

ROKE



AI and Machine Learning in Operations

G Cloud 15
Service Definition

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AI and Machine Learning in Operations – Service Definition

Safely incorporate robust Artificial Intelligence (AI) and Machine Learning (ML) into operations

Roke provides full lifecycle support for AI and ML against technical and business objectives.

At the business level, we capture and validate the requirements, design the business change, and shape the processes and policies necessary to effectively exploit AI and ML.

We perform AI research, technology selection, design, and implementation. We also provide AI consultancy and training.

Roke is driving change to safely bring AI to highly complex operational environments. An example is Roke's STARTLE® AI real-time, complex, threat monitoring system. This technology has been successfully demonstrated in Royal Navy Command Team operational sea trials.

Roke is a leading supplier of applied research of AI and ML services to support government clients. We develop solutions to address difficult challenges, building on nascent research and state-of-the-art open-source technology.

Roke provides AI solutions and research for all types of data – from structured data to complex data sources. We work with images, videos, audio, and text data. We use our extensive sensors expertise to provide the domain knowledge to AI solutions for a wide variety of complex sensor data.

Roke's Cyber specialisation extends the remit of our AI expertise to securing AI components and the application of ML methods to cyber-security.

Service Offering

- Operational AI
- Explainable AI

- AI and ML Applied Research
- AI for Specialist Sensors

Detailed Service Definition

Operational AI and ML

Roke is expert in the challenging aspects of incorporating ML into operational environments, considering policies, security, and environmental constraints. We build new AI systems and AI components for incorporation into existing processing.

Roke provides a wide range of services to ensure that AI solutions can be successfully adopted in operational environments. We are leaders in the area of secure ML components. This includes protecting sensitive training data, developing algorithms with robustness to adversarial input, safeguarding against model poisoning attacks and supply chain security.

Explainable AI and ML

Successful incorporation of AI into operational environments requires complete trust and assurance of ML models.

Explainable AI is critical to organisations in establishing trust in and applying scrutiny to AI and ML components. Explanations of AI decisions are important to data scientists, end users, and senior leaders.

We provide a range of key services, from consultancy to solution development, to ensure that your AI solutions are always explainable in a format relevant to the end user of the system.

AI and ML Applied Research

Roke innovates in the application of ML and methods to improve machine learning to solve specific operational challenges.

Our close engagement with universities and our experience in supplying to and priming multiple

Government AI and Data Science research programmes, place us at the forefront of applied AI research.

AI for Specialist Sensors

Roke's sensors and communications background provides us with contextual understanding of the data and operational challenges associated with many situational awareness and edge compute scenarios. We combine this knowledge with our AI expertise to develop the optimum solutions in these areas. Roke creates AI solutions for specialist equipment that exploits and combines complex data, such as Radio Frequency (RF), audio, and motion sensors. We can provide research, consultancy, or complete solutions in this area.

Agentic AI

Roke takes a pragmatic, secure-by-design approach to delivering LLM-based agentic AI systems that enhance operational effectiveness while remaining firmly under human control.

Roke designs modular, task-focused agents that integrate with existing operational systems and data sources, using well-governed large language models to reason, plan, and act within clearly defined boundaries.

Roke's approach prioritises reliability, transparency, and safety, with strong emphasis on prompt and tool governance, robust monitoring, auditability, and human-in-the-loop controls. This ensures agentic AI solutions that are scalable, trustworthy, and aligned to real operational outcomes rather than experimental capability.

Key Services

Operational AI

- AI solutions adhering to organisational policies (data and other)
- Incorporation of AI into existing processing systems

- Edge deployments of ML
- Secure ML components
- Protection against operational degradation (due to divergence of operational data from training data)

Explainable AI

- Development of Explainable AI solutions
- Consultancy on Explainable AI
- Explainable AI interactive tooling for non-technical training
- Explainable AI tools for data scientists

AI and ML Applied Research

- AI Horizon Scanning
- AI research
- Agnostic evaluation of state-of-the-art methods/approaches
- Application of nascent methods, research, or open technologies to specific operational requirements
- Methods for learning when training data is limited, unlabelled or not accessible due to classification constraints

AI for Specialist Sensors

- AI solutions for situational awareness and edge computing that use specialist data
- Optimal exploitation of complex real-time sensor data such as RF and motion sensors Agentic AI
- Simplification of interfacing with new and existing radios using Agents for self-learning code generation
- Supporting cyber monitoring, analysis, and response with human oversight
- LLM-based agents that accelerate coding, testing, and documentation within secure, governed development environment



Pioneering Technology for Global Security & Future Warfare

At Roke, we stand at the forefront of defence and security, delivering cutting-edge intelligence and engineering solutions that protect nations, troops, borders, critical national infrastructure and businesses. We bring the credibility of a long-standing defence and security leader, the precision of a specialist, and the agility to solve complex, high-stakes challenges with purpose and impact.

Roke is at the forefront of shaping the future of digital defence, intelligence, and national security.

We are Roke. We are Changing Worlds.

Roke Manor Research Ltd
Romsey, Hampshire, SO51 0ZN, UK
T: +44 (0)1794 833000
info@roke.co.uk www.roke.co.uk

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