

SCOUT AERIAL

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Remote sensing **with powerful insights**

Who We Are

Scout Aerial is Australia's leading provider of remote sensing and geospatial solutions with an industry reputation for performance, quality and reliability.

In today's world of managing projects with complex logistics, budget constraints and critical deadlines, approximations are no longer enough. Using the latest aerial and bathymetric imagery and data capture technologies with accuracy down to the centimetre, we can provide powerful and easy to understand insights to drive better decision-making, improve safety and reduce costs.

Our capabilities allow us to provide tailored solutions and turnkey deliverables to meet evolving project and asset management requirements across a wide range of industries including Mining & Resources, Oil & Gas, Power & Energy, Water, Rail, Road, Agriculture, Environmental, and Construction. We partner with our clients to better understand their context and requirements to produce results that can be trusted and build relationships that last.

We have a reputation for respectability and fair play - these characteristics combined with our demonstrated capability and a healthy stance in the industry, underpins the company's performance. Our team is comprised of qualified professionals with extensive experience in their respective fields.

Our Mission is to provide aerial services that deliver long-term commercial benefits through state of the art technology, service excellence and ongoing partnerships. We are dedicated to supplying cost effective and sustainable remote sensing solutions across the globe.

Scout Aerial is certified, compliant and fully insured.

OUR VISION:

Our core purpose encompasses an ambitious desire to partner with businesses to develop unique solutions to complex problems. Technology is our future and organisations that can embed new-age technology will be uniquely positioned to respond more effectively to customer requirements.

Our Capabilities

We are committed to providing safe aerial solutions for our clients, with reduced delivery times, cost savings and minimal environmental impact.

Scout Aerial is recognised as an industry leader in remote sensing. These services are provided to a broad customer base primarily in the Government, Mining & Infrastructure sectors.

With over 200 completed projects ranging in size from relatively small to major works, we have built and developed the skills, technology and people to ensure no project is too large or small to deliver on.

Our primary capabilities include:



**Aerial &
Bathymetric Surveys**



**Aerial
Inspections**



**RPAS
Training**

POTENTIAL APPLICATIONS:	INDUSTRIES WE SERVICE:
<ul style="list-style-type: none">• Land use planning and development• Environmental compliance monitoring• Drainage / watershed analysis• Water & sewerage assessments• Volumetric calculations• Magnetic surveys for mineral exploration• Agriculture assessments• Pipeline inspections• Infrastructure deformation analysis• Insurance assessments• Forensic analysis• Shark detection• Emergency reporting• and more!	<ul style="list-style-type: none">• Government & Councils• Urban Infrastructure• Mining & Resources• Power & Energy• Oil & Gas• Roads & Rail• Construction & Development• Environmental• Emergency Response• Defence• Precision Agriculture & Forestry• Media & Advertising• Research & Development• and more!

CAPABILITIES > AERIAL SURVEYS

Traditional land surveying requires a team on the ground, handling equipment to take precise measurements across large areas. Using drones for mapping and surveying is much quicker and costs considerably less, producing extremely accurate results. You don't have to wait weeks for survey results, purchase expensive satellite imagery or rely on outdated public maps.

Navigating challenging terrain or inaccessible areas is safer and easier from the air. We can gather real-time, reliable data to deliver actionable results for engineers, project managers, authorities or stakeholders to save money and drive informed decisions.

Using orthomosaic, infrared, LiDAR and other sensors, we can quickly capture and process data into maps and models to measure distance & volume, predict patterns, identify defects or monitor change. Our ability to capture high-resolution imagery from different angles creates millions of data points to produce the 2D orthomosaic and 3D models, allowing you to see more detail than ever before. Our team of GIS experts process all the data in-house to provide powerful and easy-to-understand insights to help you manage the performance of your project.

KEY BENEFITS	USEFUL FOR
<ul style="list-style-type: none"> • Ability to cover large areas quickly and accurately • Safer to navigate challenging terrain or inaccessible areas • More cost-effective than manned aircraft or traditional surveying • High resolution imagery and precise modelling • Produces powerful and actionable insights 	<ul style="list-style-type: none"> • Mapping expansive areas, challenging terrain, difficult-to-reach environments • Measuring volumes – stockpiles, dredging, landfills • Elevation modelling – identifying low points for flood risk or watershed analysis • Bathymetric surveying – to measure depth of water bodies and map underwater features • Environmental monitoring – to identify vulnerable areas, show patterns of erosion and change • Topographic plans and terrain mapping - for utilities or construction planning, identifying boundaries • Exploration - to discover location of minerals • Vegetation analysis – to detect invasive species or weaknesses • Progress reporting – to understand and measure performance of projects



CAPABILITIES > BATHYMETRIC SURVEYS

Traditional methods of assessing and sampling underwater environments often requires significant investment of time and resources with variable accuracy in the results.

Scout Aerial's Remote Operated Vehicles (ROVs) are underwater drones that capture high quality visuals to cost-effectively assess the underwater environment with minimal disruption and improved safety. With deployment in 3 minutes, they get to work quickly and can access potentially hazardous, shallow or challenging areas to help show you what you can't see from the surface.

Our advanced sonar systems and experienced technicians produce accurate and reliable representations of features underwater, giving you a comprehensive assessment of your underwater assets for a wide range of applications including (but not limited to) repairs & maintenance planning, hazard detection, integrity analysis, biological sampling and geo-mapping.

ADDITIONAL SERVICES: Pipe Crawlers | Tank Cleaning | 360degree Panoramic video capture | Interventions | Tectonic Protection Testing | Search & Rescue

KEY BENEFITS	USEFUL FOR
<ul style="list-style-type: none">• Improved safety by eliminating the many risks associated with human interaction underwater• Fully autonomous, rapid mobilisation for real-time analysis with minimal disruptions and low environmental impact• Easy deployment to inaccessible or dangerous areas with built-in safety features• More cost-effective than using divers or draining the environment• High resolution imagery and precise modelling• Produces powerful and actionable insights	<ul style="list-style-type: none">• Routine inspections of storm water drains, sanitary systems, water reservoirs, tanks, towers, canals, shorelines, underwater asset and tailings, pipelines, hulls, jetties, dam walls, bridges and construction projects in marine or underwater environments• Inspecting underwater infrastructure environments that are potentially hazardous to humans• Precise recordings of depth, area, slope, wall thickness, currents, sediment levels etc.• Biological sampling (e.g. marine growth, bacteria levels etc.)• Environmental research support, search/rescue & recovery, aquaculture, salvage operations, geo-mapping, integrity analysis• Feasibility Studies

CAPABILITIES > AERIAL INSPECTIONS

Traditional methods of inspecting infrastructure can involve long and costly shutdowns, manual inspections and hazardous work environments.

We perform precise, non-interfering remote inspections of your assets to improve efficiency and safety of infrastructure - identifying issues before they develop into hazards or delays. Everything, from structures to cabling and pipelines, can be viewed from the safety of the ground – saving time, money and risk to your maintenance crews.

We can conduct 360-degree remote assessments with the ability to zoom in for granular examinations capable of detecting surface degradation, cracks or other flaws. Onsite engineering staff can view live video and request further inspection of problematic areas. Resulting imagery can be used to guide maintenance crews on where to go and what tools to take before they carry out repairs. We can also check for hazards and integrity to be sure it is safe for crews to respond.

High definition imagery and thermal, multispectral or topographical views provide an instant status of your infrastructure so you can make informed decisions based on accurate data. Reports can even be customised to meet your compliance requirements.

KEY BENEFITS	USEFUL FOR
<ul style="list-style-type: none"> • Reduced risk to personnel (working at heights, confined spaces, high voltage infrastructure, biological contaminants, large bodies of water) • Reduced downtime and loss of productivity • Quicker and more cost effective than labour-intensive methods • Real-time analysis and early detection of issues • Compliance & Reporting benefits 	<ul style="list-style-type: none"> • Large structures that require regular inspection and maintenance • Locations that are dangerous or difficult for people to access • Flare stacks • Communication towers • Wind turbines • Solar farms

CAPABILITIES > TRAINING

Our aim is to equip all RPA users with the knowledge and skills required for safe, competent and efficient unmanned aircraft operations in a variety of applications; and to provide further mentoring to ensure you (and your equipment) reach full potential.

We are passionate about helping you learn, so our courses have been developed to cater for all levels of experience. We offer in-person training at our facilities in Eagle Farm (Brisbane) as well as customised on-site programs to meet individual requirements.

Our curriculum is approved by CASA and is designed to comprehensively prepare you for successful licensing and endorsements, through a combination of classroom and practical training.

Licensing regulations for drones in Australia:

CASA (Civil Aviation Safety Authority) in Australia issues licences to operate drones commercially.

- As a business, you are required to hold a Remote Operator's Certificate (ReOC) to operate drones commercially.
- As an individual, you are required to hold a Remote Pilot Licence (RePL) to operate drones commercially for a company holding a ReOC.

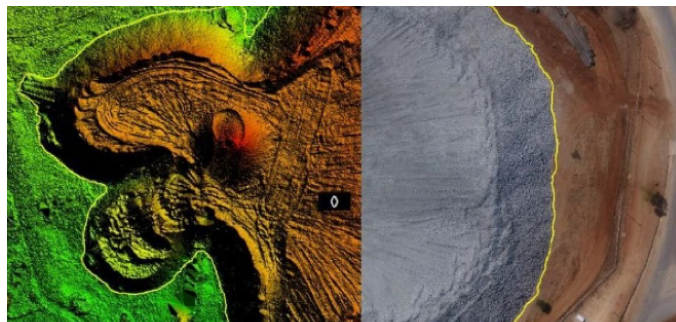
Why train with Scout Aerial?

- We offer CASA approved training and certification
- We have knowledgeable and qualified instructors with vast aviation experience (unmanned and manned)
- As operators ourselves, we use the latest industry techniques, best practices and cutting edge technology
- We offer further mentoring to help pilots reach their full potential
- Our courses are fun, engaging and professional

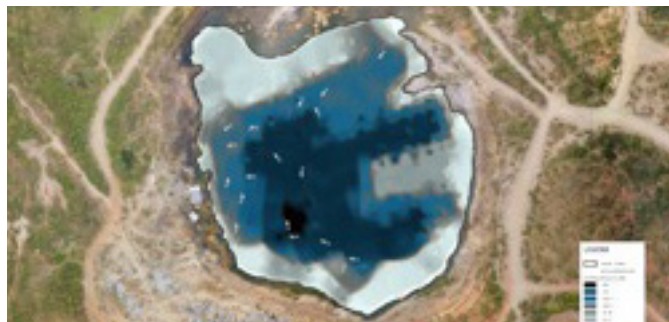
RePL (REMOTE PILOT LICENCE)	TYPE TRAINING
Kickstart your career as a professional drone pilot for commercial operations using RPAS with a maximum take-off weight of 7kg. Includes an Aeronautical Radio Operator's Certificate (AROC).	Upgrade your RePL with type training for different RPA platforms including Multirotor <25kg, Fixed Wing <7kg and Fixed Wing <25kg.

Powerful Insights

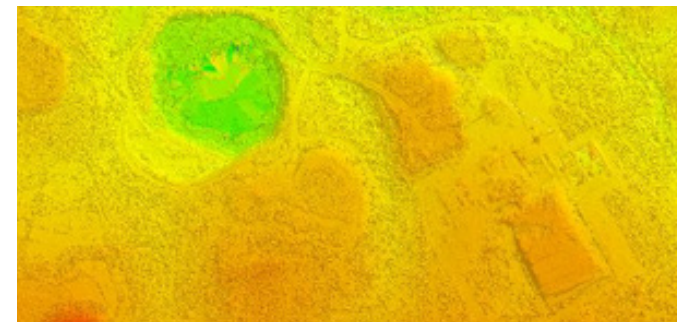
Using the latest data capture technologies with accuracy down to the centimetre, we can provide powerful and easy to understand insights to drive better decision-making, improve safety and reduce costs.



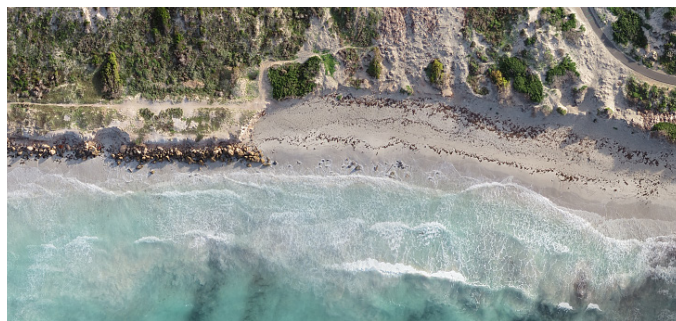
VOLUMETRIC CALCULATION



BATHYMETRIC SURVEY



DIGITAL ELEVATION MODEL



EROSION ASSESSMENT



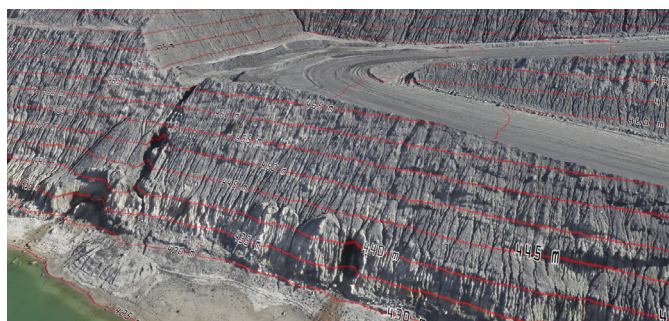
VOLUMETRIC CALCULATION



ASSET INSPECTION - 3D MODEL



CONTOUR MAPPING



CONTOUR MAPPING



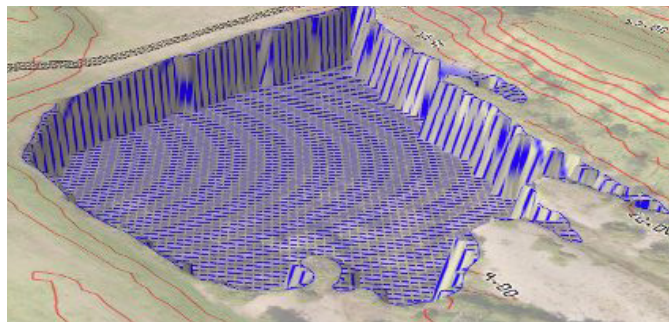
POTHOLE DETECTION

Powerful Insights

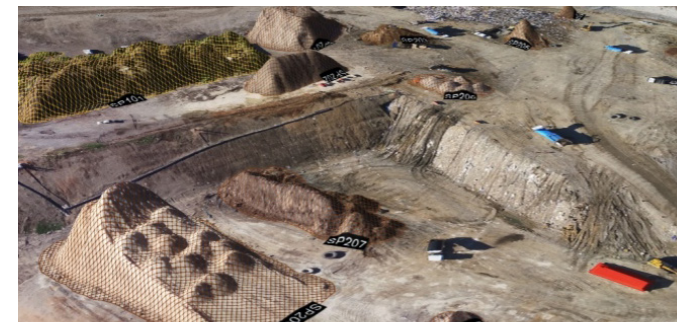
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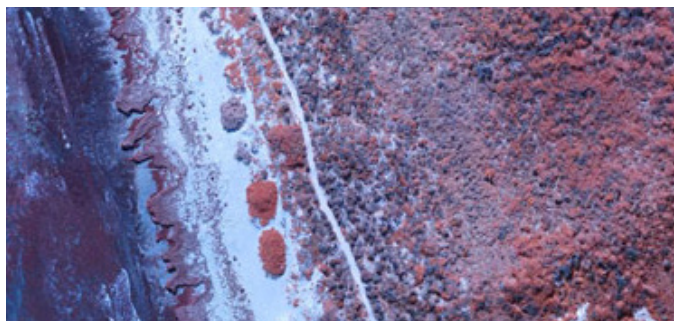
GOOGLE MAP OVERLAY



VOLUMETRIC ASSESSMENT



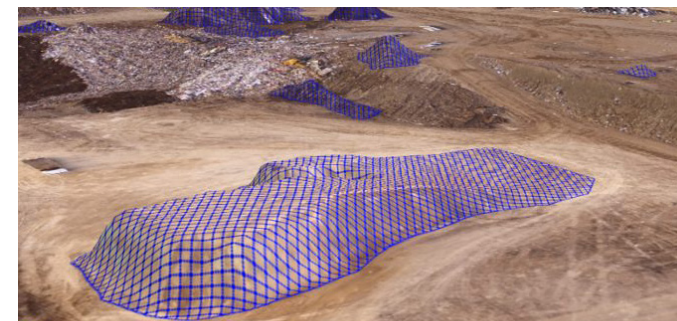
VOLUMETRIC CALCULATION



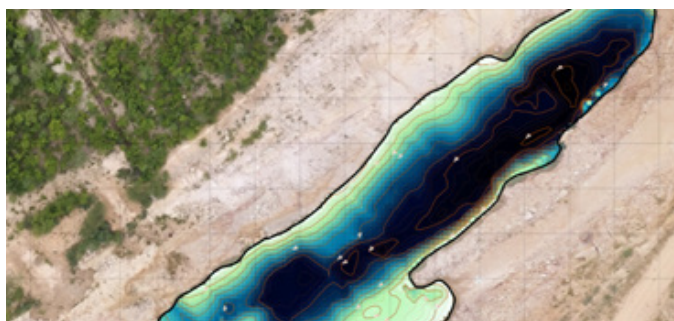
NIR SCANNING



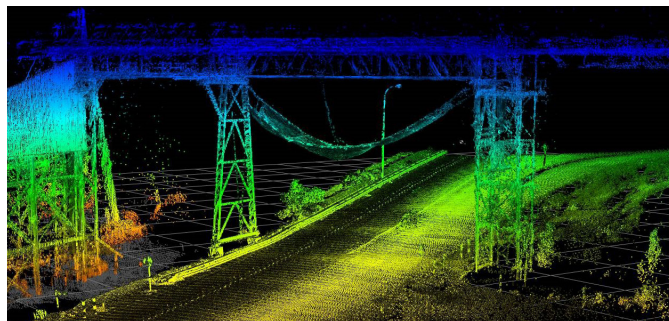
LAND USE MAPPING



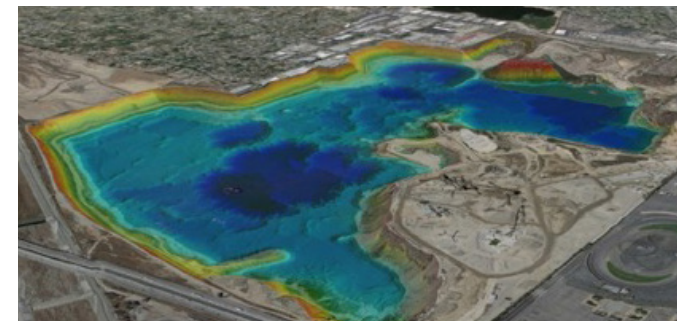
VOLUMETRIC CALCULATION



BATHYMETRIC SURVEY



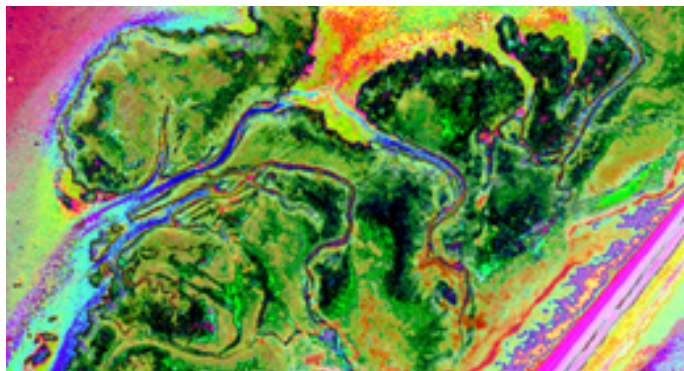
LiDAR SCANNING



BATHYMETRIC SURVEY

Specialised Services

Hyperspectral and Multispectral

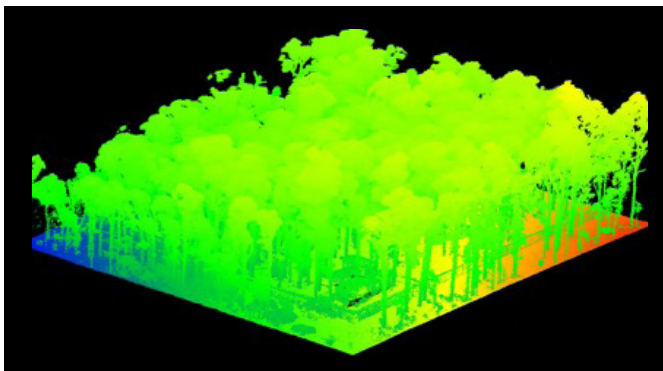


Multispectral remote sensing is the collection of reflected, emitted or backscattered energy from an object or area of interest in **multiple bands** of electromagnetic spectrum; while Hyperspectral sensors measure the energy in narrower and more numerous bands, resulting in **hundreds of spectral bands**.

Our data analysis capabilities allow us to generate valuable insights for:

- Mineral Exploration
- Agriculture
- Crop Forecasting
- Precision Farming
- Irrigation Management
- Watershed Development
- Forest Planning Management

LIDAR Surveys



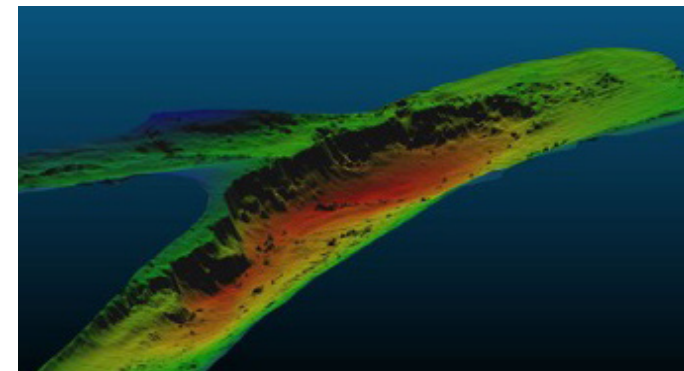
LiDAR, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure variable distances to the Earth. These light pulses, combined with other data, generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

Topographic LiDAR typically uses a near-infrared laser to map the land, while bathymetric LiDAR uses water-penetrating green light to measure seafloor and riverbed elevations.

Advantages

- High accuracy and precision
- High data density
- Flexibility
- Vegetation penetration
- Fast acquisition and processing in real time
- Weather or light independent

Hydrographic Surveys



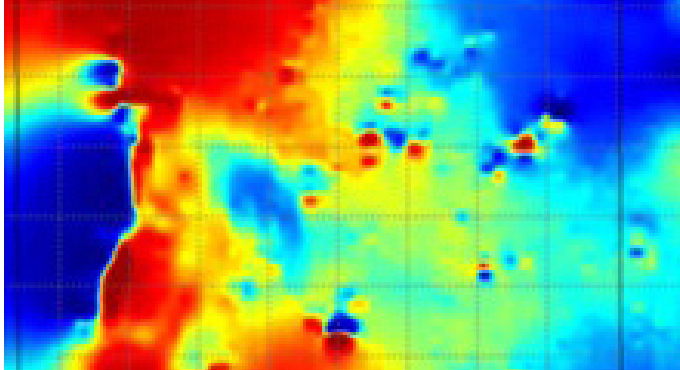
A hydrographic survey measures and describes features which affect maritime navigation, marine construction, dredging, offshore oil exploration/drilling and related activities. Strong emphasis is placed on soundings, shorelines, tides, currents, seabed and submerged obstructions. We can give an overall picture of underwater environments that are difficult to access.

Advantages

- Accurate and reliable
- Low environmental impact
- High coverage over time ratio
- Cost effective

Specialised Services

Exploration Geophysics



A magnetic survey (magnetometry) records spatial variation in the Earth's magnetic field. In archaeology, magnetic surveys are used to detect and map archaeological artifacts and features.

It is an effective geophysical survey technique for exploration activities and is used in both terrestrial and airborne environments. We combine hyperspectral LiDAR and magnetic data to produce accurate insights for:

- Mineral exploration
- Unexploded ordnance (UXO) detection
- Archaeology
- Utility location
- Geotechnical surveys

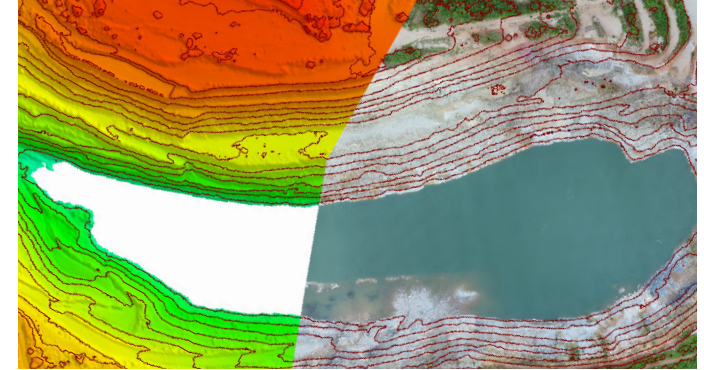
Object Recognition & Machine Learning



Machine learning is the subfield of computer science that “gives computers the ability to learn without being explicitly programmed”. We develop algorithms for object detection such as animals, faces, potholes, defects, tree species, weeds, and more. Automating these processes creates an efficient surveillance program, with accurate identification and notification when a detection is made. This eliminates the need for monitoring live video feeds, which uses up valuable resources. Machine learning and object detection is highly customizable - we can automate the process of finding, identifying and reporting in realtime. Some of our work has included:

- Shark and cattle detection
- Pothole detection and pavement failures
- Carbon/Biomass identification
- Blast detonators
- Fauna counts

GIS Services



Traditional systems for mapping and surveying can be costly & time consuming. We are able to capture reliable and accurate data in high resolution, allowing us to map large areas with precision, accuracy and a quick turnaround.

Our Managed Services address the growing demand from clients looking to reduce cost and risk by leveraging intelligent mapping capabilities without incurring high overheads for maintenance, support hardware and infrastructure.

We offer broad-ranging and scalable GIS solutions and Geospatial consulting services to provide the ultimate management tools for large and small businesses.

Our Approach

To ensure successful outcomes with every project, we've perfected our process.



1. PLANNING

We'll review your project scope and timeline to plan the most effective and efficient data collection service based on your requirements.



2. DATA COLLECTION

We use a number of fit-for-purpose remotely piloted aircraft to collect a multitude of data.



3. DATA PROCESSING

Our GIS team skillfully collates and processes the data to form an array of digital maps, 3D models and reports to get the information you require.



4. QUALITY CONTROL

We have rigorous QAQC procedures for everything we do to ensure accurate and trusted results.



5. INSIGHTS

We analyse all levels of data to create valuable insights for your business.



6. SECURE STORAGE

We can host your data online for easy access and viewing eliminating the need for expensive software packages and you'll never have to worry about losing it - we store it securely.

Our Policies

We have a proven systematic safety system, committed management and a pro-active workforce. We approach our management system holistically to cover Workplace Health and Safety, Environmental and Quality Assurance management with all systems and procedures being available to all our employees.

1. WORKPLACE HEALTH & SAFETY MANAGEMENT

Scout Aerial is fully committed to:

- ensuring a safe work place for its employees
- continually striving to improve safety performance
- instilling a cultural mindset in the company to achieve a ZERO HARM work environment

We have implemented a comprehensive safety system across the business in full compliance with Workplace Health and Safety legislation. All employees and sub-contractors are fully engaged in the system and are made aware of their responsibilities through company and project inductions, toolbox meetings, Safe Work Methods (SWM's) and Job Safety & Environment Assessments (JSEA's).

Safety audits are conducted at Scout Aerial's workplaces and independent third party audits of our Safety Management Systems are conducted to ensure ongoing compliance and continuous improvement.

2. ENVIRONMENTAL MANAGEMENT

Scout Aerial understands the potential and actual significant aspects of our company facilities and operations and the effect that these impacts have on the local environment and the communities.

Our team recognises that this is a social responsibility as well as a legal requirement, so we foster a positive culture for resource management.

We work with stakeholders to accomplish project planning to specifically identify our potential impacts, risks and compliance requirements to achieve the best results with minimal environmental impact.

3. QUALITY ASSURANCE

Independent third party audits and structured internal audits are performed to ensure ongoing compliance and continuous improvement to our systems and procedures.

A specific quality plan is developed for each of our projects and covers all aspects of administration and management, work methods, document control, inspection, test & compliance check sheets.

Our Quality System and its procedures are subject to continual review and all users are able to submit change proposals to the System Manager who distributes such requests to other users for review/comment/approval prior to any subsequent implementation.

The company prides itself on delivery of quality projects as evidenced by recognition through numerous excellence awards and customer testimonials.

Design & Innovation

Our technical competence is demonstrated by our commitment to serving the industry on various external committees and associations.

We provide full detail and supplement design services to identify value opportunities through RPAS engineering and constructibility reviews. Our engineering staff are long-standing industry experts with vast technical competence and experience who engage with our specialist technology partners to ensure that appropriate solutions are identified and implemented on our projects.

We are committed to provide value solutions for our clients and to provide reduced delivery time, cost savings, enhanced functionality, and safer operations with minimal environmental impact.

INNOVATIVE PROJECTS WE'VE BEEN INVOLVED IN:

- CAAS & Ministry of Transport - Amazon Package Delivery And UTM Development
- Brisbane City Council Pavement Failure Detection – Machine Learning (Algorithm Development)
- NSW Department of Primary Industries – Shark Detection And Management Services
- Department of Fisheries and Forestry – Noxious And Invasive Weed Detection
- Greenpeace – ISR (Intelligence, Surveillance And Reconnaissance) For Illegal Fishing Vessel Monitoring
- Fireblanket – Gas and Particulate Sensor Network Design

Our Clients

We thrive on repeat business and we're relentless in our endeavour to protect our reputation of high quality projects for our trusted clients. Here's a snapshot of who we've worked with:

“The Scout team are absolute professionals in this space. From aerial high-res video to sensor networks, working with cutting edge technology. Patrick and his team helped develop NRMA FireBlanket and worked well managing all key stakeholders from CSIRO and NSW Rural Fire Service – leaders in this space.”

LAUREN THOMPSON – NRMA FIRE BLANKET

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Date of Corporation 2 February 2011
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