

UAS REMOTE SENSING & GEOSPATIAL | 4951 Griffin Creek Rd, Medford, Oregon, 97501
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Eli Polsky, Geospatial Consultant & UAS Remote Sensing Specialist

PROFESSIONAL SUMMARY

Geospatial consultant with 14 years in wildland fire and GIS operations, combining GIS development and automation with UAS remote sensing to deliver decision support products to fire agencies, municipalities, electric utilities, and forestry operations across the Pacific Northwest and Hawaii. Specializing in LiDAR classification and canopy analysis, individual tree and species classification, wildfire intelligence, and automated pipelines that turn field collection into agency-ready reporting. Owner of two geospatial firms and founder of a 501(c)(3) advancing open standards for UAS wildland fire data across suppression and mitigation. FAA Part 107 certified, Administratively Determined resource with the US Forest Service, and Call When Needed UAS resource for the Oregon Department of Forestry.

EXPERIENCE

Founder, Principal Geospatial Consultant

Rogue Reconnaissance LLC, Medford, Oregon | September 2016 – Present

Key Engagements:

- **GIS Development & Automation:** ArcGIS Pro and arcpy pipelines, hosted ArcGIS Online services, Experience Builder and Scene Viewer deployments, Survey123 field collection systems, dashboards, and scheduled Python automation for recurring agency reporting.
- **LiDAR & Vegetation Analysis:** Point cloud classification to ASPRS standard classes, terrain and canopy height modeling, individual tree detection and crown delineation, species classification, live and dead assessment, ladder fuel mapping, and downed woody debris characterization.
- **Wildland Fire Infrared Mapping:** Call When Needed UAS resource for the Oregon Department of Forestry, flying night IR missions on active incidents and delivering heat perimeter and hotspot products to incident management teams ahead of morning briefings. Coordinate with incident air operations and ARTCC under TFR restrictions, including a 21-day assignment across three concurrent fires.

Featured Projects:

- City of Ashland Community Wildfire Protection Plan – citywide drone LiDAR producing bare earth elevation models, canopy height models, individual tree canopy polygons, ladder fuel identification, and vegetation buffer analysis in direct support of city GIS staff (2024–2025)
- City of Eugene Oregon Ash Inventory – LiDAR, multispectral, and fall senescence collection to locate Oregon ash ahead of emerald ash borer arrival; built the full crown

delineation and species classification pipeline in ArcGIS Pro, arcpy, and R, validated against ground-truthed trees at 85% overall accuracy, supporting city planning and mitigation (2025–2026)

- City of Ashland Douglas Fir Live/Dead Assessment – individual tree health inventory combining LiDAR and multispectral classification, producing per-tree reporting that directed helicopter logging operations to offset municipal costs (2023–2024)
- Oregon Department of Forestry Post-Harvest Assessment – drone LiDAR and multispectral collection across two projects supporting downed woody debris counting, measurement, and species classification
- Automated wildfire IR pipeline turning raw pilot thermal exports into complete incident deliverable packages in under two minutes, deployed operationally with the Oregon Department of Forestry during the 2024 fire season

Owner, Principal Geospatial Consultant

Hawaii Mapping LLC, Big Island, Hawaii | March 2023 – Present

- Built and run the central geospatial hub for Hawaiian Electric's vegetation management program – database management, field data collection, crew coordination, performance metrics, and regulatory reporting; 2025 reporting year covered 38,587 trees worked and more than 4 million square feet of brush cleared
- Work directly with Hawaiian Electric's Vice President of Vegetation Management, the Big Island vegetation manager, and Big Island Tree Service leadership, presenting program results and reporting methodology to utility leadership
- Manage field data collection across the crew, including Survey123 form design, iPad deployment and troubleshooting, day-to-day field support, and collection standards built to stand up to audit and Public Utilities Commission review
- Built the program's automation stack: nightly processing generating derived layers and metrics, automated monthly and year-to-date reporting replacing a fully manual process, and an on-demand reporting system on Cloudflare Workers and GitHub Actions the utility can trigger without consultant involvement
- Developed custom tools for field data correction, employee time tracking, and crew production analysis, delivered through ArcGIS Online dashboards and graphical reporting
- Developed a line section mileage methodology joined to utility overhead line geography, producing corridor mileage, priority tier, per-circuit, and fire mitigation metrics for PUC reporting
- Fly LiDAR supporting wildland fire mitigation across utility service territory, and deliver classified point clouds, terrain models, contours, and hosted 3D viewers for civil design on heavily vegetated terrain

Founder, Executive Director

UAS Wildland Fire Collaborative | 2024 – Present

- Founded and lead a 501(c)(3) supporting the full wildland fire cycle – incident mapping in season, mitigation data collection and analysis year-round; deployed on wildfire incidents since 2024 and recognized by the IRS as a public charity in May 2026
- Run the off-season program: prescribed fire support, fuels and forest health assessment, CWPP mapping, and drone LiDAR and multispectral collection and analysis supporting agency mitigation work, with operational prescribed fire deployment including ignition operations support (2025)
- Built the organization's entire geospatial framework solo: cloud infrastructure, hosted GIS system administration, Python automation, event-driven processing, website and pilot portal development, pilot roster management, and ongoing development and maintenance
- Designed the automated pipeline turning pilot thermal exports into conformant incident deliverable packages – templated PDF maps, shapefiles, KMZ, file geodatabase, and IR flight summary – aligned to NIFS schema, IRWIN identifiers, and the standards used by federal, state, tribal, and local fire agencies
- Partner with the State of Oregon and the Oregon Department of Forestry; private contractors including Grayback Forestry and Rogue Reconnaissance; Canadian operators NOVA Software and Hummingbird Drones; and cooperating fire districts including Scappoose Fire District
- Provide all deliverables free to receiving agencies at zero program cost; registered in SAM.gov for federal cooperative agreements and grant funding, with a letter of support on file from Oregon Department of Forestry State Aviation

Wildland Firefighter, GISS, UASD/P Administratively Determined Resource

US Forest Service | 2012 – 2016; 2022 – Present

- Qualified FFT1 (Advanced Firefighter/Squad Boss), GISS (GIS Specialist), and UASD (UAS Data Specialist)
- Began UAS operations on prescribed fire in 2016; incident operations from 2019
- Serve as an AD resource supporting fire operations and geospatial functions

CORE TECHNICAL EXPERTISE

GIS Development & Automation

- ArcGIS Pro, arcpy, ArcGIS Python API, ArcGIS Online, Experience Builder, Scene Viewer, Survey123, Dashboards
- Hosted GIS system administration, web application development, and portal management
- Production ETL pipelines, scheduled and event-driven automation, Python, GitHub Actions, Cloudflare Workers, cloud infrastructure management

UAS Operations & Remote Sensing

- DJI M300 RTK; Inertial Labs RESEPI with Hesai XT32, YellowScan Mapper+, MicaSense RedEdge MX 5-band multispectral, Zenmuse H20T, XT, and P1; Emlid RS3 GNSS base station
- LiDAR point cloud classification to ASPRS standard classes, photogrammetry, multispectral and thermal infrared collection, PPK and RTK workflows
- FAA Part 107 operations (certificated November 2016), Certificate of Authorization management, Class D and Class E2 airspace coordination, TFR compliance under 14 CFR 91.137

Analysis & Modeling

- Global Mapper Pro, Agisoft Metashape Professional, Pix4D, Inertial Explorer Xpress, CSRS-PPP
- R (lidR, ForestTools, ranger, caret, terra) and Python (PDAL, Open3D) for canopy delineation, statistical modeling, and machine learning classification
- Geospatial analysis and deliverables within federal, state, and local regulatory frameworks, including utility commission compliance reporting

INDUSTRY LEADERSHIP

- Founder & Executive Director, UAS Wildland Fire Collaborative – 501(c)(3) advancing open standards for UAS wildland fire data
- Presenter, Oregon Society of American Foresters Annual Meeting, Ashland (2024) – drone LiDAR and multispectral applications for post-harvest assessment and downed woody debris classification
- Instructor, A-450 and S-373 courses, Salem, Oregon (2026) – UAS flight instruction for visiting Taiwanese firefighters
- Selected for Oregon UAS Innovation Challenge, Cohort 3, Oregon UAS Accelerator (2025)
- Guest instructor and live demonstration lead, Southern Oregon University remote sensing courses
- Capstone mentor, Southern Oregon University – wildland fire and wildland urban interface projects
- Featured alumni profile, Southern Oregon University Academic Programs (2024)

EDUCATION

Bachelor of Science, Environmental Studies – Land Use Planning

Minor, Geography | Southern Oregon University



HAWAII
MAPPING

