KIM SUNDEEN

Full Stack Software Engineer | Mapper | Project Coordinator

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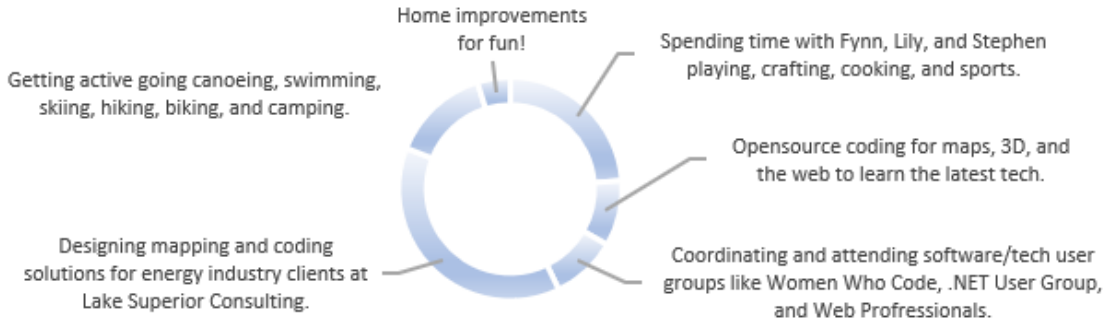
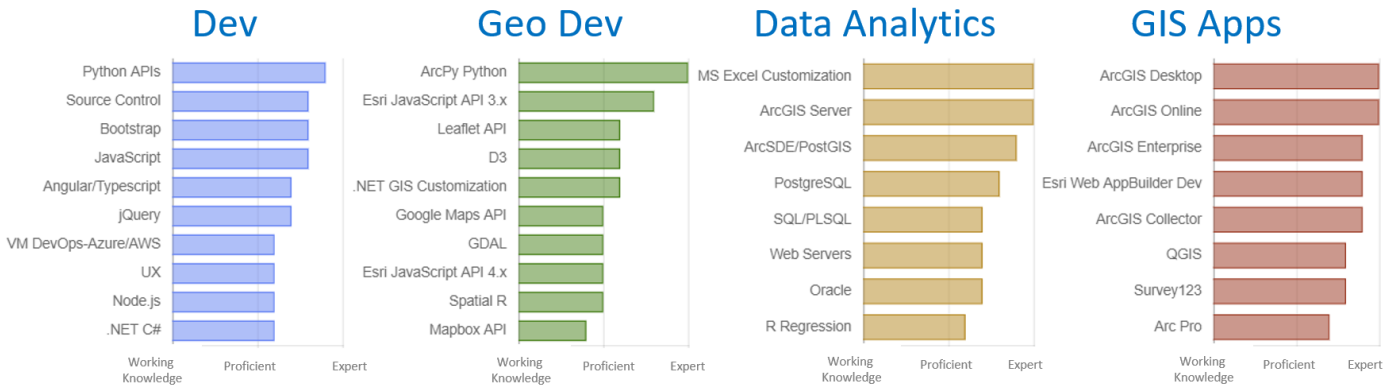
LIFE PHILOPHY *"The only mistake is one from which you didn't learn" -A Friend*

SUMMARY

Kim is an energetic and efficient self-learner full stack software engineer in the GIS landscape with 12 years of experience architecting, developing, & implementing progressive full stack application solutions using a variety of software programs including ArcGIS Enterprise, GeoServer and PostgreSQL, 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 (C#, Python), mobile (Esri's runtime SDK C#), & web 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 is a leader for others by coordinating VM (AWS, Azure) training workshops on 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





WORK EXPERIENCE

5/2018 – present — Duluth, MN

GIS Developer

Lake Superior Consulting – Software Development

- ***GIS Business Strategy*** - Identified key business opportunities for GIS web tools that solved client problems & improved user experiences. Conducted GIS feasibility & user interaction/experience study that resulted in clearly identifying user, business, and technical requirements for 10 new development tools.
- ***Team Leadership & Collaboration*** - Collaborated with client stakeholders & software engineers/IT professionals to improve knowledge transfer for increased trust within departments & improved business requirements.
- ***GIS App & Tool Development*** - Designed & engineered secured automation & standalone applications for Esri, SharePoint, Primavera, & SQL Server integrations used by over 200 users. Used 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).
- ***Research & Training*** – Lead clearly-defined research efforts and client presentations on implementing and architecting new mobile mapping systems that delivered immediate use for client projects with aggressive deadlines.

3/2017 – 5/2018 — Stillwater, MN (remote position)

GIS Analyst/Developer

RAMTeCH Software Solutions – Professional Services

- ***Redesigned Practices & Coached Clients in Agile*** – Lead as Scum Master for 10-member team to re-architect client software development life cycle & direct funds for applications and tools. Lead general & detailed client-focused user-training/demos.
- ***Engineered Data Migration & ETL Software Tools for Clients*** – Designed, built, tested, & released C#, Python & SQL gas and electric utility network migration toolsets accessing Oracle 11g/12g SDE databases, ArcMap & Pro desktop tools that seamlessly handled ETL from 5 source databases to one unified model for Esri's new Utility Network as 1st official Esri implementation.
- ***Mobile Disconnected App Development*** – Contributed to proof-of-concept for field data collection Esri Runtime SDK C# app.
- ***Developed & Presented AWS Workshops for Clients & Conferences*** – Coordinated with Minnesota GIS/LIS Consortium to use ArcGIS Enterprise software for gas, electric, water, & utility operators. Promoted & lead a workshop for 20+ users to test workflows using Amazon Web Service machines.

4/2016 – 3/2017 — Duluth, MN

GIS Programmer Analyst

Minnesota Power – Facility Operations

- ***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. Developed MN Power's Electric Utility Asset Identification using Esri's JavaScript API & Web AppBuilder Developer's Edition & SDE database.
- ***Software Training & Developing Documentation Standards*** - Trained staff on Esri's Model Builder, Python, & ArcGIS Online for utility edits, work order, & field tools systems. Documented publishing workflows in Survey123, ArcGIS Collector, & web maps.

2/2015 – 4/2016 — Duluth, MN

GIS Specialist

City of Duluth – Engineering Division

- ***GIS Web Map Software Project Management*** - Coordinated full lifecycle software & database development for web data-entry applications with Python & ArcGIS Online. Designed & managed a GIS user needs assessment & implementation for 19 projects for software development, database development/improvements, & training for City of Duluth IT Department, Public Works, & Utilities. Developed City of Duluth Street Update Viewer (creating using Esri's Web App Builder & SDE database).
- ***User Training & Presentations*** – Lead monthly knowledge transfer user groups & designed new user training for new systems.
- ***Multiuser Database Management & Data Editing*** - Edited gas, water, & storm GIS data in versioned SQL Server SDE databases. Expanded existing GIS map services to Python-built geoprocessing services to automate web map updates.

10/2012 – 2/2015 — Odanah, WI

GIS Specialist

Bad River Tribe – Natural Resources Department

- ***Survey Field Collection, Processing, & Training*** - Managed diverse 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*** **-** Designed & trained non-developers on running routines with Python to manipulate, re-write, or edit raster/vector data for use in GIS analysis & remote sensing apps (image enhancements, transforms, & radiometric/atmospheric correction). Deployed Tribal Ownership & Lease Viewer (ArcGIS Flex Viewer & SDE database).
- ***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 Bad River Tribal Natural Resources webpage to host both secured & public Google, Esri's JavaScript API, ArcGIS Online, & GeoMoose OpenLayers web maps. Implemented tribal ArcGIS Server security protocol for GIS REST services, & data-sharing policies.

1/2010 – 10/2012 **Graduate Student GIS Project Assistant** — Madison, WI

School of Nursing – University of Wisconsin-Madison

- ***GIS Data Science & Regression*** **-** Developed scientific 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. Published results with professors on outcomes in peer-reviewed journals.

9/2007 – 9/2010 **GIS Field Ecology Researcher** — Baraboo, WI

International Crane Foundation – Field Ecology

- ***Field Surveys & Population Distribution Mapping*** **-** Conducted wildlife surveys to analyze population & genetic sampling. Mapped GPS locations & documented information for reporting & data analysis. Presented survey results at conferences.

EDUCATION & CERTIFICATIONS

- **2019 – 2021 University of West Georgia, Applied Computer Science**
  - ***Focus: opensource GIS mobile disconnected editing of field data***
- **Continued Education**: computer science, GIS, & web development courses through Lake Superior College, University of Wisconsin-Madison, FreeCodeCamp
  - 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
- **2012 – Present Certified Geographic Information Systems Professional** (GISP) #84940
- **2012 - University of Wisconsin-Madison, Graduate Certificate: Geographic Information Systems**
  - ***Focus:*** *geostatistical regression of remotely-sensed mercury concentrations and data science methods.*
- **2011 - University of Wisconsin-Madison, Master of Science: Conservation Biology & Sustainable Development**
  - ***Focus:*** *predictive spatial models to detect wildlife and electric distribution power line risks.*
- **2006 - University of Wisconsin-Madison, Bachelor of Science: Wildlife Ecology, Certificate: Environmental Studies**

OTHER SKILLS

- **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.
- **Agile Scrum Coaching**: Lead two teams as scrum master for 10-member client software development team and internal projects for MN Power (3-person team).
- **Workshop Presentations & Training**: Taught introductory Python, JavaScript, GPS & GIS sessions for small group workshops on: (1) using new mapping & GPS programs (2) ArcGIS Desktop & opensource QGIS, (3) process for updating website front ends, & (4) GIS user needs & feasibility assessments, (5) Lead yearly workshops Esri's Utility Network Tools, Opensource GIS, and Jupyter Python notebooks (see full details: https://ksundeen.github.io/portfolio.html#media
- **Presentations & Graphic Design:** See my web-portfolio for examples: https://ksundeen.github.io/gallery.html; Awarded 1st Place: Large-format map, 2014 National Tribal GIS Conference, "A Bird's Eye View of the Bad River Watershed & Proposed Mine."
- **Technical & Scientific Writing:** Wrote & awarded $127,000 FEMA grant, $10,000 University of Wisconsin-Madison research grant, & $5,200 ESRI Conservation Grant Program grant. Published per-reviewed research articles on GIS, modeling, & wildlife research.

LANGUAGES & TECHNOLOGIES

- **Web development**: Typescript, HTML5, CSS, JavaScript frameworks, PHP
- **Code Versioning**: Git, Github, Hg Mercurial, TortoiseSVN
- **OS**: Windows, Linux, Mac
- **Server-side/desktop programming:** Python, C# .NET, SQL/PLSQL
- **Database design/structures**: Microsoft SQL Server, 11g/12c Oracle, PostgreSQL, MySQL, MS Access, Excel
- **ArcGIS Enterprise stack**: ArcGIS Server, Web Adapter, ArcSDE, Portal, Data store
- **Mapping APIs**: Esri's JavaScript API 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

ACHIEVEMENTS

Selected Notable Presentations & Workshops

- 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 Fall Workshop, Oct.
- Sundeen, K.H. (2018). Sharing Code, Maps, & Data Science Through a Digital Jupyter Notebook." Duluth.NET Meetup group, June.
- Sundeen, K.H. (2017 & 2018). "Exploring the Utility Network in ArcGIS Pro." MN GIS/LIS Spring & Fall Workshop.
- 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). "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.

Organizations & Affiliations

- Director 2018-Present: Launched & Coordinate Duluth Women in Tech (WiT) groups to learn, present, & develop professionally.
- Co-coordinate .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*