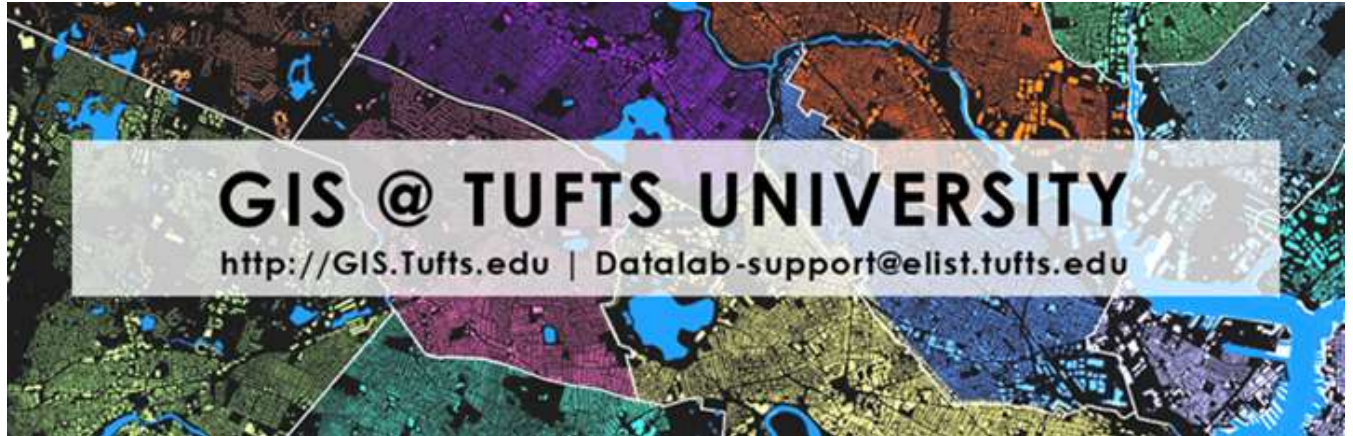


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Tufts GIS Newsletter - December 4, 2024

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From tuftsgis-request@elist.tufts.edu <tuftsgis-request@elist.tufts.edu>  
on behalf of  
Talmadge, Carolyn C. <Carolyn.Talmadge@tufts.edu>  
Date Wed 12/4/2024 4:40 PM  
To tuftsgis@elist.tufts.edu <tuftsgis@elist.tufts.edu>



## Tufts GIS Newsletter – December 2024

Tufts Data Lab | Research Technology | Tufts Technology Services

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**Here's what you need to about the Data Lab going into finals!**  
**Also – now's the time to start thinking about internships and job opportunities!**

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## TUFTS GIS EXPO

While the GIS Expo isn't until May 7th, 2025, you can still submit your poster or online application this semester!

[Fill out our GIS Project form](#)

### Why should you care to submit, you might wonder?

- For a chance to win a Tufts GIS prize (and cash!)
- A chance to have your project selected for submission to ESRI's Users Conference & Map Gallery in July on behalf of Tufts University – *Tufts students win most years!*
- You've already done the hard work, might as well submit so you can put a poster presentation conference on your resume!
- Minimal effort on your part!
- Network with GIS professionals
- Free food and drink & chance to celebrate your hard work with classmates!

[\*\*LEARN MORE ABOUT THE TUFTS GIS EXPO HERE\*\*](#)



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## GIS POSTER PRINTING @ THE DATA LAB

- Students in GIS classes can print their GIS posters for free in the Tufts Data Lab for class presentations and the GIS Expo.
- Printing is **First Come First Serve** and it **takes about 20 minutes to print each poster**. There are often lines! **Do NOT wait until 1 hour before you need to be printed for your class presentations!**
- No appointments - but it needs to be printed by a Data Lab Assistant during their scheduled shift – [see their schedule here](#). *Students do not have access to the plotter.*
- You are in charge of trimming and mounting your posters on the provided posterboard!

**Have questions about the GIS Expo or the GIS poster printing process?**  
Email Carolyn Talmadge at [DataLab-Support@elist.tufts.edu](mailto:DataLab-Support@elist.tufts.edu)

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## LEARN HOW TO STUDY HISTORY!

Check out this new course in Sociology, cotaught by Professor David Proctor in History.

This course fulfills an elective requirement for digital humanities minor.

For questions, email [rtaylor@tufts.edu](mailto:rtaylor@tufts.edu)

New course in Sociology

# Uncovering the Past: Historical Sociology in the Digital Age

SOC 149-1

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Are archives political institutions? Can digital tools help us manage the unmanageable? Who decides what deserves preservation?

*Join us this Spring and explore how to study history!*

Students will learn how to assess conflicting histories of events left by artists, scientists, politicians, soldiers and ordinary people

Topics include:

- Archival Research methods
- Tools and techniques in data collection
- Ethics in historical research



## INTERNSHIP OPPORTUNITIES

### AERONAUTICS DRONE INTERNSHIP SUMMER 2025 | MASSDOT

**Apply Here:** [https://massanf.taleo.net/careersection/ex/jobdetail.ftl?job=24000918&tz=GMT-05%3A00&tzname=America%2FNew\\_York](https://massanf.taleo.net/careersection/ex/jobdetail.ftl?job=24000918&tz=GMT-05%3A00&tzname=America%2FNew_York)

MassDOT's Aeronautics Division is searching for an Intern to support the MassDOT Drone Program. This role will work alongside stakeholders in MassDOT Aeronautics, MassDOT Highway, and the MBTA, and will work directly with Drone Program leadership to address and develop unmanned aircraft system (UAS, or "drone") projects supporting transportation use cases.

**This is a Summer internship that runs from June through August.** Opportunities exist for interns both to support the operational development of drone use cases - exploring how data collected by drones can meet immediate MassDOT and MBTA needs, as well as to help develop data solutions to more efficiently ingest and analyze drone-collected data, and disseminate final data products to end users.

#### Duties and Responsibilities

- Assist in the planning, implementation, execution, and evaluation of pilot programs to demonstrate how drones can contribute to existing MassDOT and MBTA use cases.
- Work with Highway personnel to determine how drone data can supplement design and construction projects.
- Work with rail personnel to determine how drone data can supplement regular rail inspections.
- Work with Aeronautics personnel to develop the workflow and to process data sets for using drones to survey obstructions at airport.
- Track an entire drone project from initial drone request to final dissemination of data products, and suggest process improvement based on feedback from the end users.
- Work with Drone Team data analysts to evaluate the process for ingesting, saving, securing, analyzing, and disseminating drone collected data and data products.
- Investigate how to integrate geospatial information systems (GIS) and artificial intelligence (AI) applications to transportation use cases. Example projects could include automatically tagging



vegetation along railroad tracks using multi-spectral imaging data, or training AI algorithms to identify features that require more detailed inspection.

- **Salary:** \$20.00 - 25.00 Hourly

## **GEOSPATIAL - SUMMER INTERN | MOODY'S**

Apply Here: <https://careers.moodys.com/geospatial-summer-intern/job/28686212>

Moody's RMS Geospatial team is working on Vision Information Transformer and Large Scale Generative AI models to detect the features from remotely sensed datasets. The aim of this state-of-art AI/ML technology is to process gigabytes of satellite/aerial data to identify defined objects and patterns in a short span of time.

**Geospatial team is currently seeking a skilled intern who is passionate about AI/ML and willing to contribute as well as learn from AI projects.** The research prospects include but are not limited to damage severity detection from wind-induced hazards' post-event images, denoising and image enhancement for better object detection, high-rise cluster detection, and change detection. Candidate during the internship will work with experienced professionals and explore cutting-edge AI technologies and algorithms in the remote sensing domain.

If you are excited about this opportunity but do not meet every single requirement, please apply! You still may be a great fit for this role or other open roles. We are seeking candidates who model our values: invest in every relationship, lead with curiosity, champion diverse perspectives, turn inputs into actions, and uphold trust through integrity.

### **Skills and Competencies**

- Strong mathematical concepts in machine learning, computer vision, and numerical techniques
- Knowledge of CNN based AI-architectures
- Good understanding in remote sensing technology including classification, segmentation, change detection, decorrelation algorithms for identifying the classes/objects in hyper/multi - spectral satellite/ aerial images.
- Strong Python programming skills and hands on exposure to
  - Machine Learning Libraries- Scikit-Learn, Scikit-Image, Tensorflow, Keras, GluonCV and PyTorch
  - Image processing and Geospatial Libraries - OpenCV, GDAL, Geopandas and RasterIO
- Knowledge of ESRI GIS software products and hands on exposure to open- source platform such as QGIS, GRASS etc.
- Familiarity with Google Earth Engine would be a plus

### **Education**

Pursuing post-graduation (Masters/PhD) in Geoinformatics, Remote Sensing, Earth Sciences or Graduate in Civil Engineering, Computer Science, Environmental Science from an institute of good repute  
Role and Responsibilities

## **AI MODELING INTERNSHIP FOR CLIMATE & SUSTAINABILITY | IBM | NY**

Apply Here: [https://www.linkedin.com/jobs/view/4089090024/?utm\\_source=substack&utm\\_medium=email](https://www.linkedin.com/jobs/view/4089090024/?utm_source=substack&utm_medium=email)

**This is for a 2025 summer internship with the following start dates: May - August or June - September for quarter system schools.**

As an intern, your responsibilities will include designing, developing and conducting experiments with large AI models that tackle climate & sustainability challenges. You will work with complex earth observation, weather and climate datasets in high-performance multi-GPU computing environments. The resulting work will be of a calibre for publication in peer-reviewed literature.

### **Required Technical and Professional Expertise**

- Applicants should be PhD & MS students pursuing graduate studies.
- Required expertise includes training and designing AI models with PyTorch for spatial and temporal applications using large geospatial datasets.
- You should be familiar with advanced AI concepts such as diffusion and graph neural networks, and have experience implementing deep learning models for computer vision and timeseries applications.

### **Preferred Technical And Professional Expertise**

- Preferred expertise includes implementing advanced AI models including multi-modal fusion.
- We also desire a candidate with experience developing models for geospatial or weather and climate applications.

## **MACHINE LEARNING ENGINEER INTERNSHIP | AI ENERGY SCORE | REMOTE**

Apply Here: <https://apply.workable.com/huggingface/j/B952461BFF/>

### **About the Role**

The energy requirements of machine learning models have been rising in recent years, raising concerns regarding the impacts of this on energy grids and the environment.

Building upon the [AI Energy Score project](#), this internship will continue experimentation and analysis to get a better understanding of the energy efficiency of different models and deployment contexts (hardware, optimization techniques, serving stacks).

### **About You**

If you love open-source but also have an eye for art and creativity, are passionate about making complex technology more accessible to engineers and artists, and want to contribute to one of the fastest-growing ML ecosystems, then we can't wait to see your application!

If you're interested in joining us, but don't tick every box above, we still encourage you to apply! We're building a diverse team whose skills, experiences, and background complement one another. We're happy to consider where you might be able to make the biggest impact.

## **PHD RESEARCH INTERN, AI FOR CLIMATE AND WEATHER SIMULATION - SUMMER 2025 | NVIDIA**

Apply Here: [https://www.linkedin.com/jobs/view/4085495215/?utm\\_source=substack&utm\\_medium=email](https://www.linkedin.com/jobs/view/4085495215/?utm_source=substack&utm_medium=email)

NVIDIA is looking for research interns with a strong background relevant to applying modern AI methods to re-imagine technology across the Earth System Simulation and Analytics stack. Skills should be relevant to research on applied topics such as generative data assimilation, hybrid climate simulation, full model emulation of climate model components, regional-to-global high-resolution AI autoregressive weather prediction, and dynamical downscaling. We are hunting for highly creative, independent and self-starting research interns to help us invent that future. Strong computer scientists with sufficient knowledge of physical domain sciences are welcome. Alternately, very strong domain scientists with sufficient technical skills are, too. Come join a diverse research group that collaboratively works on hard and meaningful interdisciplinary problems with passion, drive and curiosity; that consistently publishes at top venues in climate science and artificial intelligence; and that values real impact on NVIDIA products and the world of academic and government climate prediction at large.

### **What You'll Be Doing**

- Propose, research, prototype and test innovative research ideas.
- Publish groundbreaking work at top conferences and journals.
- Collaborate with other research team members, fellow interns, internal product teams, external researchers and be mentored.
- Contribute to technology transfer with engineers around NVIDIA as ideas graduate from research to product.
- Make good use of top-of-the-line NVIDIA GPUs at scale for cutting edge research at the intersection of AI and climate science.

### **What We Need To See**

- Currently enrolled in at least the 2nd year of a Ph.D. in the geophysical sciences, computer science, applied math/statistics, or related fields.
- Strong research portfolio including one first-author publication that makes good use of AI.
- Proficiency or demonstrable ability to quickly absorb distributed deep learning training frameworks, e.g., PyTorch.
- Strong software engineering skills are necessary.
- Experience in scaling algorithms for high computational loads is a plus.
- Experience developing in a changing software environment and ability to drive research projects end-to-end -- including the messy parts -- are a plus.
- Expertise in climate domain science, nonlinear physics, or deep familiarity with associated synthetic and/or observational datasets and/or physical simulation systems are a plus.

- Excellent communication skills.

**THANK YOU TO *ALI AHMADALIPOUR* AND HIS GEOSPATIAL JOBS ELIST FOR COLLECTING THESE INTERNSHIP OPPORTUNITIES. IF YOU WOULD LIKE TO SUBSCRIBE TO HIS ELIST, VISIT: [HTTPS://GEOSPATIAL.SUBSTACK.COM/](https://geospatial.substack.com/)**

## **FINAL CALL: ESRI INTERNSHIPS & ASSISTANTSHIPS**

### **ESRI Summer Internships**

**ESRI is already hiring for their summer 2024 interns! Check out their two awesome opportunities! More information for both these opportunities is available here: <https://www.esri.com/en-us/about/careers/student-jobs>**

Each year we hire interns to work in our Southern California headquarters and regional offices across the US. We offer full-time, paid internships, and our program is open to third- and fourth-year undergraduate students, graduate students, and PhD students. **We generally accept applications from September 1 through December 31 each year.** Positions are filled as qualified candidates are identified, so apply early.

### **ESRI Student Assistantship Opportunities**

Esri offers student assistantships at events across the country, all year round.

- **February: Esri Federal GIS Conference**
- **March: Esri Developer Summit**
- **April: Esri Energy Resources GIS Conference**
- **July: Esri User Conference**

To be eligible, you must be a graduate student, fourth-year undergrad, or an advanced GIS program student at a two-year college. All students should have an interest in applying geospatial applications and concepts to their studies.

The application process for student assistantships opens in the fall. Positions are listed in Esri's job search when available. <https://www.esri.com/en-us/about/careers/student-jobs>

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## **FULL TIME JOB OPPORTUNITIES**

### **GIS ANALYST | MERRIMACK VALLEY PLANNING COMMISSION**

**Apply Here:** <https://mvpc.org/about/careers/>

**Full-time** (35 hours per week) position

**Starting Salary Range:** \$60,000 – \$75,000 commensurate with experience

Merrimack Valley Planning Commission is seeking a highly motivated and skilled GIS Analyst to join our team. The GIS Analyst will play a critical role in collecting, analyzing, and visualizing spatial data to provide actionable insights and support decision-making processes. The ideal candidate should have a strong background in Geographic Information Systems (GIS), data analysis, IT support, and a passion for problem-solving.

#### **Key Responsibilities:**

- Acquire, organize, and maintain geospatial data from various sources.
- Ensure data accuracy, completeness, and consistency.
- Perform spatial analysis to extract meaningful patterns, trends, and insights from geographic data.
- Create visually compelling maps and interactive web maps using GIS software (Esri platform).
- Develop cartographic products that effectively communicate spatial information.
- Integrate GIS data with other datasets to support cross-functional analysis and decision-making.
- Utilize GIS software and tools proficiently to carry out data manipulation, analysis, and reporting.

- Stay up to date with advancements in GIS technology and best practices.
- Collaborate with MVPC staff and municipal employees to address specific project requirements.
- Communicate findings and insights to non-technical stakeholders effectively.
- Build mobile and desktop maps and apps for data collection as well as use tools like Storymaps to build engaging educational and presentation materials.
- Design training materials including web-based resources and videos to aid municipal and agency staff in the use of technology resources such as online viewers and mobile/desktop apps.
- Assist GIS&IT Program Manager with supporting Information Technology needs for office staff, including but not limited providing technical support, software and hardware assistance, system upgrades and maintenance, and management of the MVPC website.

## **GIS DATA ANALYST | GEOSYNTEC | BEDFORD, NH**

**Apply Here:** <https://careers-geosyntec.icims.com/jobs/2997/gis-data-analyst/job?mobile=false&width=1698&height=500&bga=true&needsRedirect=false&jan1offset=-300&jun1offset=-240>

Geosyntec has an exciting opportunity for a GIS Data Analyst in our Bedford, NH office, you will apply your academic knowledge and experience with standard practices and techniques used when working with data and GIS projects to support and manage projects that include geologic, geotechnical, and geohazard assessments and more.

Geosyntec is an innovative, international engineering and consulting firm serving private and public-sector clients to address new ventures and complex problems involving our environment, natural resources, and civil infrastructure. Our engineers, scientists, technical and project employees serve our clients from offices across the world. Ranked by ENR as one of the top environmental engineering design firms, Geosyntec is internationally known for its technical leadership, broad experience, and exceptional client service.

### **Essential Duties and Responsibilities**

- Carrying out GIS projects using ESRI ArcGIS software to store, visualize, and analyze spatial data, with a particular focus on geohazards data management for extensive, long, linear infrastructure (e.g., oil and gas pipelines);
- Processing and displaying LiDAR datasets for use in remote sensing mapping applications;
- Developing, setting-up, and maintaining large geodatabases and/or online feature services for long-term data management
- Designing, developing, and producing data visualization outputs using ArcGIS (e.g., report figures and maps);
- Facilitating field data collection through ArcGIS applications and Survey 123;
- Interacting with internal and external clients to support database management and data visualization for geohazard focused projects;
- Compiling, verifying, analyzing, and reporting large and diverse datasets;
- Interacting with internal and external providers to coordinate collection and transfer of data to project databases; and
- Training: We offer professional development opportunities including in-house seminars, webinars, and mentoring, that allow our professionals to build the technical and business skills necessary to become successful consultants.

## **GIS ANALYST / REGIONAL PLANNER | METROCOG**

**How to Apply:** Please e-mail a cover letter, resume and salary requirements to:  
 Matthew Fulda | Executive Director | Connecticut Metropolitan Council of Governments  
 1000 Lafayette Boulevard, Suite 925 Bridgeport, Connecticut 06604  
 Email: [info@ctmetro.org](mailto:info@ctmetro.org)

**Salary:** \$60,000 - \$70,000 but it is negotiable based on qualifications/experience

The Connecticut Metropolitan Council of Governments (MetroCOG) is seeking a well-qualified candidate for the position of GIS Analyst/Regional Planner. Under the supervision of the Executive Director the GIS Analyst/Regional Planner is responsible for professional and technical work related to comprehensive regional planning with a specific focus on transportation, land use, environmental conservation, economic development, and hazard mitigation. Primary responsibilities duties will include, but are not limited to:

**Responsibilities:**

- Support municipal and regional staff with spatial mapping for reports and grant applications.
- Use GIS to spatially illustrate trends, patterns, and operating conditions.
- Maintain parcel data for several municipalities.
- Provide general GIS support to member municipalities.
- Develop and maintain web maps and apps for field collection and outreach.
- Assist with emerging GIS technologies such as ArcGIS Urban and GeoAI.
- Support a portfolio of local and regional planning studies and technical assistance projects.
- Serve as a liaison between member municipalities, community stakeholders and government agencies during the planning process.
- Facilitate public outreach and participation activities for various initiatives.
- Collect and analyze data to support the regional planning process.
- Research potential grant opportunities and assist in drafting/reviewing applications.
- Attend meetings, conferences, workshops, and training sessions determined by supervisor.

**Education/Qualifications:**

To be considered for the position of GIS Analyst/Regional Planner a candidate must possess a bachelor's degree in Urban/City/Regional Planning, Public Administration, Public Policy, or a related field from an accredited college or university. Master's degree is preferred. A minimum of 1 year of recent, progressively responsible work experience is desirable.

Proficiency in ESRI's suite of products including ArcGIS Pro and ArcGIS Online. Proficiency in using Microsoft Office (Word, Excel, and PowerPoint) is required. This is a full-time position, with benefits. Salary is commensurate with experience.

**About the Agency:**

MetroCOG is one of Connecticut's nine planning regions and represents the Greater Bridgeport region consisting of the City of Bridgeport and the Towns of Easton, Fairfield Monroe, Stratford and Trumbull. MetroCOG provides a geographic framework for member municipalities to jointly address common interests and coordinate these interests with state and federal plans and programs. MetroCOG is governed by a Board of Directors comprised of the Chief Elected Officials of the six member municipalities.

MetroCOG also serves as the host agency for the Greater Bridgeport & Valley Metropolitan Planning Organization (GBVMPO) created and designated by the federal government to carry out the metropolitan transportation planning process. MetroCOG maintains strong partnerships with local governments, state and federal agencies, residents, businesses, non-profits, and community stakeholders.

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## GEOSPATIAL CONFERENCES



**32<sup>ND</sup> INTERNATIONAL CARTOGRAPHIC CONFERENCE**  
AUGUST 16 – 22, 2025 | VANCOUVER, CANADA  
MAPPING THE FUTURE: INNOVATION, INCLUSION, AND SUSTAINABILITY

The US National Committee for the ICA is pleased to announce travel funding opportunities for US cartographers and scholars at US institutions to attend the 2025 ICC. Opportunities are available for both early and non-early-career scholars. Funds are made available through the Cartography and Geographic Information Society and the National Science Foundation.

The deadline to apply is 15 January 2025. See details at <https://cartogis.org/usnc-ica> [[cartogis.org](https://cartogis.org)].

**Location, Enterprise Addressing & Public Safety (LEAP) Conference**

- **Date:** January 28–30, 2025



- **Location:** Online
- **Description:** This conference focuses on the intersection of location data, enterprise addressing, and public safety, providing a platform for professionals to discuss advancements and challenges in these areas.

## Geo Week

- **Date:** February 10 -12, 2025
- **Location:** Denver, CO USA
- **Description:** The learning and networking nexus of the geospatial and built worlds.

## Esri Federal GIS Conference

- **Date:** February 24–26, 2025
- **Location:** Washington, D.C., USA
- **Description:** This conference brings together GIS professionals from various government agencies to explore how GIS technology is used to address complex challenges and drive digital transformation.

## [More Geospatial conferences](#)

# FINAL CALL!

Every fall, ESRI hosts a StoryMaps Competition! This is a great opportunity to submit a StoryMap you created for your GIS Project, capstone/thesis, or other project from this semester or even last year's class!!

## ESRI StoryMaps Competition

**SUBMISSION DEADLINE:** December 6, 2024, 5:00 p.m. (PT)

2024 ArcGIS  
StoryMaps  
Competition  
Storytelling For a Better  
World  
Submit your stories through December 6, 2024.  
[Read the announcement story -->](#)

**Learn More:** <https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/contest/overview>

Use your unique talents—from cartography and data analysis to photography and design—to tell a story with ArcGIS StoryMaps. Then submit it to the 2024 ArcGIS StoryMaps Competition for global recognition. For this year's competition, Esri invites you and storytellers worldwide to submit a story in one of five categories:

- Digital humanities and popular culture
- Health and safety
- Humanitarian and disaster response
- Nature and physical science

- Planning and infrastructure

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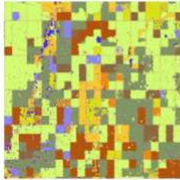

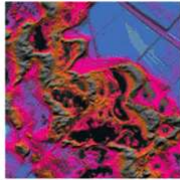

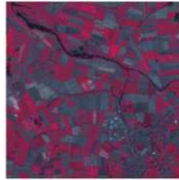
## Find Public GIS Data with Google's Earth Engine Catalog

### Earth Engine Data Catalog

Earth Engine's public data catalog includes a variety of standard Earth science raster datasets. You can import these datasets into your script environment with a single click. You can also upload your own [raster data](#) or vector data for private use or sharing in your scripts.

Looking for another dataset not in Earth Engine yet? Let us know by [suggesting a dataset](#).

Filter list of datasets

<a href="#">Canada AAFC Annual Crop Inventory</a>	<a href="#">AHN Netherlands 0.5m DEM, Interpolated</a>	<a href="#">AHN Netherlands 0.5m DEM, Non-Interpolated</a>	<a href="#">AHN Netherlands 0.5m DEM, Raw Samples</a>	<a href="#">ASTER LIT Radiance</a>
				
<p>Starting in 2009, the Earth Observation Team of the Science and Technology Branch (STB) at Agriculture and Agri-Food Canada (AAFC) began the process of generating annual crop type digital maps. Focusing on the Prairie Provinces in 2009 and 2010, a Decision Tree (DT) based methodology ...</p>	<p>The AHN DEM is a 0.5m DEM covering the Netherlands. It was generated from LIDAR data taken in the spring between 2007 and 2012. It contains ground level samples with all other items above ground (such as buildings, bridges, trees etc.) removed. This version is ...</p>	<p>The AHN DEM is a 0.5m DEM covering the Netherlands. It was generated from LIDAR data taken in the spring between 2007 and 2012. It contains ground level samples with all other items above ground (such as buildings, bridges, trees etc.) removed. This version is ...</p>	<p>The AHN DEM is a 0.5m DEM covering the Netherlands. It was generated from LIDAR data taken in the spring between 2007 and 2012. This version contains both ground level samples and items above ground level (such as buildings, bridges, trees etc). The point cloud ...</p>	<p>The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) is a multispectral imager that was launched on board NASA's Terra spacecraft in December, 1999. ASTER can collect data in 14 spectral bands from the visible to the thermal infrared. Each scene covers an area of ...</p>
<p>crop landcover canada aafc</p>	<p>lidar elevation netherlands dem geophysical ahn</p>	<p>lidar elevation netherlands dem geophysical ahn</p>	<p>lidar elevation netherlands dem geophysical ahn</p>	<p>vnir tir swir nir radiance thermal</p>

The Earth Engine Data Catalog lets users search and discover Earth observation public datasets.

[Read more](#)

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To unsubscribe from our [elist](mailto:elist.tufts.edu), visit [\[elist.tufts.edu\]elist.tufts.edu](mailto:elist.tufts.edu).