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Career Opportunity – Wildfire Hazard and Risk Analytics

Senior Fire Scientist

Please visit: www.pyrologix.com and www.vibrantplanet.com for more company information.

Job Overview:
The need for proven wildfire hazard and risk modeling has never been greater. Our wildlands are at a tipping point and need streamlined approaches to assessing, planning, and implementing wildfire risk mitigation measures. Land managers, emergency responders, community planners, insurers, and many others have needs for reliable information on wildfire risk. Further, there is emerging demand for actionable wildfire risk information from the energy, construction, and industrial sectors.

The cultivation of data and application of science into strategic frameworks that enable tradeoff analysis and risk-informed decision making is critical to reducing catastrophic wildfire events. The Vibrant Planet Platform (VPP) is a decision support system for hazard mitigation and ecological restoration so we can help communities and managers get to implementation fast and effectively adapt those plans when conditions inevitably change. Pyrologix's fire modeling capabilities are the engine to support hazard and risk modeling not only in VPP but also across many sectors including utilities, communities, and insurance. We need additional talent to support Vibrant Planet's and Pyrologix's growing demand.

We are seeking an experienced, technically skilled, and highly motivated individual with an eye for customer-focused delivery of state-of-the-art wildfire analytics. The individual will join the Pyrologix Fire Science team and develop, improve, and further automate wildfire fire modeling, provide spatial analysis, and support other wildfire analytics as assigned. The position is remote (a hybrid home-and-office arrangement based in Missoula, Montana would be preferred). Working comfortably and effectively as part of a distributed team is crucial. Some travel may be required.

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Responsibilities:

1. Fire Science Research and Development

- Conduct research and provide analytical insight in relevant domains, including wildfire spread, consequence, and risk, vegetation dynamics, mitigation (beneficial fire use, fuel treatments), structure loss and urban conflagration modeling, climate change impacts, extreme event analysis, and decision support.
- Ensure that our products accurately reflect state-of-the-art knowledge.
- Implement scientific methodologies and develop new approaches to understanding fire, vegetation, built environment, and climate dynamics relevant to customers.

2. Science-to-Product Strategy and Implementation

- Work directly with software engineers, spatial wildfire analysts, and product leads to operationalize fire science. Ensure that Pyrologix's risk engine is accurately deployed within the Vibrant Planet platform.
- Lead development of next-generation data products and shape how their insights are surfaced to users, ensuring our science provides value to our partners.
- Envision and contribute to ongoing improvements in the efficiency and replicability of technical workflows. Contribute to documentation, support transitions from manual to automated pipelines for development and delivery, train and mentor colleagues on best practices, and help prioritize technical and scientific debt.

3. External Communication & Thought Leadership

- Represent the company to clients, at major conferences, in peer-reviewed journals, and within the broader fire science and natural resource management and decision-support communities. Help translate complex modeling outputs into clear, compelling narratives for non-technical stakeholders, policymakers, and leaders.

4. External Funding & Grantsmanship

- With the Vibrant Planet Data Commons (VPDC) and external colleagues, secure external funding to support innovative R&D that expands the platform's scientific capacity and credibility. Oversee scientific deliverables for funded projects, ensuring research outcomes are defensible, timely, and strategic.

5. Spatial Wildfire Analytics

- Contribute to delivering contracted professional services and support the Pyrologix team.

Required Qualifications:

- Graduate degree in a relevant field
- Record of scientific publications and thought leadership
- Experience designing and performing custom analyses of vector and raster results of inputs and outputs of fire modeling
- Proficient at using commercial or open-source GIS software (ArcMap, ArcGIS, or QGIS, for example) to perform spatial analysis of vector and raster data
- Experience writing or editing scripts to perform spatial analysis
- Able to function well as part of a multi-disciplinary problem-solving team
- Excellent attention to details
- Ability to learn new concepts quickly
- Excellent oral and written communication skills

Desired Qualifications:

- Experience productizing scientific methods and results
- Experience parameterizing, operating and interpreting incident-level wildfire behavior modeling systems such as FSPro, FARSITE, ELMFIRE, and their equivalents
- Working knowledge of Rothermel-based spatial fire behavior modeling systems such as FSim, RANDIG, FConst, FSPro or FlamMap
- Working knowledge of how fire behavior modeling inputs—including surface and canopy fuel characteristics, weather/climate, and topography—affect fire behavior characteristics
- Experience producing and/or analyzing spatial fire modeling outputs, including burn probability, fire intensity, perimeter polygons, ignition sources, such as datasets hosted on the FS Research Data Archive.
- Experience with fuelscape vegetation and fuels datasets, such as datasets produced by LANDFIRE's vegetation team and fuels team. Some examples of these datasets include: Existing Vegetation Type (EVT), Fuels Vegetation Cover (FVC), Canopy Cover (CC), Canopy Base Height (CBH), and Fuel Disturbance (FDist).
- Experience working in wildfire sciences and/or management, such as incident response, fuels management, fire research, etc.
- Experience with Python geospatial libraries such as GeoPandas, Rasterio, Shapely, GDAL, and ArcPy (or equivalent in R) with the ability to utilize existing Python scripts and to contribute to the enhancement and automation of fire modeling.
- Familiarity with land management and wildfire decision support datasets, models, software, and workflows. For example, LANDFIRE, Wildland Fire Decision Support System (WFDSS), FlamMap, Nexus, WindNinja, FSim, Interagency Fuel Treatment Decision Support System (IFTDSS), Google Earth Engine.
- Familiarity with processing remote sensing datasets such as LiDAR, NAIP, and LANDSAT.

- Understanding of ecology in dry forests and Mediterranean environments and ecological forest management; ability to effectively communicate scientific concepts to lay audiences.
- Experience supporting risk-based wildfire-incident decision making as part of a large-fire incident management team (e.g., LTAN, FBAN, etc.)

Duty Requirements:
- Full time, year-round employment with existing legal authorization to work in the US
- Ability to work normal business hours with a team based in the Mountain and Pacific time zones
- Remote position with an operational home office with sufficient internet speed
- Office space available in Missoula, MT

Compensation:
Highly competitive salary dependent on qualifications and experience

Benefits:
- Health insurance
- Unlimited PTO policy
- 401k
- Company equity
- Home office set-up allowance (one time)

Equal Opportunity Employer:
Vibrant Planet and Pyrologix are committed to diversity. We encourage applicants from all cultures, races, colors, religions, sexes, national or regional origins, ages, disability status, sexual orientation, gender identity, military, or other status protected by law to apply.

We are interested in finding the best candidate for the job, and that candidate may come from a less traditional background, but have capacity to grow into and thrive in the position after some mentoring. We do not require that you have experience with every job description task. We will consider any equivalent combination of knowledge, skills, education, and experience to meet minimum qualifications. We encourage each candidate to think broadly about their unique background and skill set and how it may relate to the role.

Apply for this role here.