TENNESSEE GEOGRAPHIC INFORMATION COUNCIL

RECONNECT TNGIC

TNGIC 2022 Annual Conference

Montgomery Bell State Park Hotel & Conference Center

1000 Hotel Avenue

Burns, TN 37187

April 12 –14, 2022

Keynote Speakers

Presentation

Social

Golf

Training

Map Gallery

Door Prizes

Please visit the TNGIC website for more information:

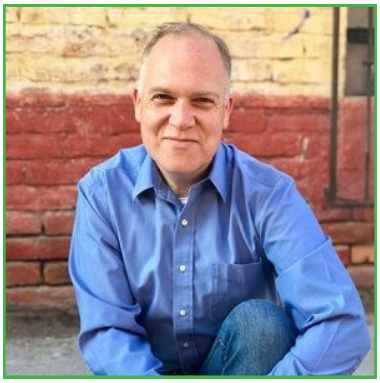
https://www.tngic.org/

Tag #TNGIC if you'd like to share/post pics to @TNGIC twitter handle

Keynote Speaker

Wednesday | April 13, 2022
Jake Morrill

Mapping the Relationship System at Work: Seeing the Landscape Through the Lens of Relationships



Jake Morrill is a leadership coach and consultant based in Oak Ridge, a few miles away from where he grew up, in Knoxville. A long-time Minister, former Chaplain in the US Army Reserve, and Licensed Marital and Family Therapist, Jake promotes trust, courage, and honesty as essential to effective leadership.

Jake believes that how we show up in relationships doesn't just matter with our family and friends--how we show up with our colleagues and partners at work makes a world of difference to the work we'll get done. Jake is on the Faculty of the Bowen Center for the Study of the Family and is the author of five books, including The Boundaries Workbook, published this month, from Rockridge Press. Jake and his wife Molly are the proud parents of two soccer-obsessed teenagers, and enjoy hiking and traveling the world.

GIS Panel

Wednesday | April 13, 2022
State of the State GIS Panel Discussion

This panel of Tennessee GIS leaders and practitioners in the State GIS Coordination Office (STS-GIS Services) will talk about some of the higher profile and relevant GIS program activities impacting decision-making in the state. Staff will discuss relevant GIS topics including Tennessee's mapping response to COVID, NG-911 progress, bringing high-speed broadband to Tennessee citizens, and of course, updates on statewide lidar and imagery programs. Other topics like TNMap website enhancements, emerging technology, and future direction of state GIS coordination will be discussed.

- Dennis Pederson serves as the State GIS Coordinator and has been in this position since 2004
- Matt Lane serves as the Lead GIS Developer on the STS-GIS team and supports a wide range of GIS web applications in State government
- Chris Meeks serves as a GIS Analyst on the STS-GIS team and provides enterprise GIS data management services and GIS analysis support to State agencies and the public
- Paul Dudley serves as a GIS Analyst in support of the statewide lidar and ortho imagery projects
- Andrew Griswold serves as a GIS Analyst in support of the local 911 districts in Tennessee

Events

Tuesday | April 12, 2022

TNGIC 13th Annual Golf Scramble

Buffet Lunch starts @ 10:45 a.m. & Shotgun start at 12:00 p.m. (cst)
Location: Greystone Golf Club
2555 Hwy 70 East, Dickson, 37055

Wednesday | April 13, 2022

Montgomery Bell State Park Staff Led Nature Hike

On 4/13 @ 4pm there will be a staff led hike around Montgomery Bell State Park. The hike will last approximately 1 hour and cover park history and plant identification. **Sign up required on tngic.org.**

TNGIC Social

Join us for the TNGIC Social to reconnect with your peers, eat great food, and enjoy activities like cornhole, cards, and karaoke!!

BBQ Picnic

- Pork ribs, chicken, and pork shoulder
- Baked beans
- Corn on the cob
- Coleslaw
- Buns and cornbread muffin
- Brownies or cookies

Drinks: Tea and Lemonade

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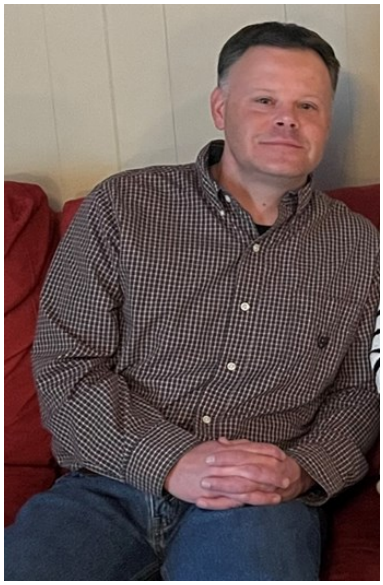
TENNESSEE GEOGRAPHIC ALLIANCE

TNSDC
Tennessee State Data Center

THE UNIVERSITY OF TENNESSEE KNOXVILLE
BOYD CENTER FOR BUSINESS & ECONOMIC RESEARCH

Board Nominations

Shawn Anderson



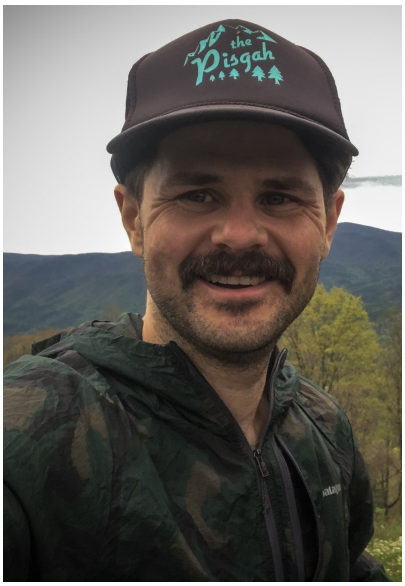
Shawn Anderson is the GIS Director for Tipton County, TN Government and has served in this role since 2004. He also served as IT Administrator for the County from 2012-2020. In 2001, Shawn started his career as GIS Coordinator for Allen & Hoshall in Memphis and worked part-time as GIS Analyst for the Town of Arlington, TN from 2006-2016. He graduated with a B.S. from Austin Peay State University in Environmental Geography in 1998 and an M.S. in Geography from the University of Memphis in 2001. He was also certified as a GISP in 2008.

Shawn has been a member of TNGIC since 2003 and was honored to serve on the TNGIC Board from 2010-2013. He's participated in various TNGIC committees and events over the years and presented many times at conferences and Fall forums. Shawn has also served with MAGIC (Memphis Area Geographic Information Council) since 2003 as a member, officer, committee chair, or whatever it took to get things done. He is also a member of URISA since 2007.

Shawn lives in Atoka, TN with his wife Sara of 22 years and their daughter Cora, who is 16. Shawn is very active with his church family and enjoys every opportunity to serve others. If he's not serving, Shawn likes to read, mow the yard and attend his daughter's band events with his family in West Tennessee and Midsouth area.

Board Nominations

Charlie Mix



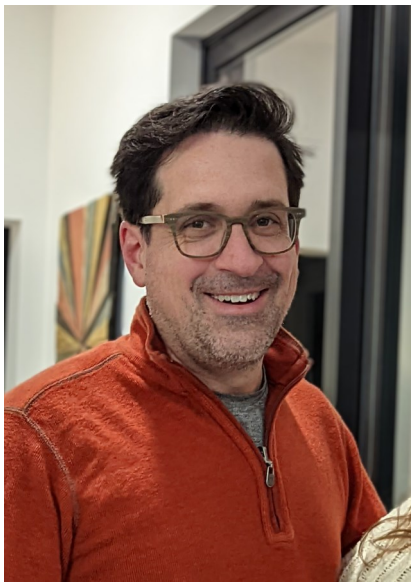
Charlie Mix is the GIS Director for the University of Tennessee at Chattanooga, helping campus and the Chattanooga community utilize GIS. He is responsible for GIS project development and management, spatial data analysis and modeling, cartography, GIS application development, partnership coordination, training, and GIS infrastructure management for UTC's campus and partners. Charlie oversees UTC's IGTLab (Interdisciplinary Geospatial Technologies Lab) which works with community partners to fulfill cartographic and spatial analysis needs by creating applied learning opportunities for UTC students. The IGTLab primarily works with various conservation and community nonprofits and local, state, and federal agencies.

Charlie earned his B.S. in Geography from Jacksonville State University and is aiming to complete his M.S. in Information Science and Geographic Information this fall from the University of Tennessee at Knoxville. His professional background is rooted in the application of geography and GIS for natural resource management and protection. Charlie has led numerous successful projects utilizing GIS and cartography for conservation and outdoor recreation planning, public health, environmental management, and community prosperity. His cartographic work has received international recognition through awards and publications. Charlie's passion is conservation GIS and enabling others with the power of GIS and spatial thinking.

Charlie’s career as a geographer was largely shaped by a love of rivers, mountains, and getting lost in the backcountry. Charlie is an avid mountain biker and whitewater kayaker. He also serves on the board of directors for the Southern Off-Road Mountain Biking Association (SORBA Chattanooga,) serves on the advisory committee for the Thrive Natural Treasures Alliance (a regional conservation partnership for Chattanooga,) and served on the Hamilton County COVID-19 Task Force, data subcommittee.

Board Nominations

Blake Sartin



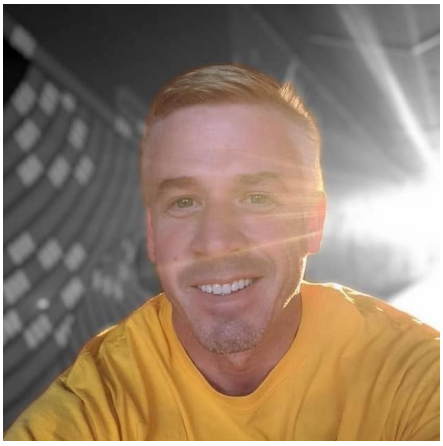
Blake Sartin is the GIS Manager for the Metropolitan Knoxville Airport Authority, which manages both McGhee Tyson (TYS) and Downtown Island (DKX) Airports. He has held this position since 2006. Previously he was the GIS Manager for the Northeast Georgia Regional Commission (2001-2006) and also worked for the University of Tennessee's Center for Transportation Research (1996-2001). He graduated from the University of Tennessee Knoxville with a B.A. in Geography in 1996 and was part of the inaugural class of GISP certifications in 2003.

Blake has worked in the past as organizer of the Geography Network of East Tennessee (GeoNET) from 2006-2016. His hope is to restart this group in the near future. He enjoys attending the ESRI User Conference as well as TNGIC events. Blake is also one of the few GIS Professionals certified by the American Association of Airport Executives (AAAE). He also regularly guest lectures on GIS concepts for the Civil Engineering students at UTK.

Blake lives outside Maryville, TN with his wife of 27 years, three kids, two dogs, and a fluctuating number of chickens. If you could find his house, you would probably find him on the tractor or repairing something mechanical. Blake and his wife also enjoy live music and travelling to see their college-aged kids.

Board Nominations

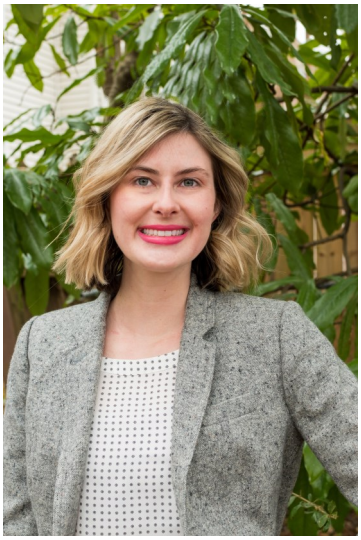
Brian Ham



I started my geospatial journey through a GIS and geology tract at Western Kentucky University (WKU) and after a couple years in geotechnical consulting, returned to WKU for a Master of Science in karst hydrogeology. After sharpening my skills in private environmental consulting, I now worked at the Tennessee Department of Environment and Conservation, Division of Water to use my skills to ensure protection and preservation of water resources throughout the state. I have over 18 years of experience in GIS data analysis and environmental resource management. I firmly believe in the importance of not only enhancing environmental data to be "spatially enabled" but also making that data readily available to our citizens. As a candidate for the TNGIC board, I hope to expand initiatives for Tennessee authoritative geospatial data and ease of access for the GIS audience and general public. I'm encouraged by all of the talent in the TNGIC community and see many opportunities for private, government, and non-profit user groups to collaborate and launch our community into more efficient workflows for creating, sharing, and analysis of spatial data in Tennessee. Environmental resource management is an increasingly important topic in our state with so many critical natural resources to protect and the use of GIS tools will continue to be the most important key to effectively communicate these challenges and solutions. I would greatly appreciate your vote to include me on the TNGIC board to help solidify our collective goals and this vision for the future.

Board Nominations

Natalie Robbins



Natalie Robbins is a research analyst in the Spatial Analysis Research Lab (SARL) at Vanderbilt University, where she serves as a geospatial and geophysical consultant to researchers and outside partners. Natalie is originally from Arizona and received her BS in Environmental Science from the University of Arizona, before moving to Tennessee to complete her Professional Science Masters in Environmental Informatics at Tennessee Tech University. In her role at Vanderbilt, Natalie has worked on projects such as COVID-19 tracking, characterization of mobility among persons living with HIV, Mapping Self and Society (MaSelfS), and geophysical survey of Battle of Nashville Civil War sites. Natalie is also an instructor in Vanderbilt's Peabody College for a course centered around personal mobility and critical spatial inquiry. Along with her collaborator, Stacy Curry-Johnson, Natalie co-leads a series of GIS workshops each semester for students, staff and faculty. Natalie is passionate about teaching GIS and helping others discover the power of geospatial information and geo-enrich their projects. When she is not mapping, Natalie enjoys hiking, practicing yoga, and spending time with her dog, Lucy.

If elected to the TNGIC board, Natalie would like to create a special interested group targeted towards Women in GIS and expand TNGIC webinar offerings to include more hands-on demonstrations for developing skills with products like QGIS and ArcGIS Online.

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APRIL 12-14, 2022

2022 TNGIC Annual GIS Conference Map Gallery

Map Judging & Awards
Our map contest will feature awards in 6 categories.

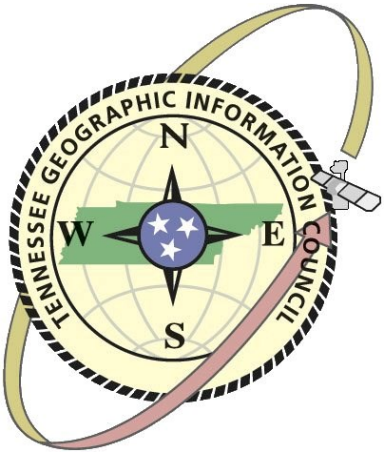
Best Cartographic Design: Awarded to the map that artistically employs the elements of cartography without compromising use and functionality. Maps will be judged on fundamental cartographic principles including figure ground representations, visual hierarchy, color selection, typography, symbology, overall aesthetic appearance, etc.

Best Analysis: Awarded to the map that is best designed to display the results of spatial data analysis and presents the information in an unbiased way, allowing the viewer to extract their own conclusions, utilizing the map as a tool.

Best Student Map: Awarded to the best overall student map. Submitted maps may be cartographic or analytically focused. Student maps and research posters are separate categories. Student Maps contain all the information being conveyed are within the confines of the map's border. Maps will be judged on basic cartographic design principals as well as effectiveness in communicating the intended message.

Best Student Research Poster: Awarded to the best overall student research poster. Student research posters must have some spatial component to the research, and contain at least one map, but may also contain written narratives, charts, photos, graphics, statistical analysis, etc. Posters will be judged on the overall design of the poster and its ability to guide the viewer through the research project from hypotheses to conclusions. Students may formally present their posters to the judges during the time listed in the conference proceedings, however, attendance during judging is optional.

Best Online Map or App: Awarded to the best Online Map or App (such as a dashboard or story map). Map entries will be judged before the conference. All web maps or apps must be made public (not password protected). Maps will be accessible for conference goers via hyperlinks in the conference app, as well as in the map gallery. This category will not be eligible for the Viewer's Choice award. Maps and Apps will be judged on the effectiveness of the overall design, symbology, labeling, and/or popups in conveying the information about the given topic. The map or app must contain at least one layer that was either collected by the entrant or generated from their analysis.



Viewer's Choice: Award chosen by the attendees for the best overall physical map in the map gallery. Maps entered the day of the conference are eligible for viewer's choice.

Conference Proceedings
Maps are to be checked in at the conference registration table. Authors may be available in the map gallery at a time designated in the conference agenda to answer questions about their map (attendance during judging is optional). Award recipients will be announced during lunch of the second day of the conference and be posted on the TNGIC website.

2022 TNGIC Annual GIS Conference Presentations

UAV Applications: Surveying with Accuracy

Presenter: **Michelle Field**

Date: **April 13, 2022**

Timeslot: **1:30 - 2:00 CT**

Room: **B**

Smith Seckman Reid, Inc. (SSR) wanted to optimize their unmanned aerial vehicle (UAV) program that is used to create survey-grade models using small Unmanned Aircraft Systems (sUAS). In the past, SSR used traditional surveying techniques for large sites, which required a lot of time and effort. Increasing model accuracy allows SSR to use sUAS to survey large sites which will save field time. SSR improved its methodology by optimizing flight paths, height, and drone speed; by using the correct imagery type, ground control points and spacing; and by improving post-processing of the model. The new methodology allowed SSR to increase survey accuracy to +/- 1 inch, creating survey-grade models for use in engineering.

Michelle Field, GISP serves as the Geographic Information Systems (GIS) Analyst for SSR. In this role, she has integrated geospatial tools and location intelligence for SSR's infrastructure group and is advancing innovative GIS technologies throughout the company. She is responsible for the collection and migration of GIS data into a variety of systems for municipalities and state agencies. Michelle also serves on the Memphis Area Geographic Information Council's Board of Directors. She received her Master of Science in Earth Sciences at the University of Memphis.

How GIS is preparing for the EPA's Revised Lead and Copper Rule

Presenter: **Megan Catalina / Abby Dylag**

Date: **April 13, 2022**

Timeslot: **2:00 - 2:30 CT**

Room: **B**

Since 1887, Tennessee American Water has owned and operated water systems that today serves nearly 400,000 residents. The EPA's revised Lead and Copper Rule will require water systems to identify and make public the locations of lead services lines. To accomplish this new rule, the Geographic Information System (GIS) team at Tennessee American water developed a workflow using GIS data analysis and geoprocessing tools. Also, to help with this process the team collected and digitized old records, completed a service area wide GNSS meter collection project, and integrated the GIS system with SAP customer data. This presentation will highlight the steps we took to ultimately produce a map with customer locations and service line material information.

Megan Catalina is the GIS Project Manager at Tennessee American Water. In her position she manages all geospatial data, GNSS collection, asset management, and web mapping for the water utility. She has a Masters in Ecology and Environmental Science and a Masters in Spatial Information Science and Engineering. Megan spent her years before coming to American Water as a Park Ranger for the North Rim of the Grand Canyon.

Abigayle is a GIS Analyst at Tennessee American Water working with the asset management, organization, and maintenance of GIS records. She helps manage the technology for the GNSS equipment and map access for all employees. She has always had an interest in the water field and has a Geoscience degree focused on hydrology and geology from Hobart and William Smith Colleges. She has 5 years of experience in the GIS field in Tennessee, New York, Kentucky with the Park Service, and Alaska with the Forest Service.

GIS: A Brief History of Mapping

Presenter: **Nikolas Smilovsky, PhD, GISP**

Date: **April 13, 2022**

Timeslot: **2:30 - 3:00 CT**

Room: **B**

This presentation focuses on the history of mapping, specifically seen through a GIS lens. Come learn about some epic geospatial moments in our shared history, while being introduced to monumental historical figures and innovative technologies. Don't worry, we leave no rock unturned, leveraging a wholistic and inclusive research approach. Please join us for a fun and education journey through our history of mapping!

Dr. Smilovsky is the GIS Solutions Director for Bad Elf, a GNSS technologies company. Additionally he is a faculty member and instructor at Arizona State University. "Dr. S" is a certified Geographic Information Systems Professional, a certified Arborist, and a Part 107 certified UAV pilot. As a geospatial evangelist, custom geospatial solutions provider, and geographic researcher - Dr S. is widely versed in all things geodetic.

Transforming Web AppBuilder for ArcGIS Widget Development

Presenter: **Scott Stafford-Veale**

Date: **April 13, 2022**

Timeslot: **3:30 - 4:00 CT**

Room: **B**

Web AppBuilder for ArcGIS® is a great framework for quickly delivering purpose-based web GIS applications. In situations where you may need capabilities that aren't offered out-of-the-box, the typical path has generally been custom widget development but it doesn't always need to be. While custom development has its benefits, there can be costly drawbacks, particularly as technology evolves and custom functionality needs to be rewritten.

In this session, you'll learn how VertiGIS Studio (formerly Geocortex) is transforming widget development in Web AppBuilder and Experience Builder. We'll show you how you can deliver custom experiences and functionality in your applications, all through configuration or no code/low code. See how we can add value to your investment in Esri technology with intuitive, web-based design tools to help you save time and money. Best of all, you can do it all without writing custom code!

Scott has been involved in the GIS industry for over 25 years. Having worked with Esri Canada for 12 years, he joined VertiGIS (formerly Latitude Geographics) in early 2011 to continue building relationships with Esri technology users. Working primarily in account management and business development, Scott has successfully helped a wide range of government (Federal, State, Provincial and local) and private sector organizations to implement enterprise GIS and develop purpose-built applications to fulfill their business requirements. Scott is based in Victoria, British Columbia, Canada.

Evaluating Spatiotemporal Patterns in US Tornado Occurrence with Space Time Cube Analysis and Linear Kernel Density Estimation: 1950-2019

Presenter: **Darrell L. Wiser**

Date: **April 13, 2022**

Timeslot: **4:00 - 4:30 CT**

Room: **B**

This study aimed to evaluate whether tornado outbreaks have shifted over time. Spatiotemporal patterns were analyzed using Kernel Density Linear Process (KDLP) and ESRI's Space-time cube Analysis. Both techniques employed tornado records for the continental United States from 1950-2019 using data from the National Weather Service Storm Prediction Centers' Severe Weather GIS(SVRGIS) database. The study employed KDLP to identify tornado hotspots by decade , while a Space-Time Cube (STC) Analysis was built to analysis the data using the Mann Kendall Trend test and the EHSA for the evaluation of whether tornado hotspot locations and intensities shift over time The STC bins were constructed by occurrence and magnitude using ArcGIS Pro ESHA results identified, by both occurrence and magnitude, significant intensifying hot spots in the Southeast region and diminishing hot spots in the Great Plains indicating an east-south-east shift.

Born in Knoxville
Education

- Associate in Science form Roane State Community College (RSTCC) 2015
- Bachelor's of Science in Geology with Environmental Studies from University of Tennessee (UTK 2019)
- Certificate in Geospatial Analysis East Tennessee State University (ETSU) 2021
- Current Master Graduate Student at ETSU for Master in Geosciences with a concentration in Geospatial Analysis

Interests: Cartography, Hazard Mitigation, Natural Hazards, Climatology, and Remote Sensing

On Demand, Custom, Topographic Maps

Presenter: **George Heleine**

Date: **April 13, 2022**

Timeslot: **4:30 - 5:00 CT**

Room: **B**

The U.S. Geological Survey's National Geospatial Program is developing a public application called topoBuilder which enables users to create custom, on-demand, topographic maps using the best available National Map data. The topoBuilder application allows users to request topographic maps anywhere in the United States or Territories. A variety of customizations such as user-centered map extent, level of contour smoothing, and export format are currently available. Additional customizations such as user-selected layers, user-added content, and GIS data exports are also planned. Map scales currently include 1:24,000 for the conterminous United States and Hawaii, 1:20,000 for Puerto Rico, Virgin Islands, and the U.S. Territories, and 1:25,000 for Alaska. Additional scales are planned for the future. A demonstration of this new capability will be provided including how to access the application, the map generation capability, and a review of output OnDemand Topo maps.

Represents USGS National Geospatial Program (NGP) to the state of Tennessee.

Untold Stories: Geophysics and Mapping of the Battle of Nashville

Presenter: **Stacy Curry-Johnson / Natalie Robbins**

Date: **April 13, 2022**

Timeslot: **1:30 - 2:00 CT**

Room: **C**

In Nashville, we are lucky to have several important sites from the fortification of Nashville and the Battle of Nashville preserved through both private and public entities. Other than being a site of union occupation and conflict, Nashville served as an important hub for transportation and medical care during the Civil War. By using open-source, Esri, and geophysical survey tools, our team is working to build out the narrative of the Civil War in Nashville. The team includes graduate and undergraduate students, along with spatial scientists and historians to map and survey Battle of Nashville sites. Students have worked to uncover stories on hospital locations, naval actions, and the fortification at Fort Negley using Esri StoryMaps, historic maps, images, and text. Geophysical investigations of Fort Negley and Shy's Hill have illuminated potential anomalies of interest for understanding military tactics during the battle.

Stacy Curry-Johnson is a PhD in Geography and is the Geospatial Librarian and Lecturer in Anthropology at Vanderbilt University. She teaches the Intro to GIS and Remote Sensing Course as well as conducts workshops, research, and assists faculty and staff. Stacy is a co-principal investigator on the Battle of Nashville research project.

Natalie Robbins is a spatial scientist in the Department of Anthropology at Vanderbilt. She works in a wide-range of disciplines to provide high-level geospatial and geophysical consulting for researchers and community partners. She also co-instructs Mapping Self and Society, a graduate seminar about critical spatial inquiry, as well as conducts GIS workshops and trainings.

When Seconds Count: Enhancing Public Safety Using High-Res Aerial Imagery

Presenter: **Justin Klinkenberg / Paul Dudley**

Date: **April 13, 2022**

Timeslot: **2:00 - 2:30 CT**

Room: **C**

The State of Tennessee, like many government entities, relies on the accessibility and accuracy of aerial imagery for many public safety situations. When it comes to 911 calls, seconds matter. By using Vexcel's highly accurate imagery, their dispatch centers relay trusted address information to first responders. This presentation will highlight key learnings gained by the State of Tennessee, how they've shared this data across multiple teams, and additional use cases government entities can emulate to maximize use of aerial data to fortify public safety plans and measures.

In addition to the State of Tennessee use case, information will highlight the value of the Vexcel Data Program, including:

- The comprehensive nature of the program which includes urban and rural aerial imagery
- Available products (oblique, ortho, DSM, multispectral) and their accompanying benefits
- Features such as property attributes and platform integration (GIS, CAMA, CAD) to enhance project workflows

Justin Klinkenberg is an Account Executive for the Vexcel Data Program responsible for the Eastern US. He resides in Huntsville, AL. Mr. Klinkenberg has a B.S. in Professional Geography from the University of North Alabama. He has a background in GIS and LiDAR analysis, project management, and sales and has over a decade of experience in the geospatial industry supporting the oil and gas industry and federal, state, and local governments.

Paul Dudley is a Location Intelligence Analyst with the State of Tennessee STS-GIS Services group helping support various data programs. His primary focuses are mapping imagery, LiDAR, and special projects. He is a current board member of the TN Geographic Information Council (TNGIC) and is always looking for ways to help Tennesseans use GIS technology. He is a graduate of the University of TN Knoxville's Geography Department and has experience in the private and public sectors.

Preparing for Esri Utility Network Migration

Presenter: **Mandy O'Shea**

Date: **April 13, 2022**

Timeslot: **2:30 - 3:00 CT**

Room: **C**

Esri's new Utility Network, which will replace the Geometric Network, features a new database model, functionality, and tools that works across enterprise, desktop, and mobile platforms. The presentation will focus on the high-level stages that organizations may take to prepare for the migration process, including Data Readiness, Migration Planning, Deployment, and Training. We'll go through the first phase in more detail, Data Readiness, and how to create data reviewer tests for basic integrity, attribution, and spatial checks.

Mandy O'Shea is a KCI Project Manager with 21 years' experience helping local and state organizations adopt technology and optimize processes to achieve business goals.

Database Sequences: Auto IDs the easy way

Presenter: **Jeff Kirchberg**

Date: **April 13, 2022**

Timeslot: **3:30 - 4:00 CT**

Room: **C**

Have you ever wanted to auto ID features, but the only way you could achieve it was using python to calculate the IDs for you? Great news! Using database sequences, you can auto increment ID upon creation of the feature. We will do a full walkthrough from creation to implementation of database sequences.

Jeff Kirchberg is the GIS Programmer for the Water and Sewer Department for the City of Maryville where he performs database development, new software implementation such as IT Pipes, Survey123, and Field Maps, and education and training of end users. He is passionate about the further education of both office and field workers and developing systems to allow better data driven decisions. Jeff is especially interested in developing new ways for data managers to design systems, educate users, and manage data in an effort to fully realize the goals of an organization.

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Arcade Across the Platform

Presenter: **Mike Sweeney**

Date: **April 13, 2022**

Timeslot: **4:00 - 4:30 CT**

Room: **C**

ArcGIS Arcade is an expression language that is used across the ArcGIS platform. Whether the application is symbology, labeling, pop-ups, Attribute Rules, field calculations in ArcGIS Pro, ArcGIS Field Maps, ArcGIS Dashboard or Web Maps, Arcade provides a simple scripting syntax to deliver these capabilities. Find out how to use Arcade with practical examples and how to get started putting it to use in your projects.

Mike Sweeney works as a Solution Engineer for Esri out of the Charlotte, NC regional office. He has over thirty five years of GIS implementation experience in many diverse application areas. Most of his time is spent exploring and explaining new releases of the ArcGIS software and working with clients in Alabama and Tennessee. Mike earned a BA in Geography with a minor in Computer Science from SUNY-Albany and a MS in Geography from the University of South Carolina.

Crawl, Walk, Run: Fundamentals are Fundamental

Presenter: **Tim Poe**

Date: **April 13, 2022**

Timeslot: **4:30 - 5:00 CT**

Room: **C**

Vince Lombardi the legendary Coach of the Green Bay Packers is reported to have started each annual training camp holding up a ball and saying "Gentleman, this is a football."

In teaching GIS at a University, answering questions of people learning GIS in a professional setting, and troubleshooting workflow, there are a number of fundamental issues that continually rear their head. Understanding the fundamentals costs less.

This talk covers the following broad topics:
1) The very basics and best practices
2) Service Oriented Architecture vs Server Oriented Architecture
3) Places to Find Data
4) Near real time with what you already have

This talk proceeds in a crawl walk run fashion.

Tim is a Senior Account manager in the local government practice of Esri. He has coordinated public sector City, County, State and University GIS operations as well as consulting in the private sector with utility engineering companies and end customers Google, Verizon, Southern Company Gas, and many other. Tim has been over large integrated GIS operations like GDOT and one man band GIS shops.

Tim enjoys non-profit volunteering and teaching.

The TomTom Road Event Reporting Demo...or Know Traffic, Beat Traffic

Presenter: **Steven Thomas**

Date: **April 13, 2022**

Timeslot: **1:30 - 2:30 CT**

Room: **D**

The TomTom Road Event Reporter demo is a free* service that helps achieve the goal of informing our communities; allowing cities and road authorities and event organizers to collaborate and announce traffic disruptions to millions of users at once. Trusted partners can report road closures, accidents and other potential traffic disruptions using the Road Event Reporter, a web-based application. With the service's easy-to-use interface, users can identify potential issues by visualizing current traffic flow, quickly create and edit road events on the screen and view current, upcoming, and expired events. Once the disruptions are reported, TomTom's traffic fusion engine and moderation teams use GPS observations from millions of connected devices to validate the issue. The temporary disruption is then reported to users, encompassing in -dash systems, smartphones, and navigation devices. Safety is improved and frustration diminished. This presentation is expected to last 30-60 minutes.

A twenty one year veteran of the mapping industry with advanced cartographic skills, extensive field survey and project management experience. Responsible for researching, assessing and acquiring any information for the creation and maintenance of TomTom databases. I enjoy working collaboratively to solve business, operational, and planning challenges with existing and potential providers / partners.

For the Birds: The Making of a Storymap for the Elizabethton Bird Club

Presenter: **Rachel Whiteman**

Date: **April 13, 2022**

Timeslot: **2:30 - 3:00 CT**

Room: **D**

Roan Mountain State Park, the surrounding area, and Hampton Creek Cove are home to numerous bird species throughout the year. The Lee & Lois Herndon Chapter of the Tennessee Ornithological Society, also known as the Elizabethton Bird Club, has compiled the best locations to observe birds in these areas. In this presentation, I will discuss how I came to be in touch with the Elizabethton Bird Club and who they are; how I made a map, storymap, and survey for them; and these productions' outreach for the Club and the public.

Rachel Whiteman is a graduate student and teaching assistant at ETSU, where she is working towards a Master's degree in Geospatial Analysis and teaches two Intro-Geology labs. Her current research is on creating a risk assessment map of slope movement in Watauga County, North Carolina. She enjoys creating storymaps for others, especially in the pursuit of educational outreach.

Creating Asynchronous Job Aids, Onboarding, and Training Material

Presenter: **Michael Camponovo**

Date: **April 13, 2022**

Timeslot: **3:30 - 4:00 CT**

Room: **D**

Join me for a practical discussion on how to efficiently create and share short asynchronous learning and training tools like job aids, process maps, and demonstration videos. We will briefly explore examples, free and low cost tools for creating content, and strategies for maintaining and sharing resources. While traditional educators are welcome to attend, this presentation is geared towards professionals without formal training in education and instruction.

Michael is the GIS Outreach Coordinator for the Geography Department at UT Knoxville and teaches the courses Introduction to Geovisualization and GIS and Practicing Geography. Michael focuses his outreach efforts on promoting geospatial technology to K-12 students, teaching teachers how to incorporate geospatial technology into their classrooms, and using hands-on tools to recruit students into geography. Prior to his work at UTK, Michael worked for the Earth Data Analysis Center at the University of New Mexico where he managed natural hazard mitigation projects, produced data for the New Mexico Geospatial Clearinghouse, and conducted geospatial outreach. Michael earned a GIS Certificate from Roane State Community College, a BS in Agriculture and an MA in Curriculum and Instruction from TN Tech, and a MS in Geography from UNM. Michael just finished his MBA from the Haslam Business School. Michael plans to avoid earning any more degrees for a while.

Open Source Community, Addressing, and 911

Presenter: **Randal Hale**

Date: **April 13, 2022**

Timeslot: **4:00 - 4:30 CT**

Room: **D**

In 2018 Henry County made the decision to switch from their commercial GIS and user QGIS, PostGIS, and Geoserver as their primary tools for addressing. North River Geographic Systems, Inc did the conversion. Since the move they've been developing maps, assigning addresses, and helping the citizens of Henry County. The question nearly 4 years later is "How do we make this better" and the answer became "open source it all". We've started placing the scripts and methodology online in github and improving it by collaboration with others. The new goal is community building and developing code for QGIS/PostGIS that will be robust enough to support addressing, analysis, and routing in TN.

Owner and operator of North River Geographic Systems, Inc. Randal Hale has been in the geospatial industry for over 25 years. NRGS mainly works with Free and Open Source Software for Geoinformatics (FOSS4G). He volunteers with the QGIS Community and serves as an "at large" member of osgeo.us. He teaches certified classes through the QGIS community. One will hopefully find him either sifting through data or sitting in a canoe - hopefully a canoe.

Aging Like Fine Wine? Pipe Integrity Over Time: Uniting Remote Sensing and GIS

Presenter: **Benjamin Lundberg**

Date: **April 13, 2022**

Timeslot: **4:30 - 5:00 CT**

Room: **D**

Hybrid 3D pipe scanning technology using CCTV, LiDAR, and SONAR simultaneously is a powerful tool for inspecting critical infrastructure, since the resulting datasets are not georeferenced, they present various challenges to asset managers. However, high-accuracy GNSS positioning and linear referencing tools in ArcGIS can be applied to analyze this data spatially. This allows the pipe's inspection data to be fully utilized so that defect severity can be properly assessed and contextualized in the map.

Benjamin Lundberg is a Regional GIS Administrator with LJA Engineering in Chattanooga, TN. He holds a Masters in Geography and is a GISP. He has over 15 years of experience in GIS, with database management and field experience ranging from Alaska to the Caribbean.

Johnson City through the Years

Presenter: **Heather White**

Date: **April 14, 2022**

Timeslot: **8:00 - 8:30 CT**

Room: **B**

The Archives of Appalachia, located in the Sherrod Library on ETSU campus, houses hundreds of thousands of physical memories of the Appalachian region. Most, if not all, of the memorabilia is donated to the archives where it is then analyzed and stored in a temperature-controlled room. My graduate assistantship involves digitizing historic maps of the region and uploading them to a publicly available digital commons so that anyone can access these maps without having to physically touch them. This presentation will go over the challenges of digitizing maps from the 1800s - early 1900s. I will be discussing the process and talking about the story map I have made for the Archives of Appalachia that focuses on Johnson City, TN.

Heather White is a first year graduate student at ETSU. Her master's is in geospatial analysis. Her thesis research is using GPR to locate unmarked graves at Carter Mansion in Elizabethton, TN. Her interests include sustainability and detecting buried utilities via GPR. She is a research assistant for the Archives of Appalachia, where she has been digitizing historic maps to be publicly accessible.

How to Feed the World by 2050: Mapping Three Solutions

Presenter: **Maya Rao**

Date: **April 14, 2022**

Timeslot: **8:30 - 9:00 CT**

Room: **B**

This presentation, “How to Feed the World by 2050: Mapping Three Solutions”, strives to illustrate current problems modern agriculture and food security faces. In 2050, the world’s population will likely reach 9.7 billion (United Nations, 2019, 2017). As a result, the global demand for food will likely double (Hunter et al., 2017). The question then arises- what tangible steps and solutions can be taken to ensure that this growing population is not plagued with food insecurity? In this presentation, I will use a StoryMap to showcase maps and narratives of solutions that can be taken to help feed the world. Solutions include the use of circular systems within waste, education of women, and increasing agricultural diversification. These solutions may not completely help the problem of food security. However, when facing current problems of food waste, climate change, and poverty, these steps provide needed initiatives that may help feed the world by 2050.

Maya Rao is a senior double majoring in Geography and Sustainability and double minoring in International Agriculture and Global Studies. During her undergraduate career at the University of Tennessee, she has engaged in cross campus research. Maya is particularly interested in GIS applications in agriculture settings and hopes to study that in graduate school next year. She has also spent time participating in campus organizations, and currently serves as the Co-President for the Geography and Sustainability club at UTK.

Cost of Community: Urban Renewal in Knoxville and the Impact on Black Spaces

Presenter: **Trevor Davis / Heath Allen**

Date: **April 14, 2022**

Timeslot: **9:00 - 9:30 CT**

Room: B

We will be talking about the methods, data, and historical background leading into our primary thesis discussing the effects of urban renewal on primarily black spaces in east Knoxville (which took place over the course of many decades). We will also be discussing the importance of our work as it was given to us by a local Cultural Center, and the value our project has for the local community and the greater geographical community.

Trevor Davis is a senior at the University of Tennessee, where he is attaining a Bachelor of Arts degree in Psychology. He is a University of Tennessee Ambassador, student liaison for UT, a Multicultural Mentor through the university's MMP Program, and has been a medical scribe working in 4 emergency departments around Knoxville. Trevor is on a track to pursue medicine after college. Upon graduation, it is Trevor's goal to enlist in the military as a commissioned officer and continue his journey of making the world a better place, little by little.

Integro-what? Using mobile apps and an automation platform to streamline field inspections.

Presenter: **Ben Baker**

Date: **April 14, 2022**

Timeslot: **10:30 - 11:00 CT**

Room: **B**

Local government departments, specifically emergency services, have historically utilized paper-laden workflows. Many components of these workflows benefit from a digital approach. This presentation will cover an overview of the paper-driven workflow and address the pinch points in such an approach. Using ESRI Field Maps and Survey123 the entire workflow can now be completed from a mobile device. Integromat supports automation of several downstream processes that are triggered by new submissions that save Fire Department personnel time and ensure accurate record-keeping.

Ben Baker serves as the GIS Manager of the Morristown-Hamblen GIS Partnership, a cooperative between the City of Morristown, Hamblen County, Morristown Utilities, and Hamblen County Emergency Communication District (911). In that capacity, he oversees the project implementations that advance geospatial technology in departmental workflows and public mapping resources. He has worked in city and county governments, a private civil engineering/survey/environmental consulting firm, and as a graduate teaching assistant. Ben holds a Bachelor's in Geography-Environmental Studies and a minor in Geographic Information Technology from Slippery Rock University of Pennsylvania (2010) and an Master of Arts in Geography, concentrating in GIS and Remote Sensing from West Virginia University (2012).

Understanding the impacts of transverse bars on beach dynamics

Presenter: **Jonathan Bell / Mayra A. Román-Rivera**

Date: **April 14, 2022**

Timeslot: **11:00 - 11:30 CT**

Room: **B**

Sand bar position and variability can significantly modify the response of beaches to different wave conditions that also influence short- and long-term beach-dune stability. This study aims to quantify the effects of transverse sand bars along a segment of beach in Province Lands Cape Cod, MA. This project consists of collecting aerial photography and weather data to be later analyzed using ArcMap and the USGS tool, Digital Shoreline Analysis System (DSAS). Once collected, the aerial photographs will be digitized to record the location of the shoreline for each available year. The goal of this study is to provide a better understanding of transverse sand bar impact on beach and dune erosion process.

Jonathan Bell:
Senior in Geography department studying GIS and Geography.

Map on Tap - How Hydraulic Models Bridge GIS and Drinking Water

Presenter: **Serena Hostetter / Ashley Mallela**

Date: **April 14, 2022**

Timeslot: **8:00 - 8:30 CT**

Room: **C**

What role does GIS play in the water that you drink? Possibly a pretty big one!

Water utilities across the country continue to face challenges associated with growth and aging infrastructure. With these challenges comes the need for data. How will disconnecting a pipe for repairs impact the water availability of homes nearby? Will system upgrades be needed in order to meet the water demands of a proposed development? Computerized water models are increasingly being used by utilities to answer these questions.

Using a GIS map of the water distribution system as its base, a hydraulic model adds system controls and water demands to pipes and other infrastructure, allowing complex fluid dynamic equations to be applied across the whole system in a matter of minutes. Accurate hydraulic models can allow utilities to view the system-wide impact of changes to their system; however, the accuracy of a hydraulic model is directly dependent on the accuracy of the GIS data it is built upon.

Ashley is an Engineer-in-training at Smith Seckman Reid. She graduated with a degree in Civil Engineering from the University of Tennessee, and is working toward her Masters in Environmental Engineering. She comes from a family of operators and utility managers, so she has a lifelong love for water and wastewater treatment. She is especially interested in treatment innovations for developing regions and management of emerging contaminants such as PFAS.

Serena Hostetter graduated from Vanderbilt University in 2020, where she studied Mechanical Engineering with a focus in Environmental Studies. Serena currently works as an Engineer-in-training at Smith Seckman Reid, and in her role she utilizes GIS and hydraulic modeling software to assist drinking water utilities with short-term and long-term planning. In her spare time, Serena can be found hiking, enjoying Nashville's music scene, and attempting to complete her goal of visiting all 125 parks in Nashville.

Out of this world mapping: Planetary geologic mapping in support of space exploration

Presenter: **Jeannette Wolak Luna**

Date: **April 14, 2022**

Timeslot: **8:30 - 9:00 CT**

Room: **C**

Geographic information systems provide a framework to manage spatial data on Earth, but what about elsewhere in the Solar System? Here, we present recent advances in planetary geologic mapping including a discussion of standardized versus non-standardized maps, cartographic controls, data management systems, and recent targets. With upcoming missions to Venus (DAVINCI+, VERITAS), the Moon (Artemis), Mars (Rosalind Franklin rover) and Titan (Dragonfly), the diversity of targets ranges from rocky terrestrial planets to icy Saturnian moons. Data returned from each mission is unique, and this presentation will highlight GIS tools modified for planetary geologic mapping.

Jeannette Wolak Luna is an associate professor in the Department of Earth Sciences at Tennessee Tech University. Her research focuses on sedimentary systems on Earth and Mars, and she is passionate about planetary geologic mapping. At TTU, Jeannette teaches classes on sedimentation/stratigraphy, geologic exploration techniques, and planetary geoscience. Her top five recommendations for soundtracks to listen to while planetary mapping are: (5) The Martian; (4) Interstellar; (3) Gravity; (2) The Expanse; (1) Passengers.

An Experience to Remember - The Day I First Met ESRI's Experience Builder

Presenter: **Andrew McDonagh / Leah Fuller**

Date: **April 14, 2022**

Timeslot: **9:00 - 9:30 CT**

Room: **C**

Do you have Webapps, Survey123s, and Dashboards that are all pieces to a bigger GIS effort? Do you find yourself lost telling stakeholders to bookmark one page for data input and another for analysis? Do you wish these applications could speak to each other in real-time?

ESRI Experience Builder is an amazing tool that easily allows you to design an Experience website where GIS tools can integrate, text and photos can tell stories and the big picture of your endeavors can be visualized for stakeholders.

Tennessee State Parks is excited to share how they have just begun leveraging ESRI's Experience Builder in ways that streamline public data collection for Tennessee's Historic Cemeteries, reduce staff time for monthly reporting on Park activities, visitation, and occupancy, and communicate to the public Tennessee State Parks' Economic Impact.

Andrew McDonagh is a GIS Specialist who received his MS in GIS from the University of Redlands, CA in 2017, and BS in Parks, Recreation and Tourism from the University of Vermont in 2013. Some of his most enjoyable mapping experiences have been in the last few years working with federal and state governments doing GIS for parks planning, creating ESRI web and application solutions, and GIS wilderness and trails inventorying in the field. With Tennessee State Parks Andrew works with his team to take ideas proposed by a variety of Park staff, to fruition backing and educating Park management with data pulled from GIS. Andrew loves where his mapping work virtually “takes” him daily, and how he can learn about the world through maps, travel, and photography. Leah Fuller is a GIS Specialist who received her MS in Earth System Science from the University of Alabama in Huntsville in 2019 and BS in Environmental Science from Auburn University in 2017.

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Using GIS and MaxEnt Modeling to Predict Spring Locations and Assess Aquatic Resources in the Karst Landscape surrounding Arnold Air Force Base, Tullahoma, TN

Presenter: **Samantha Allen**

Date: **April 14, 2022**

Timeslot: **10:30 - 11:00 CT**

Room: **C**

Industry, agriculture, and a karst landscape are just a few of the key factors that are influencing the aquatic resources at Arnold Air Force Base in Tullahoma, Tennessee. This project uses multiple GIS and modeling techniques to gain insight into how to manage the stream ecosystems in order to preserve water quality, minimize impacts from human threats, and to gain insight into karst flow patterns across the landscape.

Samantha is a PhD student in the Environmental Science, Integrated Research program at Tennessee Tech university, with plans to graduate this Summer. Much of her research has been focused on applying GIS and spatial analysis techniques to aid in watershed and stream management. Her most recent projects include A Large-Scale MaxEnt Model for the Distribution of the Endangered Pygmy Madtom and serving on the research team for the assessment of the aquatic resources at Arnold Air Force Base. She is passionate about using remote sensing and open source data to gain insight into karst watershed dynamics and stream ecology.

Tennessee Crash Analytics & Safety Tool: Applying GIS Concepts in a Non-GIS Environment

Presenter: **Marshall Wilson**

Date: **April 14, 2022**

Timeslot: **11:00 - 11:30 CT**

Room: **C**

The Tennessee Crash Analytics and Safety Tool (TCAST) is a Power BI dashboard, which allows users within TDOT to query crash data based on a number of attributes related to the crashes themselves as well as the roadways on which they occur. The tool provides a number of visuals including maps, graphs, and charts, which display crash locations as well as meaningful statistics. TCAST also provides on-the-fly crash rate calculations, using crash, traffic, and roadway data available in TDOT's linear referencing system (LRS). Although Power BI does not have built-in LRS functionality, the same concepts which power LRS tools in GIS were applied in the development of this tool. These concepts were used to imitate a true LRS, allowing users to define specific segments of roadway at intervals as small as 0.01 mile. This provides TCAST's users with the ability to analyze trends in crashes and crash rates along specific, isolated segments in Tennessee's roadway network.

Marshall Wilson has been with TDOT's Long Range Planning Division for over three years, and has a background in GIS which includes work in archaeology and geospatial intelligence, as well as a Master of Science in GIS-T from the University of Southern California. He began his time at TDOT in its Data Visualization Office, but later moved to the Forecasting Office, which specializes in travel demand modeling. Marshall's main focus in this position is the review of the various traffic models prepared for the state and its metropolitan planning organizations, as well as the application of the forecast data they produce. Recently he has been learning new ways to use GISDK script to create analytical post-processing tools for these models. He additionally has experience in Python, and has developed a number of ArcGIS script tools, most notably a set of tools for directly accessing and downloading demographic data from the American Community Survey.

Gold Sponsor Information

Esri, the global market leader in geographic information system (GIS) software, offers the most powerful mapping and spatial analytics technology available.

Since 1969, Esri has helped customers unlock the full potential of data to improve operational and business results. Today, Esri software is deployed in more than 350,000 organizations including the world's largest cities, most national governments, 75 percent of Fortune 500 companies, and more than 7,000 colleges and universities. Esri engineers the most advanced solutions for digital transformation, the Internet of Things (IoT), and location analytics to inform the most authoritative maps in the world. https://www.esri.com

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VertiGIS is the maker of VertiGIS Studio products (formerly known as 'Geocortex'). These products address many of the common GIS application development challenges organizations encounter when deploying Esri web and mobile GIS technology. The unique off-the-shelf approach of VertiGIS Studio software makes it easy to create and maintain applications while ensuring end-users consistently benefit from a positive mapping experience. From Reporting and Printing to custom widget configuration and fine-grained permissions control, VertiGIS Studio's powerful capabilities are used to extend Esri Web AppBuilder or Experience Builder applications as well a VertiGIS Studio's industry leading viewer, whether you're in the office or out in the field. Build out-of-this-world apps with VertiGIS Studio. VertiGIS is an Esri Platinum Partner. https://www.vertigis.com/

Woolpert is the premier architecture, engineering, geospatial (AEG) and strategic consulting firm, with a vision to become one of the best companies in the world. With more than 1,600 employees and 60 offices on four continents, we innovate within and across markets to serve public, private and government clients worldwide. https://woolpert.com/

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Starting today, all of your new GNSS receivers can be accurate, affordable, and flexible. Inspired by your input, Bad Elf continues to democratize GNSS. Bad Elf Flex offers a trailblazing, survey-grade receiver that delivers flexible accuracy at a highly affordable price. This is just the beginning, together we can streamline your workflows. https://bad-elf.com/

data axle

As an original compiler of consumer and business information, Data Axle has developed sophisticated data sourcing, compilation, and aggregation processes based on our intimate knowledge of raw sources and decades of experience. With more than 16MM verified businesses and 180MM households, Data Axle can offer comprehensive coverage of nearly every address in the United States. Our records are 100% geocoded with no geographic or categorical bias within the database.

Data Axle's comprehensive data assets can serve as the foundational layer in your GIS system. Data Axle offers more than 100+ attributes in our business and consumer databases and historical information dating back more than a decade. https://www.data-axle.com/

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G-Squared is a photogrammetric engineering firm staffed and tooled for massive and efficient aerial survey production. In short, we make maps. For over 20 years we have provided design scale map products that meet all state and federal guidelines for geospatial accuracy. We are a quality over quantity company, so our short list of services is by design. We do a few things and focus on doing them right. All our products are made in America at our facility in Fayetteville, Tennessee to ensure that level of quality. http://gsqmap.com/

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Kucera International Inc. is a leading provider of aerial remote sensing, lidar processing/classification, ground surveying, photogrammetric mapping and imaging, geospatial data conversion and analysis, and related services for government, industrial/commercial, professional, and educational/research applications. Kucera's in-house staff of over 60 experienced geomatic professionals at offices in Ohio, Pennsylvania, North Carolina, and Florida includes licensed/certified photogrammetrists, surveyors, engineers, GIS specialists, project managers, pilots, and aircraft mechanics. For data acquisition, Kucera operates a fleet of high-performance, multi-port aircraft outfitted with latest generation aerial lidar, digital aerial imaging, and multispectral sensing systems together with advanced GPS ground and airborne surveying technologies. For data processing, mapping, and analysis Kucera uses a variety of robust, proven remote sensing, photogrammetric, imaging, and GIS and CAD technologies/softwares. Kucera regularly works throughout the US and abroad.
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The program is designed for students with a bachelor degree to get solid and rigorous training in GIS, business management and statistics. Students are required to take an internship opportunity to work for a company. With such training, students would get real-world and problem-solving skills in addition to learning from the classroom. The program is open to anyone with a strong learning desire and ambition to be a great professional leader in managing natural resources with computer-based analytical and critical methods. https://www.professionalsciencemasters.org/

Stantec is an international design firm providing a wide range of services to more than 20 different market areas including water resources, civil, and environmental engineering. Established in 1954, we unite approximately 25,000 engineers, modelers, scientists, and project managers working in over 400 locations across 6 continents. Stantec creates long-term value through our four value creators: excellence, innovation, people, and growth. We always design with community in mind, because they're our communities too. This allows us to assess what's needed and connect our expertise to bring together diverse perspectives so we can collaborate toward a shared success. https://www.stantec.com

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Standard Sponsor Information

Formed in 1986, the Tennessee Geographic Alliance (TGA) is a not-for-profit based in Knoxville, TN. It is the state's only organization focused solely on improving geographic literacy in K-12 schools. Alliance activities typically include: providing professional development opportunities for teachers including summer institutes, academic workshops, and sessions at national and state professional meetings; developing, testing, and producing teaching materials and other resources as needed by K-12 teachers (including those related to geospatial technologies); advocating for improved geographic literacy throughout the entire education community including securing and maintaining geography education standards, promoting stronger curriculum frameworks, and advising on testing and textbook adoption; collaborating with in-state partners, such as the State Department of Education and other disciplinary associations; and promoting public engagement programs to increase awareness of what geography is and why it is important. Membership in the TGA is free and you may join by visiting www.tngeographicalliance.org and clicking on "Join the TGA". If you would like to learn more about the Alliance, please contact Kurt Butefish, at kbutefis@utk.edu.

VEXCEL DATA PROGRAM

For nearly 30 years, Vexcel has pushed the envelope in the photogrammetric and remote sensing space. The direction of the aerial imagery business has been largely impacted by the multiple products and innovative technology created by Vexcel. From undertaking one of the most ambitious data programs which, in 18 months, captured the lower 48 states and 14 European countries in high-resolution ortho, to developing an aerial data software solution for generating downstream data products, Vexcel has done it all.

In 2017, Vexcel launched its data program to better serve a variety of industries, including (but not limited to) Insurance, Government, Utilities, AEC, Energy and Telecommunications. It stands as the only professional aerial imagery program to capture both urban and rural areas in photogrammetric accuracy, giving customers the confidence that they are working with real location intelligence.

In 2020, Vexcel acquired imagery and aviation assets from Verisk, adding additional capabilities to its long-standing history of remote sensing success. Vexcel currently collects imagery across the U.S., Canada, U.K., Western Europe, Australia, New Zealand, Japan, and Puerto Rico. https://www.vexcel-imaging.com/