

KIM SUNDEEN

Full Stack Engineer | Mapper | Project Coordinator

<https://ksundeen.github.io> kim.h.sundeen@gmail.com 218.590.1330 Duluth, MN



[@ksundeen](https://twitter.com/ksundeen)
<https://github.com/ksundeen>
<https://www.linkedin.com/in/kim-sundeen-63007a16/>

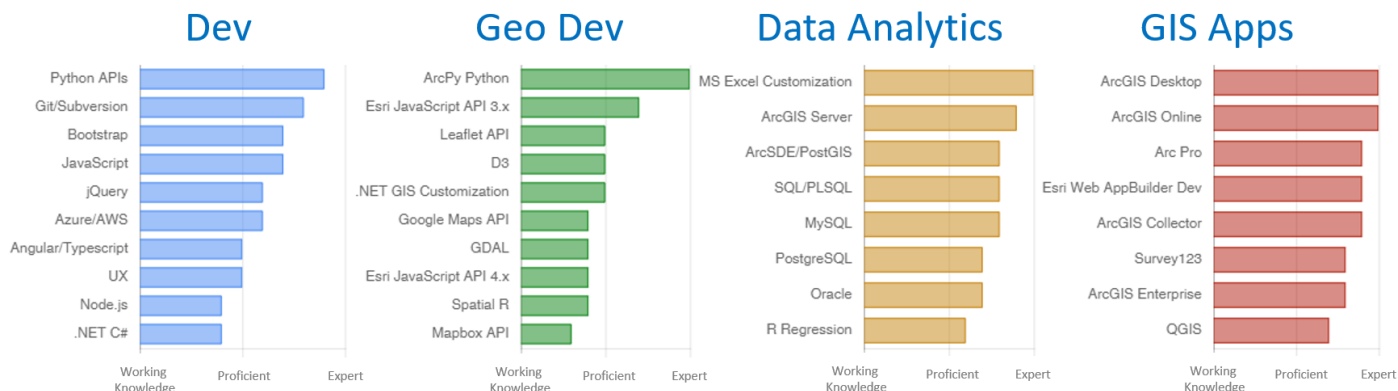
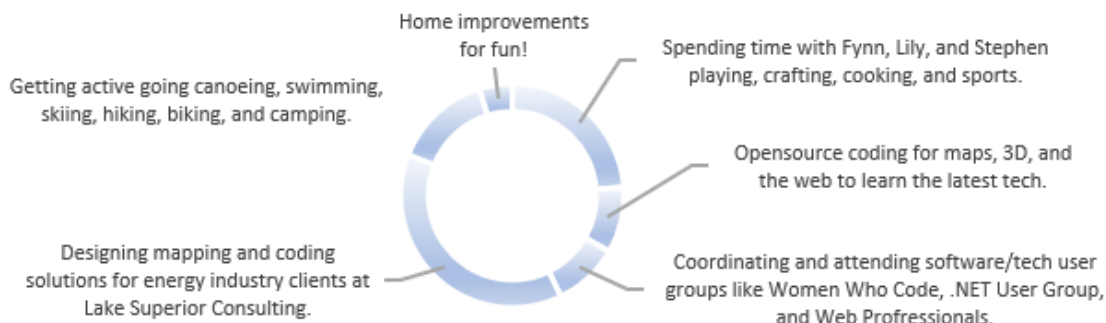
LIFE PHILOPHY *"The only mistake is one from which you didn't learn" -A Friend*

SUMMARY

Kim came from mapping wildlife population distributions to becoming a leader, planner, & developer designing & coding client-focused web & mobile apps with maps.

Kim has 12 years of extensive experience planning & implementing progressive GIS solutions using a variety of software programs including ArcGIS Enterprise, GeoServer & GeoMoose implementation, Python backend automation, web development frameworks, & desktop mapping applications (ArcGIS/QGIS) that focus on improving the end-user's experience. Kim's background includes database management (SQL Server, Oracle, PostgreSQL) & designing, strategizing, & implementing new desktop, mobile, & map solutions using agile scrum software development. She has deep technical & industry knowledge in utility & engineering practices, remote sensing, environmental sciences, mobile applications, & government services. She has managed internal data collections applications for field surveys, asset management systems, data migrations, & integrations between IT & GIS systems. Kim also is a constant learner; she coordinates virtual environment training workshops on Amazon Web Services & Azure, web apps, python, & new GIS tools to stay current with technology & code outside of work. Kim is active in the development, business, & GIS communities having launched the local chapter of Women in Tech & stepped into the Director role of the Duluth Chapter of Women Who Code. She also serves on professional GIS boards & committees (MN GIS/LIS Conference Committee Workshop, Fond du Lac Geospatial Technologies Advisory Committee, WI Land Information Association Membership Chair).

A DAY OF MY LIFE



Lake Superior Consulting Duluth, MN

GIS Developer, May 2018–Present

Main GIS solution architect to lead collaborative efforts on web map applications & desktop tools for mapping, analysis, reporting, & reviewing of field-collected data. Worked as team member to provide custom mapping software development, improvement, & migration tools. Researched & presented on new tools to clients at conferences & internal meetings.

GIS Business Strategy

Identifies new business opportunities by designing & presenting proof-of-concept solutions for client demos, training, & standard protocol. Presents on user needs interviews & workflow process improvement recommendations.

GIS App & Tool Development

Coordinates with software developers to gather, document, & prioritize user requirements. Implements agile scrum development for the Data Solution group leading mapping, engineering design, & construction management projects. Designs & plans key automation & standalone applications for Esri, SharePoint, Primavera, & SQL Server integrations. Uses a suite of frameworks to align, extend, & develop existing tools & programs in JavaScript frameworks (Angular, jQuery, TypeScript), backend internal applications (MVVM, C#, .NET), & custom map & GIS tools (Python 2.7, 3.x, Leaflet's API, Esri's JavaScript API 3.x, 4.x).

User Training, Documentation, & Marketing

Works with stakeholders, & the business to develop new training modules. Develops documentation for knowledge transfer.

PRIOR WORK EXPERIENCE

RAMTeCH Software Solutions, Inc. – Professional Services, 3/2017 – 5/2018 Stillwater, MN

GIS Analyst/Developer

Worked as team member to provide custom mapping software development, improvement, & migration tools. Researched & presented on new tools to clients at conferences & internal meetings.

Data Migration & ETL Software Development for Clients

Applied agile product development methodology to design, build, & release python & SQL utility migration toolsets accessing oracle 11g/12g SDE databases, ArcMap & Pro desktop tools. Lead general & detailed user-training/demos for client support & project work. Researched new Esri utility network extension built in SQL server databases. Developed custom python, SQL, & Oracle database migration process to handle ETL from 5 source databases to one unified model for the new Esri Utility Network as the first official Esri implementation.

Developed & Presented AWS Workshops for Clients & Conferences

Coordinated with Minnesota GIS/LIS Consortium to plan a training workshop for gas, electric, water, & utility operators. Promoted & lead a workshop for 20+ users to test workflows using Amazon Web Service machines.

Minnesota Power – Facility Operations, 4/2016 - 3/2017 Duluth, MN

GIS Programmer Analyst

Collaborated in teams to plan, design, develop, & test new mobile, desktop, & web mapping applications for maintaining electric infrastructure.

Mobile Mapping Application/Survey Tool Development

Developed, tested, trained staff, & implemented customized GIS services & geoprocessing tools through ArcGIS Server for mobile data entry & data-transfer through ArcGIS Online web maps for internal staff. Coordinated development & testing environments for Esri's Web AppBuilder installations. Created Python routines to download & extract ArcGIS Online data & images from a Survey123 app & export to a PDF with hyperlinked images & a summary of data from multiple related tables within a database.

Software Training & Developing Documentation Standards

Trained staff on using Esri's Model Builder, python, & ArcGIS Online tools with existing utility editing, work order, & field tools systems. Updated documented workflows for designing & publishing custom Survey123, ArcGIS Collector, & web maps.

City of Duluth – Engineering Division, 2/2015 - 4/2016 Duluth, MN

GIS Specialist

Served as liaison between IT Department & Engineering Division to ensure efficient data transfers & updates, & to improve GIS data applications for engineers & city planners. Maintained gas, electric, water, storm water, & sewer GIS datasets for engineering groups.

Database & Web Map Project Design & Implementation

Coordinated full lifecycle software & database development for mapping & web data-entry applications with Python & ArcGIS Online. Designed & managed a GIS user needs assessment & implementation plans for 19 projects for software development, database development/improvements, training, & website improvements for City of Duluth IT Department, Public Works, & Utilities beginning in 2015. Edited gas, water, & storm GIS data. Managed editing, training, & metadata tools for versioned SQL Server SDE database editing practices. Expanded existing GIS map services to multiuser, versioned online feature editing & python-built geoprocessing services for City of Duluth.

Bad River Tribe – Natural Resources Dept., 10/2010 – 2/2015 Duluth, MN

GIS Specialist

Maintained & created map products & developed to new automation tools for increasing workflows for internal staff on data analysis, mapping, GPS collection/transfer. Improved tribal website with print & interactive map products.

Survey Field Collection, Processing, & Training

Managed all stages of field data collection preparation, training, pre- & post-processing for surveys on roads, historical properties, utilities, & tree inventories using Esri's ArcPad, in Trimble GeoXH series,

Map Creation, Analysis, & Automation

Scripted opensource & ArcGIS programs to manipulate, re-write, or edit raster & vector data for use in GIS analysis & remote sensing apps (batch-processing image enhancements & transforms, & radiometric/atmospheric correction).

Data Creation, Maintenance & Standardization for Natural Resources Website

Organized & designed GIS data in databases for all depts., planned & published data-entry web maps, & updated tribal website. Added new HTML/CSS pages for reorganizing the Bad River Tribal Natural Resources webpage to host both secured & public Google, Esri JavaScript API, ArcGIS Online, & GeoMoose OpenLayers web maps. Implemented new ArcGIS Server security protocol for publishing GIS services online. Researched & re-wrote external & internal data-sharing agreements & policies for the Bad River Tribe. Implemented new ArcGIS Server & published GIS secured web services for the Bad River Tribe.

School of Nursing – University of WI-Madison, 1/2010 – 10/2012 Madison, WI

Graduate Student GIS Project Assistant

Developed Python algorithms to compare water quality interpolated data related to how map readers perceived their water quality risk. Analyzed spatial patterns in map visualizations for perceived health risk associated with well water test results.

International Crane Foundation – Field Ecology, 9/2007-9/2010 Baraboo, WI

GIS Field Ecology Researcher

Conducted wildlife surveys for analyzing population & genetic sampling. Mapped GPS locations & documented information for reporting & data analysis. Presented survey results to wider public audience.

PROJECT EXPERIENCE

Web Map App Development & Implementation: Planned & developed custom ArcGIS web mapping applications & designed & trained on configuring Google Analytics web tracking for improving web marketing for:

- Lake Superior Consulting engineering web viewers in Angular & C# frameworks using Esri's API 3.x,
- Bad River Tribal Ownership & Lease Viewer (ArcGIS Flex Viewer & SDE database),
- City of Duluth Street Update Viewer (creating using Esri's Web App Builder & SDE database),
- MN Power's Electric Utility Asset Identification (created using Esri's JavaScript API & Web AppBuilder Developer's Edition & SDE database),
- Biking Route Finder (Google Maps API & Postgresql database to highlight optimal biking routes around Duluth based on the user's preference for terrain, slope, social media tweets, and proximity to bikes - https://ksundeen.github.io/assets/videos/CycleRoutesIntro_small.mp4)

ArcGIS Service Publishing Automation: Developed configuration-driven python solution for other clients to quickly publish 20-40 GIS web services between different development/staging/production environments through ArcMap into ArcGIS Server 10.6. This process saved 3-4 hours/day of manual error-prone service publishing. Created ArcGIS add-ins & published REST geoprocessing tools into ArcGIS Server to simplify City of Duluth's street & pavement updates for users.

GIS Data Migration for Gas UPDM New Utility Network: Lead agile software development & project planning for client & consultant teams to customize python-plsql oracle database migration solutions to handle ETL from 5 source databases to one unified model. Managed multiple Esri alpha/beta software releases for changes in the new Utility Network model.

GIS Workflow & Process Improvement: Coordinated GIS feasibility study to understand how users interact & use the applications. The results are used to develop clear tool requirements for Lake Superior Consulting app tool development. Documented workflows for engineering staff at City of Duluth to identify areas for improvement. Learned established GIS data entry policies.

Full Cycle Project Development & Implementation: Coordinated GIS user needs assessment & implementation plans for 19 projects for software development, database development & improvements, training, & website enhancements for City of Duluth IT Dept. & Public Works & Utilities Dept. Priorities were used to direct funding to most important projects.

Training: Taught introductory Python, JavaScript, GPS & GIS sessions for small group workshops on: (1) using new mapping & GPS programs (2) configuring & testing ArcGIS Desktop & opensource QGIS, (3) setting up development environments for Python & JavaScript, (4) process for updating website front ends, & (5) GIS user needs assessments.

Staff Supervision: Managed remote development teams for software development & database configuration using agile project management with RAMTeCH. Oversaw & trained student GIS technicians on GIS data entry procedures for UW Nursing School mapping projects & LTE staff for short-term land ownership projects with the Bad River Tribe.

GIS Data Security: Implemented new ArcGIS Server security protocol for publishing GIS services online; Researched & re-wrote external & internal data-sharing agreements & policies for the Bad River Tribe.

ACHIEVEMENTS

Education & Training

- Continued Education: computer science, GIS, & web development courses through Lake Superior College, University of Wisconsin-Madison, FreeCodeCamp, University of West Georgia.
- University of Wisconsin-Madison, Graduate Certificate: Geographic Information Systems, 2012
- University of Wisconsin-Madison, Master of Science: Conservation Biology & Sustainable Development, 2011
- University of Wisconsin-Madison, Bachelor of Science: Wildlife Ecology, Certificate: Environmental Studies, 2006
- Taught introductory Python, JavaScript, GPS & GIS sessions for small group workshops on: (1) using new mapping & GPS programs (2) configuring & testing ArcGIS Desktop & opensource QGIS, (3) setting up development environments for Python & JavaScript, (4) process for updating website front ends, (5) GIS user needs assessments, (6) workshops on new technologies including Esri's Utility Network.

Certifications & Licenses

- Certified Geographic Information Systems Professional (GISP) #84940

Selected Presentations

- Sundeen, K.H. (2019) "Building, Branding, & Boosting your Web Portfolio with Github Pages & Google Analytics." Women in Tech Duluth User's Group, Feb.
- Sundeen, K.H. (2018). "Exploring the Utility Network in ArcGIS Pro for Water, Electric, & Gas Networks." MN GIS/LIS Spring Workshop, Oct.
- Sundeen, K.H. (2018). Sharing Code, Maps, & Data Science Through a Digital Jupyter Notebook." Duluth.NET Meetup group, June.
- Sundeen, K.H. (2018). "Exploring the Utility Network in ArcGIS Pro." MN GIS/LIS Spring Workshop, March.
- Sundeen, K.H. (2017). "Exploring the Utility Network in ArcGIS Pro." MN GIS/LIS Pre-Conference Workshop, Oct.
- Sundeen, K.H. (2017). "Esri's Utility Pipeline Data Model (UPDM) & Utility Network in Network Management Basics." Utility Industry Forum Posting, Sept.
- Sundeen, K.H., et al. (2017). Early Adopters of the Gas Utility Network: Are You the Tortoise or the Hare? Esri's GeoConX Conference, Sept.
- Sundeen, K.H. (2016). "Simplifying Metadata Editing for the Non-Programmer." Northern MN GIS User Group, April.
- Sundeen, K.H. (2016). "Designing a Long-Term GIS Vision & Implementation Plan." Minnesota GIS/LIS Pre-Conference Workshop, Oct.
- Sundeen, K.H. (2015). "Having Fun with a Homegrown Approach to a GIS User Needs Assessment: With a Bonus Implementation Plan!" Northern WI GIS User's Group, Nov.
- Sundeen, K.H. (2015). "From the Field through the Firewall: An Approach to Streamlining Utility GIS Data Access in the Field, Office, & Web." Minnesota GIS/LIS Conference, Oct.
- Sundeen, K.H. (2015). "Bringing Free & Open Source GIS to India Country." Wisconsin Land Information Association, Feb.
- Sundeen, K.H. (2013). "GIS Site Selection for Development in the Bad River Reservation: A Weighted Analysis for Avoiding Impacts to Wetlands & Cultural Historic Sites." National Tribal GIS Conference, Nov.
- Sundeen, K.H. (2012). "Searching for Risky Power Lines: Predicting Sandhill Crane Flight Behavior & Collision Risk in WI." University of Wisconsin-Madison, GIS Day Expo, May.

Awards & Recognitions

- \$127,000 FEMA grant
- \$10,000 University of Wisconsin-Madison research grant
- \$5,200 ESRI Conservation Grant Program grant
- 1st Place: Large-format map, 2014 National Tribal GIS Conference, "A Bird's Eye View of the Bad River Watershed & Proposed Mine."

Organizations & Affiliations

- Coordinate Duluth Women in Tech (WiT) groups for women to learn, present, & develop professionally together, *Director*
- Assist with .NET Duluth meetup groups for developers for presentations & professional development
- Conference Committee Member 2018: Minnesota GIS/LIS Conference, *Virtual Environment Task Force*
- Conference Committee Member 2016-2017: Minnesota GIS/LIS Conference, *Workshop Committee*
- Board of Directors 2014-2015: Wisconsin Land Information Association (WLIA), *Chair of Membership Committee*
- Committee Member 2014-2015: National Tribal Geographic Information Support Center (NTGISC), *Publications Committee*

OTHER SKILLS

- Database design/structures (Microsoft SQL Server, 11g/12c Oracle, PostgreSQL, MySQL, MS Access, Excel)
- Server-side/desktop programming (Python, C# .NET, SQL/PLSQL)
- OS: Windows, Linux
- Web development (Typescript, HTML5, CSS, JavaScript frameworks, PHP)
- ArcGIS Enterprise stack (installed & helped configured ArcGIS Server, Web Adapter, ArcSDE to spatially-enable enterprise databases, Portal, Data store)
- Mapping APIs (ArcGIS for JavaScript 3.x, 4.x, Leaflet, Mapbox, Google Maps, Openlayers)
- GIS/GPS/mobile apps (ArcGIS 9.x-10.x, ArcGIS Pro 2.x, QGIS 2-3, Google Earth KML, Garmin, ArcPad, Terrasync, & Pathfinder Office, Survey 123, ArcGIS for Collector, Web AppBuilder Developer Edition, ArcGIS Online)
- Project management
- Code Versioning (Git, Github, Hg Mercurial, TortoiseSVN)
- Presentation & graphic design (workshops, training, presentations, lectures, & posters)
- Technical & scientific writing for research articles, user guides, case studies, & grants