MONDAY, OCTOBER 22ND, 2018
9:00 AM – 10:10 AM SESSIONS

REDWOOD ***9:00 AM – 9:30 AM***

Mapping Smart Divide in Rural America: A Preliminary Analysis

Recent success in myriad applications of information and communications technology (ICT) in urban hubs largely defines our current understanding of a smart society and economy. However, the footprints of such smart transformation barely imprint in the countryside, where rural communities meet with tremendous digital divides and barriers, such as absence of broadband infrastructure, geographic isolation from technical, and various social inequalities. The conventional wisdom of smart communities built upon the well-established broadband access and ICT in the urban settings may be found outfit in decentralized rural communities. Therefore, it is imperative to understand the geography and characteristics of "smart divide" and develop coping strategies for rural regions. The purposes of this preliminary study are to (1) provide an overview of the challenges, opportunities and implications of advancing smart transformation in rural America, and (2) map rural areas that are most vulnerable to the "smart divide". To address the objectives, we conduct a meta-analysis of relevant literature, and a spatial analysis based on the overlay of the geographic areas underserved by the broadband infrastructure and socioeconomic characteristics of the rural population pertinent to the acceptance and use of ICT. The study is expected to benefit the scientists, planners, entrepreneurs, and policy makers interested in smart rural development.

Di Wu, Southern Illinois University Carbondale
Ruopu Li, Southern Illinois University Carbondale
Kang Chen, Southern Illinois University Carbondale

ROSEWOOD ***9:00 AM – 9:30 AM***

Enterprise Geodatabase Views - Table Joins with Superpowers!

If you are working with in an environment that uses an enterprise geodatabase such as SQL Server then you won't want to miss this topic! ArcMap and ArcGIS Pro have limitations with Table Joins and Table Relationships. This topic will discuss those limitations and provide solutions that expand on the powers of an enterprise geodatabase, leveraging one-to-many relationships, making your application dynamic and feature rich.

Scott Daniel, GRAEF

CYPRESS ***9:00 AM – 10:10 AM***

ArcGIS Open Data & Hub

Trends in digital data use and transparency initiatives in government are driving the expectations for data and information. ArcGIS Open Data enables ArcGIS Online Organizations to effectively share authoritative data, enable data exploration, and enable others to download data. This session will cover the latest from Esri in Open Data tools, best practices, branding options, and key considerations for configuring your Open Data site. Discover how you can use Open Data to accomplish your organizations transparency initiatives and how to extend these concepts into the community.

Gustavo Castro, Esri

ASPEN ***9:00 AM – 9:30 AM***

The Role of GIS in Effective Flood Response

Kankakee County experienced heavy flooding along the Kankakee & Iroquois Rivers in February 2018. A quickly formed, joint effort between Kankakee and Will County GIS offices utilized ESRI's ArcGIS Online, Survey123, Dashboard, and Microsoft Excel to expedite data collection, visualization of the extent of damage, and digitally deliver the damage assessment to IEMA in the required format. This presentation will detail the collaborative efforts of Will and Kankakee County GIS personnel during this emergency situation – including how the geo-survey products used were created and the challenges faced by the intercounty team. Furthermore, an IEMA-compliant Survey123 template will be available, for those interested, for use in response to flood and non-flood emergency events in areas throughout the state of IL.

Becky Colwell-Ongenae, Will County
Daniel Bishop, Kankakee County

WILLOW ***9:00 AM – 9:30 AM***

LiDAR Data Changes Over Time

What type of changes can happen between LiDAR collections for a county? There can be many actually. The changes that can occur are not just temporal, but can also be due to advancements in technology and in the standards under which the LiDAR was collected. This presentation will give examples of some of the common changes that can occur. It will also look at several counties in Illinois for which Lidar has been collected multiple times to see how much has changed between these collections.

Matthew Jefferson, Illinois State Water Survey

REDWOOD ***9:40 AM – 10:10 AM***

Evolution and Integration of Drones in Emergency Response

With the maturity of Small Unmanned Aerial Systems and technology, emergency response agencies are increasingly turning to the use of sUAS systems during emergency responses. Agencies and private partners are using these systems for disaster intelligence gathering and data acquisition. During this presentation, attendees will gain a firsthand understanding of the opportunities to deploy UAV's and interpret the data.

Keenan Campbell, IPEM, Bureau County EMA

ROSEWOOD ***9:40 AM – 10:10 AM***

Where's the "Map Button"?

When people think GIS, they often think M.A.P. But GIS encompasses much more than cartography. GIS entails taking data from various sources and bridging them together through data visualization tools to help communicate an idea or streamline a process. In addition, data visualization can bring data into the hands of people without a lot of technological know-how. Our goal in this presentation is to provide a different perspective on geographic data by presenting a data visualization tool that improves the efficiency of local government by breaking down silos between different government databases, without the explicit use of maps. For example, this tool combines multiple data sources to display information related to zoning, property tax breakdowns, and permit status, among many other possibilities. In addition to our demonstration, we will be discussing the importance of data quality in implementing data visualization tools.

Ana Grahovac, MGP, Inc

Courtney Reents, MGP, Inc

ASPEN ***9:40 AM – 10:10 AM***

An Integrated GIS-BIM Approach to Flood Resilient Buildings

Just one inch of water in a home can cost more than $25,000 in damage, according to the Federal Emergency Management Agency (FEMA). Flood mitigation involves determining flood risk and implementing strategies to lessen that risk. To determine flood risk to structures, FEMA provides the public with Flood Risk Products, including GIS data depicting flood probability, coastal wave height, floodwater depth and velocities, etc. GIS professionals in local government typically analyze these products to quantify flood risk for structures in their communities. Once quantified, risk can be strategically mitigated if homeowners, business owners, and developers employ FEMA guidelines for building design, construction, and retrofitting. This talk discusses the use of Flood Risk Products to identify design, construction, and retrofitting mitigation strategies for individual structures and introduces map-based visualization ideas to conveniently disseminate this information to homeowners, business owners, and developers.

Anita Thomas, Stantec

WILLOW ***9:40 AM – 10:10 AM***

LiDAR data for Illinois - thats great but how can I use it?

For the first time, the entire state of Illinois will have LiDAR data. In addition, there are many areas that are re-acquiring newer and better quality LiDAR data. These collections are freely available thru an easy to use download tool thru the Illinois Geospatial Data Clearinghouse. With all the focus on LiDAR data, it's important to know how your agency could be using this valuable free resource. This presentation will highlight inventive ways people have used LiDAR data and the tools they used.

Janet Camarca, Illinois State Geological Survey

MONDAY, OCTOBER 22ND, 2018
10:30 AM – 11:40 AM SESSIONS

REDWOOD ***10:30 AM – 11:00 AM***

Open-source Web Mapping in the Urban Wilderness

With 69,000 acres of land, 300 miles of trails and dozens of types of activities and amenities, planning trips and navigating in the Forest Preserves of Cook County can be a challenge. Learn how the Forest Preserves partnered with the civic technology organization Smart Chicago (now City Tech Collaborative) to build a custom interactive web map. Launched in May 2017, the web application started with two pieces of open-source code: Trailsy and Trailsy Server, both pioneered by Code for America, a national civic technology non-profit.
The presentation will cover both technical and non-technical aspects of the project, so it should be useful for a wide variety of attendees. Live map here: https://map.fpdcc.com/ . GitHub page: https://github.com/smartchicago/trailsy
Ryan Lothian, Forest Preserves of Cook County
Josh Kalov, Kalov Strategies
Garret Wais, Forest Preserves of Cook County

ROSEWOOD ***10:30 AM – 11:00 AM***

Then and Now, the Official Highway Map

Illinois celebrated 100years of the Official Highway Map. We would like to take a look back over the years of the map, discuss the materials and tools used, fun facts regarding the map and how we are converting the map from CADD to GIS with the next update of the Official Highway Map.
Derrick Stapleton, Illinois Department of Transportation
Suzanne Cutler, Illinois Department of Transportation
Melanie Dennison, Illinois Department of Transportation

CYPRESS ***10:30 AM – 11:40 AM***

Cook Central Open Data Hub

Cook County GIS will demonstrate a hub for sharing mapping and geographic information with the public. Cook Central showcases open spatial data, interactive mapping applications and an application programming interface for community members to pioneer unique, innovative applications with Cook County's authoritative data. We will discuss the process of building Cook Central and show some ways it is benefitting our communities. You will see an interactive walk-through of the portal, including how to find, preview, and download data by theme or category, and how to access REST endpoints for custom application development.
David Arfa, Cook County Government
David Treering, Cook County Government

ASPEN ***10:30 AM – 11:00 AM***

Kane County Cadastral Tax Mapping

Tax mapping process based upon recorded documents and the overall impact of a map update.
Michael Mullins, Kane County, GIS-Technologies

WILLOW ***10:30 AM – 11:00 AM***

Beyond the Map Service: Expanding the use of ArcGIS Server

Kane County Illinois, has had to look beyond the map services to meet the needs of the County and the Public it serves. This Presentation will show Kane County's uses of a few of the other services available with ArcGIS Server such as Geoprocessing services, Geocoding services, and GeoEvent Stream Services.
Nicholas Krueger, Kane County, GIS-Technologies

REDWOOD ***11:10 AM – 11:40 AM***

Women In GIS

Women In GIS Introduction and Discussion
Jessica Griffin, ExteNet Systems, Inc.

ROSEWOOD ***11:10 AM – 11:40 AM***

A Historical Account of the Road Maps Created at IDOT

This session will cover the general process of creating maps over the years at IDOT, and some of the material and tools used to create the road maps and it progression over the last 100 years.

Derrick Stapleton, Illinois Department of Transportation
Suzie Cutler, Illinois Department of Transportation
Melanie Dennison, Illinois Department of Transportation

ASPEN ***11:10 AM – 11:40 AM***

Location, Location, Location

Many workers are preparing to retire, leaving behind a wealth of knowledge, while younger IT professionals struggle to gain the knowledge they need to take their agencies into the future.
Where do maps come into play?

Maps have always offered an opportunity to meet today's workforce challenges while laying a foundation for ongoing modernization and innovation.

Mazher Ahmed, Kane County, GIS-Technologies

WILLOW ***11:10 AM – 11:40 AM***

Using SQL to interact with your spatial data outside of ArcGIS

An introduction to using SQL to directly access your data stored inside the ArcGIS Server Enterprise Database (ArcSDE) to use it outside of the ArcGIS environment. Many people have not taken advantage of the possibility of accessing their spatial data outside of ArcGIS. For many people, ArcSDE is a proprietary black box only accessible via ArcCatalog and other ESRI tools. Other people may have a very understandable fear of breaking their vital databases. This presentation will provide the basic information needed to begin exploring your data at the source using the underlying database engine. Once you understand this, you open up whole new worlds on using and presenting the information locked inside your data. (Presentation is based on ArcSDE on Microsoft SQL Server)

Jason Verachtert, GISP, Kane County, GIS-Technologies

MONDAY, OCTOBER 22ND, 2018
1:15 PM – 2:25 PM SESSIONS

REDWOOD ***1:15 PM – 1:45 PM***

Drone Deploy, Drone2Map & ArcGIS Online

This session consists of two 15 minute sessions.

UAV Orthomosaic Creation and Use in GIS: *This session will cover the use of UAV's to create GIS-usable orthomosaics and elevation products. Topics covered will include drone image capture using mission planning software and image processing using DroneDeploy and Drone 2 Map.*

Chad Sperry, Western Illinois University GIS Center

How to Bring Drone Imagery to ArcGIS Online: *Bringing drone imagery to ArcGIS Online is not very simple. As default, it is not possible to zoom in further than 1:1,128 due to ArcGIS Online basemap limitation. Since drone imagery is high resolution, it would be a problem. Although Esri shares how to set a custom scale for a tile service in ArcGIS Online, there is still an issue with this method when overlaying another basemap with a different scale. The presenter will discuss not only a workaround, but also a resampling technique to reduce necessary space when publishing a tile service.*

Keisuke Nozaki, Western Illinois University GIS Center

ROSEWOOD ***1:15 PM – 1:45 PM***

Enabling Dynamic Layers

With the release of Esri's new ArcGIS Javascript 4.x library using the Asynchronous Module Definition (AMD) comes easier and cleaner web map development. The MapImageLayer which is a part of this new library, besides being able to render more features faster due to being server sided can also change the rendering of the default properties of a layer on the fly.

This presentation reviews how you can redefine the default look and feel of a layers properties by simply changing the parameters of the MapImageLayer in your code.

Thomas Nicoski, Kane County, GIS-Technologies

CYPRESS ***1:15 PM – 2:25 PM***

GIS and the Illinois Strategic Technology Reserve

The Illinois Strategic Technology Reserve (STR) is a fleet of specialized assets used to support local communications systems during disasters, large incidents and planned events. The Reserve provides on-scene, supplemental and interoperable communication services supporting response efforts, especially when local systems are impaired or overloaded. The STR is always working to add capabilities and has begun adding GIS capabilities to the fleet. This presentation explores the current state of the STR, how GIS capability is being implemented, and the constraints involved in providing GIS services in the field using satellite, FirstNet and other networks, especially during a disaster scenario. One of the STR's vehicles, a Unified Command Post, will be available for demonstration and discussion.

James Cueno, City of Galesburg

Bill Springer, Illinois Public Safety Communications

ASPEN ***1:15 PM – 1:45 PM***

Assessment of Groundwater Spatial and Temporal Variability using Data Mining

Rapid population growth and uncertain climate variability have been challenging our groundwater management, especially in regions dominated by agricultural production. Effective management practices require an understanding of critical factors affecting the water table dynamics, such as recharge, groundwater-surface water interactions, soil and unsaturated zone characteristics. Although groundwater models can provide valuable insights into these questions, these models are often nonexistent or lack essential resolution for local details. The purpose of this study is to use data-driven approach to understand the patterns of spatio-temporal dynamics with time-series groundwater level observations. It examines seven HU-8 river basins in southern Nebraska and identifies explanatory factors (e.g. climate, hydrography, land use) that may be associated with the patterns using data mining techniques. Groundwater level measurements for 25 wells over a period of 10 years were used in the experiment. A principal component analysis (PCA) was employed to show how the temporal variations were associated with different exploratory factors. The first three principal components explained 78% of the total variations in the groundwater levels. An ensuing cluster analysis was further implemented on the principal component loadings to separate the wells into three spatial clusters, whose locations indicate the underlying processes dominating water table fluctuation. This study shows that the use of data mining techniques such as principal component analysis and cluster analysis are useful in revealing spatio-temporal patterns and explanatory factors that affect the groundwater table dynamics.

Astha Bista, Southern Illinois University Carbondale

WILLOW ***1:15 PM – 2:25 PM***

Model builder for those not ready for Python!

Using ArcGIS Pro (not ArcMap), we will look at some basics and advanced techniques you can do in model builder, to help with your GIS tasks.

Burt McAlpine, JULIE Inc.

REDWOOD ***1:55 PM – 2:25 PM***

Quickly deploying Survey 123 for asset inventory

ESRI's mobile apps including Survey 123 and Collector allow fieldworkers to quickly be equipped for mobile data collection with minimal training. I will show how we were able to deploy Survey 123 on short notice to facilitate a

campus-wide inventory or garbage and recycling dumpsters. By using Survey 123 we were able to capture locations data and photos as a single organized dataset that will be used to develop more efficient routing of waste collection around campus.

Dennis Skultety, University of Illinois, Facilities & Services

ROSEWOOD ***1:55 PM – 2:25 PM***

Data Visualization at EPA

This demonstration will feature data visualization tools that the US Environmental Protection Agency is using with its stakeholders. A walkthrough of creating a Qlik Sense application using Great Lakes restoration Initiative data to monitor grant spending will feature, data loading, transformation, graph visualization, and mapping options.

Jan Krysa, US EPA

ASPEN ***1:55 PM – 2:25 PM***

Developing a hydrologic connectivity model using high-res DEMs

Surface water flow routing from High-resolution Digital Elevation Models (HRDEMs) is challenging due to the fine resolution and accurate representation of manmade infrastructures (e.g., bridge, culvert, road) within the HRDEMs. These embedded features create unrealistic flow paths while performing hydrologic connectivity. Another challenge of modelling hydrologic connectivity from HRDEMs involves the poor computational efficiency due to the large file size in multi core desktop processors. This study develops an automatic methodology to delineate accurate surface water flow using HRDEMs and High-performance Computing (HPC) techniques to speed up the computational time. LiDAR (Light Detection and Ranging) derived HRDEM from a sub-watershed of Kearney County, Nebraska is used for hydrologic enforcement. Different resolution of DEMs are re-sampled and compared with bridge/culvert location data (n=308) to test if resolution change significantly impacts on hydrologic connectivity ranks (i.e., fully connected, connected distantly, not connected). Then, streams near bridge/culvert location are burned with the HRDEM and compared with the original HRDEM to test if the connectivity is significantly improved or not. Later, different physical properties of surface depressions are extracted from the HRDEM, which will be analyzed using different supervised machine learning classification algorithms to classify between artifact and natural depressions. These classification model will be validated using other agricultural watersheds in Nebraska. The Chi-square p-value from Friedman test (p=5.62E-7) of different resolution DEM ranks suggest that resolution changes are significantly different from each other. Further analysis of different physical properties of surface depressions will reveal an automatic procedure to delineate surface water flow from HRDEMs.

Sourav Bhadra, Southern Illinois University Carbondale
Ruopu Li, Southern Illinois University Carbondale

MONDAY, OCTOBER 22ND, 2018
2:45 PM - 3:55 PM SESSIONS

REDWOOD ***2:45 PM – 3:55 PM***

Survey123 Eureka!

Survey123 has been out for a while but it's much more than just a simple survey application. Install these surveys on your mobile device or embed them into a website or let them stand alone. They can be integrated into the GIS workflow by staff completely outside the process. We will talk about forms, dependencies, defaults, popups, calculations and integration with ArcGIS Enterprise. Everyone gets some free samples and find out what Survey123 and Jethro Tull have in common.

Micah Williamson, Cloudpoint Geographics

ROSEWOOD ***2:45 PM – 3:55 PM***

Saving Lives at Special Events

Special events of various types and sizes are conducted in almost every community throughout the United States. Many of these events stretch local resources, and many exceed the day to day population of the community. Many times the greatest threat to special event attendees involves severe weather. High winds, lightning, heavy rain and even tornados expose this outdoor vulnerable population to sometimes life threatening circumstances. Additional considerations that need to be addressed, and are, in the Event Ready program include: security, terrorism, when to evacuate and/or shelter,

crowd management, traffic, health, suspicious packages, lost child, fire, medical, hazmat, and command & control operations.

This program provides a series of step by step guides that not only identify threats but assist in; training and exercises, develop triggers, and provide emergency response parameters (Plans). These vital components provide large scale special event command staff, public safety, event sponsors and volunteers with vital all-hazard, comprehensive resources and processes. Given that severe weather is considered a primary threat to outdoor events, a special weather component was developed with the National Weather Service. The result was a suite of tools which ensures awareness of weather hazards that threaten events, provides for more informed and efficient communication with forecasters, and promotes effective decision making.

This multi-media presentation will hi-light the successful collaboration between the National Weather Service and Emergency Management; in developing these tools, as we walk participants through the Event Ready process, and illustrate its tremendous benefits and scalability to an event of any type and size
David Adler, DuPage County Office of Homeland Security & Emergency Management

CYPRESS ***2:45 PM – 3:15 PM***

Using GIS to Understand Water Use in Illinois *Esri Map Book Contributor*

Over 1,300 communities throughout Illinois rely on different sources of water for municipal, industrial, and residential use. Sources of water include Lake Michigan, inland surface waters such as rivers and reservoirs, groundwater, or a combination of sources. Communities may also purchase water from other communities or from public water distributors. We present an interactive map and standalone data products that depict the complex use of water throughout the state and discuss the challenges of integrating water use data using GIS.
Daniel Hadley, University of Illinois

ASPEN ***2:45 PM – 3:15 PM***

Dashboards: Combining Your Geospatial Data With Other Data Sources

See how you can easily blend geospatial data with other data types to create compelling dashboards. In this session you'll see real life examples of Qlik dashboards that incorporate GIS data with multiple other data sets.
John Fitzgerald, Pomerol Partners

WILLOW ***2:45 PM – 3:15 PM***

Social Media Footprints of Public Perception on Energy Issues

Energy has been at the top of the national and global political agenda along with other concomitant challenges, such as poverty, disaster and climate change. Social perception on various energy availability, development and consumption deeply affects our energy future. This type of information is traditionally collected through structured energy surveys and statistics. However, these surveys may be limited by formidable costs and intensive labor, as well as a lack of temporal dimensions. Social media can provide a more cost-effective, timely solution to collect massive amount of data on public opinion related to energy issues in a way that complements energy surveys and statistics. The purpose of this study is to use computer algorithms and social media data to characterize the spatio-temporal patterns of social perception on various energy issues. Text analysis algorithms, such as sentiment analysis, word frequency, and topic analyses were employed to offer insights into the public attitudes and those prominent issues affecting the attitudes. The preliminary results show that the public perceptions exhibited spatio-temporal dynamics on different energy types. The study is expected to help inform decision making and formulate national energy policies.
David Leifer, Southern Illinois University- Carbondale

CYPRESS ***3:25 PM – 3:55 PM***

Real-time GIS to support Strategic Decisions at the Chicago Police Department

The Chicago Police Department (CPD) has been a GIS consumer for over 25 years. In response to a rise in crime, CPD created Strategic Decision Support Centers (SDSC) in several of the department's district stations. These centers bring together various technology used to monitor and react to current trends in the district. The department's one stop shop for GIS data and analysis is a home grown GIS application called Caboodle and several operational dashboards bringing

together the various technologies used in the centers. The centers also have access to the 24,000 + cameras citywide, which allows department personnel to monitor cameras throughout their tour of duty. Other technology such as ShotSpotter and HunchLab are systems which bring real-time intelligence to the center.

Caboodle is an application built on ArcGIS server technology. The interface brings together hundreds of datasets, which allows for quick analysis and reporting. The focus on this presentation is on the use of real-time GIS and the integration into an easy to use dashboard.

The dashboard development was a collaborative effort between the GIS team and leadership from key districts. Additional input and reconfigurations have been incorporated.

The data consists of GPS from the department's fleet of vehicles, assigned 911 calls for service, current ShotSpotter events, active HunchLab mission boxes and current major events which consist of shootings and homicides. A story map was used to allow easy access to a citywide view and individual views for each district. The reason for separate dashboards was ease of use, no clicks, no filtering, just a selection to filter activity inside the active HunchLab missions. The map allows command and SDSC personnel to quickly see where their assets are and where current activity is occurring. The HunchLab missions are constantly being updated with current counts of where a car is inside the mission box. The missions are shaded based on the time of last vehicle inside the boundary and an attribute indicates the last car and it's timestamp that was in the mission.

There are list and count widgets that reflect the current status. The vehicle locations include vehicles that are assigned to the district and any vehicle which may be assigned to support a higher level assignment for another unit within the department.

Users can quickly transition into Caboodle to run analysis and queries to support the current activities in the field in the form of reports, charts and maps. This includes running name searches, past criminal history and GPS snapshots and history to support the ongoing investigation and for a post shooting analysis.

The GIS technology is in a constant state of development and flux. The current set of tools, an agile development environment can support the ever changing critical missions in the field and access to simple to understand and use dashboards.

The presentation covers from consuming the incoming source data, processing, publishing, and packaging the information for the dashboard.
Joe Kezon, Chicago Office of Emergency Management and Communications

ASPEN ***3:25 PM – 3:55 PM***

Light Pollution Mapping from High Altitude Balloons and Neighborhood Streets

Light Pollution is a growing problem that affects society in many ways from purely economic to quality of life. Increasing evidence suggests that light pollution has significant health and ecological effects. The first step in combating light pollution is to understand the problem. The Adler Planetarium has embarked on a program to map out light pollution in the Chicagoland area. This program consists of NITElite and YOLO, two projects that approach light pollutions from dramatically different angles. NITElite is a series of high altitude (~90,000ft) balloon flights that will image large swathes of the Chicagoland area at night. YOLO (Youth Organization for Lights Out) is a teen program to raise awareness of and map out neighborhood lighting. This talk describes the Adler's progress in implementing NITElite and YOLO and the challenges we are overcoming in creating useful datasets out of NITElite and YOLO activities.
Geza Gyuk, Adler Planetarium
Ken Walczak, Adler Planitarium

WILLOW ***3:25 PM – 3:55 PM***

Garbage In, Garbage Out: The Importance of Data Quality in Local Government

Ignorance can be bliss, but not when it costs you. Ensuring your data is of the highest quality saves time, money, and reputation. In local government, data drives decision-making. Good data facilitates informed decisions, whereas poor or

ambiguous data can have detrimental effects on a community. Through establishing standards and key data stakeholders, we can confidently obtain and maintain data. This presentation highlights the impact of data quality – why we need it, how we can achieve it, and how we can work together to sustain it.
Alexis Araoz, MGP, Inc.

MONDAY, OCTOBER 22ND, 2018
4:00 PM – 6:00 PM EVENTS

ATRIUM ***4:00 PM - 6:00 PM***

Networking Reception in the Exhibit Hall

Relax after a day of sessions and network with your colleagues and exhibitors while enjoying free hors d'oeuvres, a cash bar, and entertainment. Stop by and bid on one of the SILENT AUCTION items!

TUESDAY, OCTOBER 23RD, 2018
9:00 AM - 10:10 AM SESSIONS

REDWOOD ***9:00 AM – 9:30 AM***

How GIS Can Help Us Understand the Opioid Crisis

The opioid epidemic is devastating families and communities all over the United State. In 2016, the U.S. lost 42,249 lives. In Illinois, we lost 1,877 lives. This presentation will go over ways GIS can impact how people and organizations view opioid related data sets. We will also discuss dealing with many different data sources from death data to prevention and treatment data and how to depict that data for internal and external uses.
Tom Ricker, DuPage County GIS

ROSEWOOD ***9:00 AM – 9:30 AM***

ArcGIS for AutoCAD: An Introduction

This session will explore how CAD users can utilize ESRI's free plug-in for AutoCAD to access, edit, and share data.
Erin C. Strickler, P. E., Cloudpoint Geographics

CYPRESS ***9:00 AM – 10:10 AM***

ArcGIS Pro: An Introduction to Modern GIS

ArcGIS Pro is here and is the premier professional desktop GIS application from Esri. ArcGIS Pro supports the core GIS experience through an elegant and intuitive contextual user interface built upon a modern architecture. This session will detail the fundamental concepts surrounding ArcGIS Pro as well as highlight several key workflows. This includes editing, symbolizing, styling, and data management as well as how ArcGIS Pro fits into your deployment of Enterprise or ArcGIS Online.
Gustavo Castro, Esri

ASPEN ***9:00 AM – 9:30 AM***

GIS and The Assessment Process

How GIS is used by County and Township Assessment personnel
Sam Pintacura GISP, CMS, Kane County, GIS-Technologies

WILLOW ***9:00 AM – 10:10 AM***

NG9-1-1 in Illinois

This presentation will be an introduction to the State of Illinois NG911 System. It will discuss the implementation of a statewide NG911 and specifically focus on the GIS policies & standards that were developed in a collaborative effort with ILGISA and the Illinois State Police
Cindy Barbera-Brelle, Illinois State Police
Eric Creighton, City of St. Charles, IL

REDWOOD ***9:40 AM – 10:10 AM***

Using GIS for Missing Person Cases

GIS has advanced the way law enforcement and other public safety personnel conduct searches for missing persons. A massive search for the body of a 20 year-old cold case victim in Alabama has led the Illinois State Police to incorporate new GIS technologies to better assist in similar searches in our state. This session will go over the lessons learned from Illinois' involvement in the search in Alabama, and talk about how these lessons assisted in the search for a missing person in Illinois.

Nicholas Gray, Illinois State Police - STIC

ROSEWOOD ***9:40 AM – 10:10 AM***

(Lightning Talk) Infusing Geospatial Concepts into the Chicago Public School Curriculum via the Established Geospatial Semester Model

Over the last decade or two, opportunities through advances in science, technology, engineering and mathematics (STEM), have gathered speed and encouraged the need for a more diverse and well-prepared STEM workforce to expand, especially in large populous areas such as the metropolitan area of Chicago. The challenge of preparing citizens for the expanding workforce and the changing workplace environments calls for new innovations in STEM education including the infusion of geospatial concepts and technologies to promote spatial problem solving and technological literacy among future workforce members. A National Science Foundation grant under "Innovative Technology Experiences for Students and Teachers" (ITEST) is a research and development program that supports projects to promote PreK-12 student interests and competencies to participate in the STEM and information and communications technology (ICT) workforce of the future. To that end, a model firmly established at James Madison University (JMU) in Virginia and successful in the DC metropolitan region, is currently being employed within the the Chicago Public Schools System which assists educators to become familiar with software and teach the spatial technology to their students. Examples of the pedagogy and Geospatial Semester Model techniques at JMU are offered in this presentation.

Richard B. Schultz, National Geospatial Technology Center of Excellence (GeoTech Center)
Judith Bock, Elmhurst College

ROSEWOOD ***9:40 AM – 10:10 AM***

(Lightning Talk) Cultivating 'farm-to-fork' lifestyles in the Corn Belt: A spatial analysis of community supported agriculture in Illinois

As community supported agriculture (CSA) continues to grow nation-wide, understanding how it serves (or does not serve) a growing population is increasingly important. The impacts and spatial dynamics are CSAs are understudied, but this research sought to understand the spatial distribution of Illinois CSA programs and what factors explain their patterns across the state. In a monoculture sea of corn and soybeans, CSAs bring hope to the Corn Belt, reconnecting Midwesterners once again with their food.

Lorraine Stamberger, University of Illinois

ROSEWOOD ***9:40 AM – 10:10 AM***

(Lightning Talk) An investigation of using super-resolution convolutional neural networks for remote sensing image downscaling

Convolutional neural networks (CNNs) have a great success and become popular in computer-vision super-resolution application. However, very few studies have been done in terms of applying such technique for remote-sensing image downscaling. The two pioneer remote-sensing papers showed us some promising results but failed to point out the challenge of adapting computer-vision super-resolution CNNs, which is derived from the conceptual difference between the two disciplines. To fully understand CNNs for remote-sensing image downscaling, we investigated how the model behaves with various number of convolutional layers using Landsat 8 imagery, based on a proposed CNN design with the flexibility of choosing the depth. We found that the overall model performance increases as the CNN goes deeper while the model complexity is also increasing substantially. With respects to different landforms, the model performance gain has different trends and peaks. Most trends fluctuate before 9 layers and then flattens out, indicating the 9-layer depth might be an optimal choice to balance out the additional model complexity in the case of remote-sensing image downscaling.

Qing Wang, Southern Illinois University Carbondale

ASPEN ***9:40 AM – 10:10 AM***

Parcel Fabric - Lessons Learned

The advances that Esri has made in parcel management have culminated in the development of the ArcGIS Parcel Editing Solution. This solution consists of a data model (Parcel Fabric), editing environment, tools (Parcel Editor) and workflows for editing parcels in the local government information model. There has been a lot of buzz over the past couple of years around this new environment and naturally a lot of learning pains. Fortunately, we have taken on the tasks of understanding the ins and outs/dos and don'ts of this environment so you don't have to!! This presentation will focus on our experiences with migrating data into the parcel fabric, editing workflows within parcel editing environment and tips and tricks we have picked up along the way to ensure that your experience within the Parcel Fabric will be smooth and efficient.

Van O'Brien, Sidwell

TUESDAY, OCTOBER 23RD, 2018
10:30 AM - 11:40 AM SESSIONS

ROSEWOOD ***10:30 AM – 11:00 AM***

How GIS Improves Power Grid Reliability

ComEd's system is rapidly evolving to reduce outages, improve energy efficiency, and create a premiere customer experience. GIS plays a critical role in this transformation, guiding 24/7 operations and serving as a blueprint for new infrastructure. Learn about ComEd's unique GIS tools and processes, and how they are used to enhance the power grid.

Peter Collins, ComEd
Richard Togtman, ComEd
Nancy Isberg, ComEd

CYPRESS ***10:30 AM – 11:40 AM***

2020 Census Update

The 2020 Census will require counting an increasingly diverse and growing population of approximately 330 million people in more than 140 million housing units. The current planning activities support a new census design that fundamentally changes the way we take the census. Learn about the census operational schedule, Complete Count Committees, geographic partnerships, and employment opportunities.

Speaker TBD, U.S. Census Bureau

ASPEN ***10:30 AM – 11:40 AM***

LiDAR Sensor Platforms and Data Merging

LiDAR is a versatile technology. There are various types of LiDAR sensors which can be mounted on multiple platforms determined by your project. Aerial LiDAR sensors are mounted on fixed wing aircraft, helicopters and drone platforms for an elevated vertical aerial view of terrain features. Mobile LiDAR sensors can be affixed to most small vehicles including trucks, vans, and boats for a 360-degree panoramic field of view. Static scanners are set up on tripods and can be used in both indoor and outdoor applications to create high density models. Each deployment platform has distinct advantages in capturing high precision and accurate data, each also has limitations. We will explore the key factors to determine the right tools when creating a customized data solution whether using a single platform or multiple platforms in a data merging application. Further, we will discuss the different types of value-added products that can be extracted and classified from the LiDAR data including DEM's, DTM's, and planimetric features.

Sonja Ellefson, GPI Geospatial

WILLOW ***10:30 AM – 11:40 AM***

Illinois NG9-1-1 Panel

Panel discussion on the upcoming Illinois NG9-1-1 transition and what will be expected. Discuss requirements and details that will come along with the state-wide transition.

Michael DiGiannantonio, GIS Coordinator, DuPage County ETSB
Cindy Barbera-Brelle, Illinois Statewide 9-1-1 Coordinator, Illinois State Police
William Barrett, 9-1-1 Coordinator, City of Marion
Brandon Lacey, ETSB/GIS Addressing Technician, McLean County ETSB
Eric Venden, GIS Coordinator, Village of Gurnee

REDWOOD ***11:10 AM – 11:40 AM***

GIS collaboration and data sharing across multiple agencies

This presentation will cover multiple different deployment scenarios utilizing ESRI products such as ArcGIS Online, Portal, and Web Adaptor to share data seamlessly both internally and externally. Customer examples will draw from Tuolumne County (CA), Cerro Gordo County (IA), and Marshall County (IA).

Van O'Brien, Sidwell

ROSEWOOD ***11:10 AM – 11:40 AM***

How GIS Improves Customer Service

Enhancing The Member's Experience: Using GIS to improve our utility's communication with and service to our members.

Michael Ohnemus, Adams Electric Coop

TUESDAY, OCTOBER 23RD, 2018
1:15PM – 4:15PM WORKSHOPS (REGISTRATION REQUIRED)

REDWOOD ***1:15 PM – 4:15 PM***

Python Workshop

This is hands on BYOD (Bring Your Own Device) workshop using Python 2.7.x that ships with ArcGIS Desktop 10.4 and newer. You need to have ArcGIS Desktop (basic level license is fine) installed before class so we can jump right in. You can use the Python window inside ArcMap or use any IDE you prefer. This workshop assumes you have basic python knowledge and have at least looked at ArcPy. I will have various code samples we can chose what to go over in class. You can also send me examples you need help with at least a week before the conference and we can use those in the workshop as well.

Skill Level: *Intermediate*

Instructor:

- *Burt McAlpine is a GIS Coordinator for JUILE Inc, with over 17 year of GIS experience. He is a GISP and Esri Certified ArcGIS Desktop Professional. He works with different entities around state using GIS data to help in JUILE's processes. Mr. McAlpine used VBA to make several tools to increase GIS productivity and moved to python once VBA was no longer supported for Esri products. Mr. McAlpine has a B.S. in Fisheries & Wildlife Biology, B.S. in Biology with Environmental Option, and a B.S. in Chemistry with Environmental Option from Arkansas Tech University, 2001.*

ROSEWOOD ***1:15 PM – 4:15 PM***

ArcGIS Online and Collector with High-Accuracy GPS

This workshop will focus on using Esri Collector and ArcGIS Online with high-accuracy GPS receivers. This will be a hands-on workshop. The topics to be discussed will include publishing data to ArcGIS Online, prepping the data with GPS metadata fields, custom Collector settings for use with high-accuracy GPS receivers, collecting GPS data in Esri Collector, GPS best practices and data analysis in ArcGIS Online. We will also discuss the benefits and limitations to using ArcGIS Online and Esri Collector for high-accuracy GPS data collection as an alternative to using more traditional GPS software solutions.

Skill Level: *Intermediate*

Instructor:

- *Tom Krohn has been in the GIS field for over 15 years. Tom has worked as a GIS Project Manager, GPS Technical Support, Account Manager and Technician. Prior to joining Seiler Instrument in 2015, Tom worked at The Sidwell Company, Commonwealth Edison and National Geographic Society.*

CYPRESS ***1:15 PM – 4:15 PM***

Making Sense of LiDAR Data - point clouds, derivatives, capabilities and limitations

In this workshop, we will take an in-depth review of what LiDAR is and how it is being used in Northeast Illinois, particularly Lake County. We will highlight existing/historical LiDAR data and their uses as well as discuss the recent (2017) high density Geiger-mode LiDAR USGS 3DEP project potential products. We will take an 'under-the-hood' look at the LAS point cloud and demonstrate some of the derivative products which can be produced. We'll look at surface models created from the LiDAR such as contours, solar potential, change detection and canopy density. LiDAR data is inherently visual in nature and we will explore the data in 3D.

Skill Level: *Intermediate*

Instructor:

- *Richard Knodel is a Principal GIS Analyst for Lake County, IL, with over 25 years of GIS experience. He is the Principal Technical Contact for the NEIL4+, USGS 3DEP LiDAR project (Geiger-mode). Richard was also principal lead in the 2002 and 2007 LiDAR projects for Lake County, IL. Natural resources, aerial photography and LiDAR have been the primary focus during his time with Lake County.*

ASPEN ***1:15 PM – 4:15 PM***

Introduction to UAV's for GIS Professionals

This workshop will focus on UAV usage by GIS professionals. Topics to be covered will include understanding basic regulations, UAV purchase considerations, and applications and usage. A demonstration of basic flight and planned missions is planned.

Skill Level: *Beginner, Intermediate*

Instructor:

- *Chad Sperry is the GIS Director at the Western Illinois University GIS Center. He obtained his FAA Certified Remote Pilot Certification (Part 107) in 2017. Prior to coming to Western, Sperry worked with the U.S. Army Corps of Engineers, Rock Island District and was a GIS specialist with Klingner & Associates, P.C. in Quincy, IL. He earned his master's degree from Purdue University and his bachelor's degree from WIU.*