
XPRIZE
WILDFIRE
PG&E
GORDON AND BETTY
MOORE
FOUNDATION
XPRIZE WILDFIRE
SPACE-BASED TRACK
QUALIFIED TEAMS
LOOKBOOK

AKULA TECH

MELBOURNE, AUSTRALIA

Our team, led by Akula Tech, includes University of South Australia, Swinburne University of Technology, and AIILA. Together we're equipped to excel in space-based wildfire detection and intelligence.

ABOUT THE SOLUTION

- Our team is developing a cutting-edge cloud-based platform for wildfire detection, integrating earth observation satellite data from Akula Tech's advanced satellites featuring real-time continuous machine learning for autonomous monitoring.
- Our cloud-based data processing pipeline will be trained using a comprehensive dataset collection imagery collected over historical wildfire events across the globe, sourced from existing Earth observation satellites, ensuring accuracy in deployment phase.

LEARN MORE: akulatech.com

BE THE CHANGE ANALYTICS

SOUTH LAKE TAHOE, CA, USA

Be The Change Analytics is composed of Air Force pilots, aerospace engineers, optical engineers, systems engineers, orbital analysts, mathematicians, data scientists, USFS hotshots, and safety analysts.

ABOUT THE SOLUTION

- Given that destructive wildfires behave dynamically, Be The Change Analytics' solution is focused on creating an environmentally conscious, multi-pronged inverse solution that performs dynamically, as well.
  - Supporting global firefighters with innovative tech & insightful analytics to enable safe decisions & effective policies.
  - Prompt, accurate and continuous monitoring of global wildfires.
  - Effective autonomous wildfire suppression solutions.

LEARN MORE: ConsultBTC.com

BLACKSHARK AI

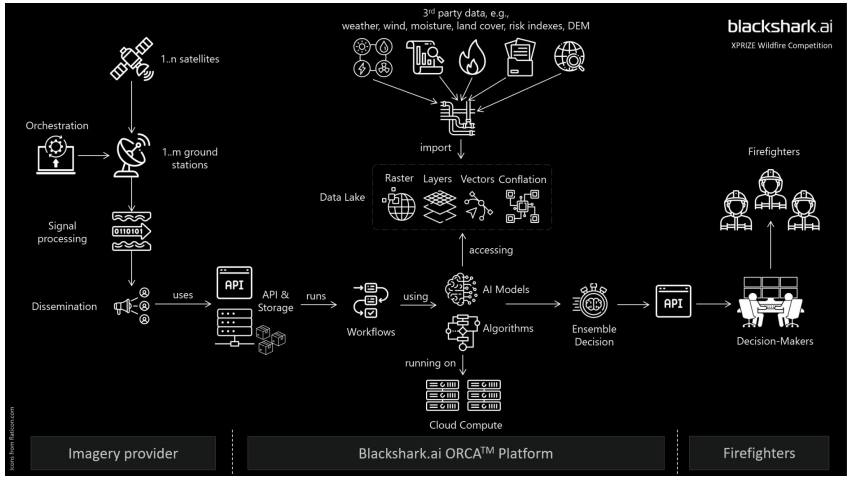
GRAZ, AUSTRIA

Blackshark.ai specializes in GeoINT using AI. Using their ORCA platform and leveraging their team of AI, cloud, and software engineers, they're advancing the state of art in high frequency mapping.

ABOUT THE SOLUTION

- Blackshark.ai proposes a solution focusing on data processing, detection, analysis, and reporting to decision makers. It leverages AI models and diverse datasets. Image acquisition itself is out of scope.
- The system relies on multispectral and SAR imagery updated regularly and augmented with additional datasets. Synthetic data generation for training, alongside ensemble AI models enable the required accuracy.
- Pre-fire imagery will be used as additional context for AI models to detect wildfires.

LEARN MORE: blackshark.ai



CHOOCH

SAN MATEO, CA, USA

The Chooch team is comprised of our CTO, chairman, solutions engineer and president who all have jointly developed complex AI models for geospatial imagery analysis with varying resolution.

ABOUT THE SOLUTION

- Chooch's satellite analysis platform harnesses Nvidia compute power which can be flexibly deployed in public or private cloud, self hosted in addition to edge configurations.
- Satellite imagery will be obtained from multiple partners with various capabilities including Maxar, Planet, Capella, Sentinel, etc. Images are tiled and fed to customized wildfire AI models.
- Results can be disseminated via Chooch Smart Analytics dashboard which can be accessed by operators anywhere.

LEARN MORE: chooch.com

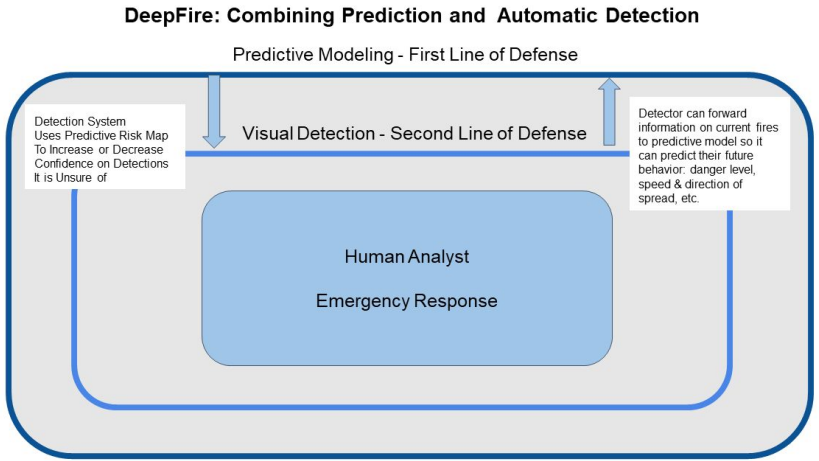
DEEPFIRE

BATON ROUGE, LA, USA

Supratik Mukhopadhyay, Professor of AI at LSU, leads the team. Previously, he led a team to the semifinals of AI XPRIZE. Other members: Dr. Robert Dibiano, Richard Barbalace, Dylan Wichman, Matt Braun.

ABOUT THE SOLUTION

- Our Our system is a combination of an AI-based wildfire prediction system and an AI-based wildfire detection system that interact synergistically.
    - Detection System uses Predictive Risk Map to increase or decrease confidence on detections it is unsure of.
    - Detector can forward information on current fires to predictive model so it can predict their future behavior: danger level, speed & direction of spread, etc.



EMBER GUARD - A WILDFIRE WATCH GROUP

PALO ALTO, CA, USA

Ember Guard is a cross-disciplinary team led by a high school sophomore along with materials scientists, entrepreneurs, wildfire-focused atmospheric modeling experts, mathematicians, and senior research scientists.

ABOUT THE SOLUTION

- Fuse low to high resolution satellite data with atmospheric conditions and social media.
- Use deep learning along with LLM and AI techniques to detect wildfires.
- Use a scalable cloud-based high resolution wildfire model to forecast the likely propagation and intensity of a given wildfire so that firefighters can prioritize their limited resources.

FIRE EYE

HILLSBORO, OR, USA

Team Fire Eye is a veteran in first responder-based research and development with extensive expertise in computational vision algorithm development, aerospace sciences and communication protocols.

ABOUT THE SOLUTION

- Multiply sourced hyperspectral image analysis.
- Employ existing infrastructure for cloud computation and ground control stations.
- Ensemble models to predict Fires and their behavior.
- Multiple communication channels for effective information dispersal.

GENERATIVE INTELLIGENCE

MALAGA, SPAIN

Generative Intelligence joins forces with top satellite companies to revolutionize firefighting. With cutting-edge AI and a personal stake in fire-prone Andalusia, we're driven to save lives and land.

ABOUT THE SOLUTION

- Leveraging a cascading AI system, our solution first identifies high-probability fire zones by integrating satellite imagery and historical, climatic, and terrain data.
- High-risk areas undergo detailed analysis using cutting-edge AI to pinpoint fires, monitor spread, and evaluate impact, enabling swift emergency response.
- Scalable and adaptable, our solution can incorporate new data sources and expand to new areas.

LOFT ORBITAL

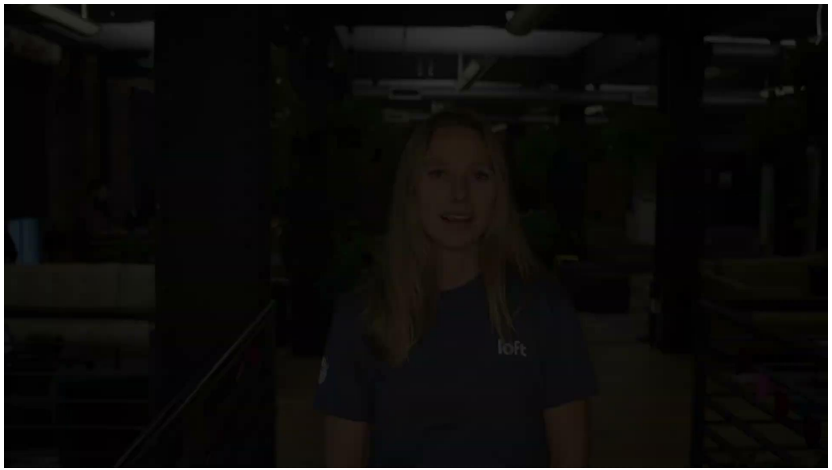
TOULOUSE, FRANCE

Team Loft is an international team, based in our office in Toulouse, France.

ABOUT THE SOLUTION

- Loft team has a strong environment protection mindset and is running a global, employee-led minimal impact initiative.
- With about 200 employees, $200M of capital raised, multiple satellites in space, and a global roster of customers including NASA, ESA, the US DOD, Eutelsat, Honeywell and Microsoft, Loft is looking to deploy a constellation focused on environment monitoring.

Learn more at loftorbital.com



MUON SPACE

MOUNTAIN VIEW, CA, USA

Muon Space is an end-to-end space systems provider that designs, builds, and operates LEO satellite constellations delivering mission-critical data for a safer and more resilient world.

ABOUT THE SOLUTION

- Muon Space is leading the development of a wildfire constellation in collaboration with partners.
- This multi-satellite constellation is purpose designed for the wildfire mission. A multispectral infrared (IR) instrument has been designed by Muon for fire detection, monitoring and analysis.
- The protoflight for this constellation will be in orbit and able to support the wildfire challenge demonstration.

LEARN MORE: muonspace.com

MYRADAR

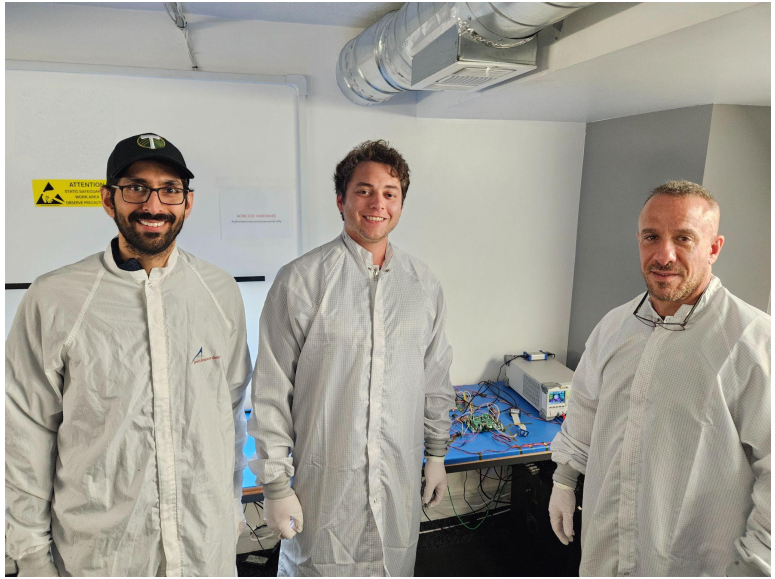
ORLANDO, FL, USA

MyRadar is a technology company that builds situational awareness products trusted by millions of customers. Our satellite team consists of several dedicated engineers and subject matter experts.

ABOUT THE SOLUTION

- MyRadar specializes in building AI technology and robust data pipelines to deliver data, visualizations, and environmental alerts.
- Our patented miniaturized satellite technology uses spectral imagers and onboard AI optimizations to enable rapid alerting for environmental hazards, such as wildfires.
- Our mission is to democratize real-time information that allows better, more risk-informed decisions, and our constellation of satellites will provide data and alerting toward this goal.

LEARN MORE: myradar.com



ORBITAL SIDEKICK

SAN FRANCISCO, CA, USA

Orbital Sidekick's XPRIZE team consists of hyperspectral imaging and data scientists as well as payload engineers, technical leaders, product managers, and UI/UX designers.

ABOUT THE SOLUTION

- Orbital Sidekick will use a combination of hyperspectral and multispectral satellite images which allow speciation of vegetative materials and detection of combustion.
- Orbital Sidekick's GHOSt constellation currently consists of 6 satellites, 5 of which are already in orbit and acquiring data and 7+ in development.
- Orbital Sidekick is building the most advanced constellation of hyperspectral satellites with unmatched global monitoring capacity through its spatial and spectral resolution.

LEARN MORE: orbitalsidekick.com

ORORATECH

MUNICH, GERMANY

OroraTech was founded 2018 as a spin-off from the TU Munich. The team has grown to more than 95 international employees, 15 investors and several advisors from the wildfire and space sector.

ABOUT THE SOLUTION

- OroraTechs software fuses data from more than 25 public satellites and fills up data gaps with a proprietary constellation of satellites in space specialized on wildfire detection and analytics.
- OroraTechs satellites are equipped with a high resolution thermal-infrared camera optomized for fire front analytics and land surface temperature measurement.
- Through on-orbit processing, fires are detected on the satellite and the information gets relayed instantly via an inter-satellite link."

LEARN MORE: ororatech.com

REDBACK FIRE TEAM

MELBOURNE, AUSTRALIA

Redback fire comprises members from RMIT University & Covey Associates PTY LTD, bringing together expertise in wildfire detection & attribution and fire behaviour & modelling.

ABOUT THE SOLUTION

- We propose a two-phase, integrated and robust solution to wildfire surveillance and characterization. Phase 1 aims to detect wildfires within 1 minute using a constellation of EO sensors.
- The algorithm is tailored to accommodate geographical, seasonal, and diurnal variations. This module is currently operational in Australia, delivering hotspot notifications within 20-45 seconds.
- Phase 2 accurately characterizes fire detections and behaviour using a hybrid-model approach within 10 minutes.

SIRIUS WILDFIRE ALLIANCE

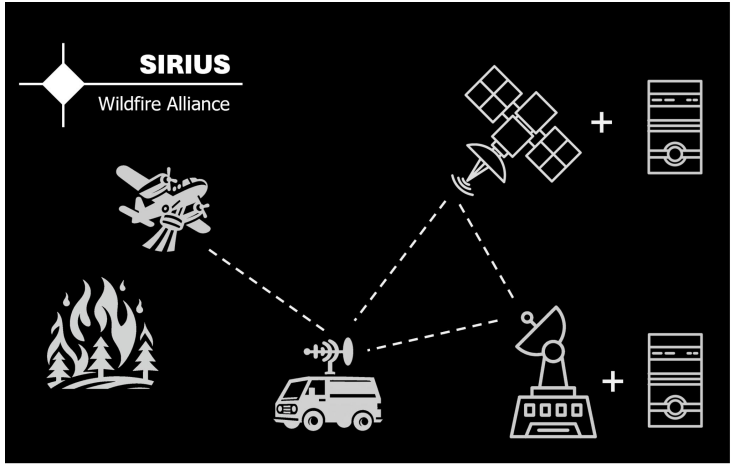
LONDON, UNITED KINGDOM

SIRIUS Wildfire Alliance brings together young engineers, established academics, researchers in top universities, ambitious startups from the UK and Australia, and wildfire management professionals.

ABOUT THE SOLUTION

- SIRIUS will deliver high-resolution wildfire nowcasting and forecasting by integrating Earth Observations, AI, GIS, a cutting-edge wildfire spread model and a unique combination of ground and space edge computing.
- By leveraging onboard computations and efficient telemetry, we can employ advanced but typically time-consuming techniques for granular spread and false positive detection, provide early information for emergency response, and recommend efficient firefighting resource allocations.

LEARN MORE: linkedin.com/showcase/sirius-wildfire-alliance/



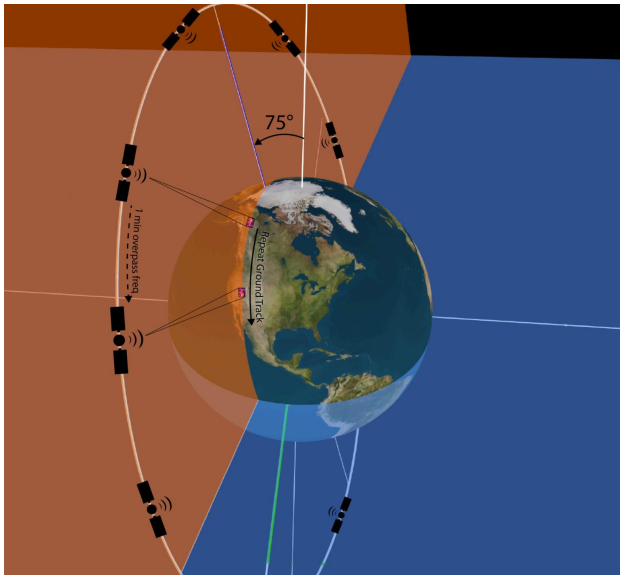
SNUFFED

FLAGSTAFF, AZ, USA

The Snuffed team currently has 25 engineers, scientists, firefighting and fire management experts, students, and private sector industry professionals.

ABOUT THE SOLUTION

- We propose a “string of pearls” constellation of 90 micro-satellites or CubeSats in low Earth orbit (LEO). The orbital period in LEO is 90 minutes, so one unit in our constellation passes over a given ground location once per minute.
- Our rapid detection strategy, when fully implemented, has the potential to reduce these costs and damages enormously
- This is a game-changing advance in humanity’s approach to combating wildfires.



SPECTRACAN

VANCOUVER, BC, CANADA

SpectraCan currently consists of 15 members from the AI spectral analysis company Metaspectral. This is across deep learning research, chemometrics, hardware, software, and product.

ABOUT THE SOLUTION

- We propose real-time fire detection using existing satellites for continuous coverage in high-risk areas with geostationary and orbital satellites.
- An algorithm will track coverage for available satellites and pull data for specific regions of interest as it becomes available.
- Sub 60s detection will be achieved through our unique capability to apply deep learning to spectral data in real-time. This allows detection even with coarse spatial resolutions, and accommodates slow downlink speeds.

LEARN MORE: metaspectral.com

TEAM FUEGO

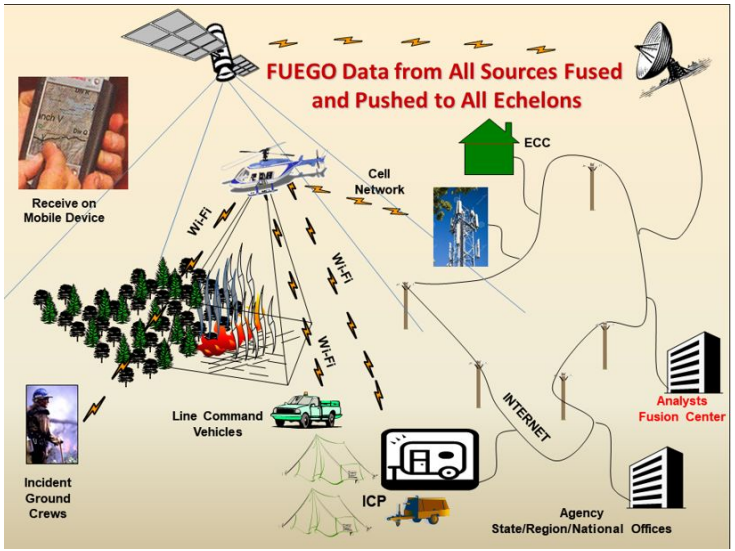
SANTA FE, NM, USA

Team FUEGO includes engineers, scientists, and business stakeholders, from select international organizations, developing an integrated wildfire intelligence system for world-wide deployment.

ABOUT THE SOLUTION

- Our platform will provide persistent surveillance for early wildfire detection and continuous chronicling of fire behavior over vast geographical areas.
- Our intel products will include active wildfire characterization, reporting of fire location, intensity and spread, wildfire behavior prediction, and post-fire severity/damage assessment.
- Our host satellites will have the spatial resolution, the rapid cadence, and low data latency necessary to detect new fires of less than 0.5 MW.

LEARN MORE: fireballit.com



MAYDAY.AI (GUARDIAN SPACE)

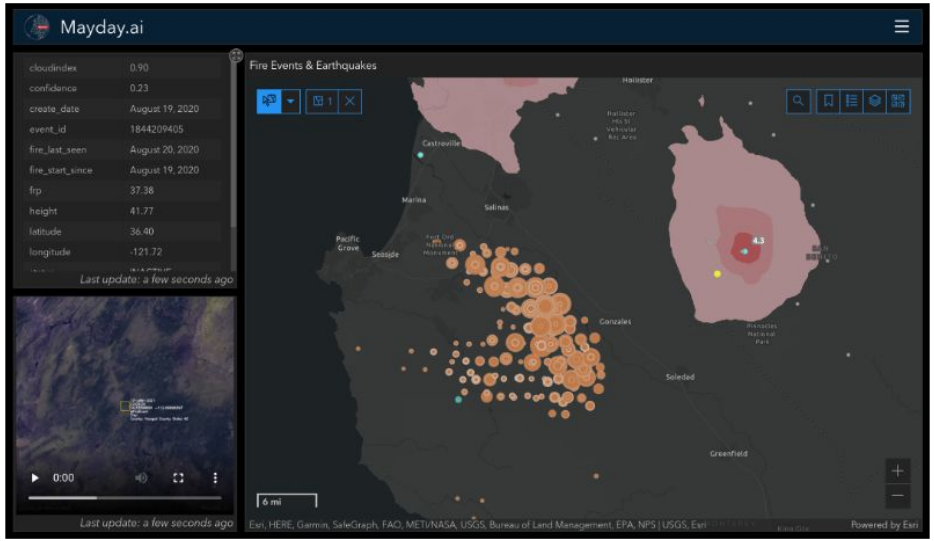
DARMSTADT, GERMANY

Mayday.ai's team boasts seasoned specialists in wildfire surveillance, disaster management, and cutting-edge remote sensing technologies.

ABOUT THE SOLUTION

- Real Time Wildfire Detection and Monitoring Globally
- Early Warning Access For All
- Community Centric Solutions

LEARN MORE: mayday.ai



WOOLPERT DI CLOUD GEO TEAM

DAYTON, OH, USA

We're a team of remote sensing scientists, cloud engineers, AI/ML experts, and environmental scientists. We build scalable models and analytical platforms based on Earth Observations and AI.

ABOUT THE SOLUTION

- Our solution is based on the orchestration of several models and satellite sources through different phases: early risk assessment, rapid fire detection, fire characterization, and operational delivery.
- Forecasting models, computer vision, deep learning, and first-principles models will be deployed alongside a variety of public and commercial satellite sources.
- The overall workflow will be automated into a platform designed to send operational insights and alerts to relevant stakeholders.

LEARN MORE: innovations.woolpert.com

WOOLPERT
DIGITAL INNOVATIONS

WANT TO KNOW MORE?

To learn more about the Qualified Teams or how you can support XPRIZE WIldfire please email:

wildfire@xprize.org