dave@magillmaps.com

Lancaster, PA

Geospatial specialist trained in ESRI/ArcGIS software, experienced automating workflows using Python and C#/.Net, and using other open source GIS toolsets. Experience includes management and automated transformation of data, geospatial analysis, cartography and broad IT with a coding focus,

Tool basket

ArcGIS Pro, ArcMap, AGOL / ArcGIS Online, QGIS, Python (PyCharm, IDLE), C#/.Net (Visual Studio), XAML, SQL Server (SSMS / Management Studio), GIT/Github (version control), AWS (EventBridge scheduling, Lambda functions), JavaScript/ES6, HTML, CSS, Jira (issue tracking), Linux, MS Teams, Access, Outlook, Word, Excel, Zoom

EBA Engineering (2022 - 2024)

On team to QA address data for next gen. 911 software, helped audit 5k address data points flagged for verification by process developed internally. Wrote Python scripts to automate validation/correction of attribute discrepancies for address points vs parcels. Coded script to import address data from text of client email requests. Used map and aerial imagery layers while classifying errors by type and corrective action. Created shared reference document for standardized detection/handling of recurring address issues. Used ArcGIS Pro software for this and other projects.

Coded Python script to transfer attributes between connected water network assets.

Debugged and augmented Python scripts with embedded SQL calls to import water authority tables into GIS database.

Added and modified C# code for new and existing ArcGIS Pro add on tools for editing and validation of road network features, using Visual Studio. Reorganized/corrected XAML code for data entry UI.

Used Git for version control for above.

Updated AWS Python Lambda functions for newer run-time versions. Performed other AWS tasks and configuration eg: starting/stopping instances and configuration of EventBridge rules for scheduled processes.

Developed workflow to integrate varied local and regional land use planning maps created over three decades into a countywide feature layer, correcting geometry to align boundaries of land use designations with parcels where intended. Converted file formats and georeferenced 30+ maps as part of this workflow and used geoprocessing tools and optimized symbology to detect and correct parcel geometry anomalies.

Evari GIS Consulting (temporary: Feb/Mar 2022)

Helped complete contract to audit 1,700+ streetlights in SE PA for DVRPC. Used ArcGIS Collector on Android tablet and Leica rangefinder to record location, functional/material attributes and imagery.

Quarryville Borough (2020 - 2021)

As a cartographic intern, created the Official Map of Quarryville, using ArcGIS Pro to document potential street improvements, water utility network extensions, and land and easement acquisitions. Attended ongoing committee meetings to hear and offer suggestions and present drafts. The Official Map facilitated grant applications for the borough. Also used Mapbox and JavaScript/ES6 to create an interactive zoning map with clickable zones linked to online borough zoning code text.

Lancaster County Planning Commission (Summer 2018)

Assessed conditions and took measurements of bus stops/shelters and adjoining sidewalks, used Trimble GPS units to record this data. Recorded vehicle turn counts at intersections in Lititz Borough. Installed traffic counters on roadways throughout Lancaster County.

Education: HACC Associate Geospatial Technology 2021, GPA 4.0

Information technology

- Created websites using object-oriented Python code, JavaScript/ES6, HTML, and CSS
- Facility with Git for version control, wrote Python scripts to standardize Git workflow
- SQL queries (embedded in Python and manual) and DB management (SQL Server & MySql)
- Experience with Linux distributions including CentOS and Ubuntu, some AWS experience

Data access, management and transformation

- Automated County based selection & download of road centerlines from US Census website
- Ad-hoc data conversion (e.g., .pdf > .tif, .shp > .kml) using ESRI and open source tools
- Created ArcGIS Online layers for field data collection via Collector
- Sourced data from USGS, PennDOT, NOAA and other organizations
- Coded Python tools for inspection and QA/QC of feature datasets
- Created and used metadata (and geoprocessing history) for dataset validation / analysis

Spatial analysis

- Varied analysis using ArcGIS Pro, eg: land cover classification, viewshed analysis, connectivity
- Facility with ModelBuilder and Python scripting (via CLI, PyCharm, and Jupyter notebooks) eg. to automate prioritization of land parcels for conservation
- Developed & documented workflows for analysis and editing tasks e.g., generating clean polygon features from “noisy” map images

Cartography and presentation

- Experienced making maps with ArcGIS Pro, ArcGIS Online, ArcMap, QGIS, and Mapbox
- Extensive feature creation by georeferencing existing documents and manual digitizing
- Additional feature creation using imported coordinate data and geocoded address data
- Some feature creation using automated imagery classification
- Created ESRI Story Maps related to political redistricting, natural hazards, and remote sensing
- Created map book of Pennsylvania state forests, parks, and game lands

Field data collection

- Used Collector for ArcGIS (Android & iOS) to map utility assets and recreational trails
- Used Survey123 to collect data on housing conditions in Mahanoy City
- Recorded public transit accessibility data using TerraSync software on Trimble GPS units
- Installed traffic counting equipment, documented workflow and safety guidelines for same