA.

The Geospatial Data Sciences (GDS) specialization prepares environmental professionals and researchers to develop and use analytical and computer-intensive data science methods to assess and steward the Earth's landscapes and natural resources to achieve a sustainable society. Students learn to apply geospatial data science and modeling principles and tools across fields as diverse as geography and land use, social sciences including environmental justice, policy analysis, business, sustainable systems, terrestrial and aquatic ecosystem management, and coupled human-natural systems and environmental justice.

WHY GDS?

- Learn the theory and applications of advanced computational, analytical and environmental data science techniques so you can apply geographic information systems (GIS) and other tools in the environmental domain of your choice.
- Combine training in digital geospatial, statistical and modeling tools with the application of those tools to a wide range of issues across other specializations at SEAS and beyond.
- Develop a sophisticated understanding of satellite remote sensing, including physical principles, types of sensors, scene frequencies based on satellite orbits, methods of image analysis and classification, and applications of remote-sensing scenes and datasets to a wide range of environmental issues.
- Plan, design and execute GIS projects for natural resource management and become proficient in the use of digital mapping software.
- Develop modeling analyses, both data-driven statistical modeling and complex dynamic-systems modeling.

BOLD LEADERS

CHARLOTTE WEINSTEIN (MS '18) **ASSISTANT RESEARCH SCIENTIST,** **MICHIGAN TECH RESEARCH INSTITUTE**

"What drew me to this particular program was that it was very interdisciplinary. Environmental issues are not siloed, so you need multiple perspectives to be able to tackle the challenges that we're facing. A big asset of the program has been project-based learning—really learning by doing—which is personally how I learn best."



JIawei (JADE) HUANG (MS '16) **PHD CANDIDATE, CHOROPHRONESIS** **APPLIED SPATIAL INTELLIGENCE**

"Geospatial Data Sciences, and GIS in particular, helps us better visualize and understand our world. I chose SEAS because it embraces both the beauty of nature and the beauty of logic, where students from different backgrounds find a welcoming place and work together."



MASTER'S PROJECTS

Part of the culminating experience of your program is a master's project or master's thesis, where you will work with an external client to solve real-world problems. Recent projects include:

Activating Public Land to Promote Urban Agriculture for Community Health, Equity and Resilience (Los Angeles, California)

Client: Los Angeles County Chief Sustainability Office

Advisor: Joshua Newell

Upholding Social Justice Principles in Carbon Capture and Sequestration: Case of Southeastern Michigan

Client: DTE Energy

Advisor: Rajiv Ghimire

First Responses to Beech Leaf Disease in Michigan Forests

Client: Matthaei Botanical Gardens and Nichols Arboretum (Ann Arbor, Michigan)

Advisor: Stella Cousins



Photo courtesy of Matthaei Botanical Gardens

COURSE SAMPLING

- Remote Sensing of Environment
- Environmental Spatial Data Analysis
- GIS and Natural Resource Applications
- Introductory Python for Geospatial Data Sciences I

WANT MORE INFO?

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FACULTY

- Shannon Brines
- Neil Carter
- Silvia Cordero-Sancho
- Bill Currie
- Kim Diver
- Ayumi Fujisaki-Manome
- Meha Jain
- Kai Zhu

BUILD A REWARDING CAREER WITH IMPACT

No matter your path, SEAS Career Services helps prepare you for a purpose-driven career that's right for you. Our career counselors provide guidance on all aspects of career development, from resumes and cover letters to job searches and interview preparation. Plus, we connect you with employers and alumni who can help you imagine the possibilities of where your degree will take you.

GDS graduates work as:

- Communications editors
- Development coordinators
- Education specialists
- Program managers

Here are just a few of the employers who hire GDS graduates:



Michigan Tech

