

Firefighters

AI is improving detection, dispatch and situational awareness; the physical response, rescue and judgement on the fireground remain entirely human.

EXPOSURE	WINDOW	ADOPTION TODAY	READING
9 Low exposure	7–15 yrs until change lands	Low	AI assists; the work stays human-led. Exposure is the share of today's work AI can plausibly take on within the window.

§ 01WHAT IS HAPPENING

What is happening to firefighters

Impact

Camera networks such as Pano AI spot wildfire ignitions earlier, Technosylva and similar models predict fire spread to guide evacuations and resource placement, and dispatch systems prioritise calls more intelligently. On the incident ground, drones with thermal cameras give commanders a view of hotspots and roof conditions, and records systems such as ESO and ImageTrend make reporting faster. None of this changes what happens when the engine arrives: forcing entry, search, ventilation, hose work, rescue, medical response and the command decisions under pressure are done by people.

Risk

Low exposure: AI informs detection, planning and reporting; response, rescue and command remain human and physical.

The score is low because the measured generative-AI exposure is low: Microsoft Research rates very few firefighting tasks as suited to language models, the Anthropic Economic Index records no observed usage, and the US Bureau of Labor Statistics places the occupation in the low official tier. Automation touches the information layer - early detection, spread modelling, dispatch, pre-incident planning, post-incident reporting and training simulations - and the scoring includes no adjustment for a physical channel because firefighting robots remain limited to niche hazardous-environment tasks. The response itself, including rescue, suppression, medical care and incident command, stays human and carries life-safety responsibility. Over a 7-15 year window, expect better data on the way to and at the incident, lighter administrative burden and growing demand for firefighters comfortable with drones, sensors and digital command tools. The job's core does not change.

Sector readiness**Early Detection Advancing, Fireground Unchanged**

Wildfire-prone regions and large metropolitan departments have adopted AI camera detection, spread modelling and drone programmes, often through state or utility partnerships. Most departments, particularly smaller and volunteer services, encounter AI only through dispatch and records software upgrades. Procurement cycles, budgets and the need for proven reliability keep adoption cautious and uneven.

§ 02 POSITION

Where you stand

- i Position yourself as the firefighter who is fluent with drones, thermal imaging and digital command tools, which departments increasingly need and few members have.
- ii Build your record in the core physical and medical skills, since they define the role and are untouched by AI.
- iii Take on pre-incident planning, training or data roles that use AI-informed tools, as a route toward officer and specialist positions.

§ 03 ACTIONS

6 POINTS

What this means for you

Concrete changes to how the work gets done, in the order you are likely to meet them.

- 01 **Volunteer for the drone programme.** Thermal drones are becoming standard for size-up, search and overhaul. Getting licensed and trained early makes you a go-to member.
- 02 **Learn to read the models.** Fire-spread and weather tools inform evacuation and deployment decisions. Understanding their assumptions and limits helps you brief and challenge them.
- 03 **Make reporting work for you.** Records systems such as ESO and ImageTrend turn your incident data into the evidence that drives staffing and budgets. Accurate, prompt reports are not a chore; they are advocacy.
- 04 **Keep the medical edge.** Medical calls are the majority of the workload in many departments. Paramedic qualification remains one of the most valuable things you can hold.
- 05 **Use simulation deliberately.** Virtual and scenario-based training is improving fast. Use it to rehearse rare, high-risk incidents you cannot practise live.
- 06 **Do not expect robots in the bay.** Firefighting robots exist for specific hazardous tasks, but they are not a substitute for a crew. Plan your career on the physical job continuing.

§ 04 CAUSES

6 DRIVERS

What is pushing this change

- 01 **AI wildfire detection cameras.** Networks such as Pano AI and similar systems identify smoke and ignitions earlier than human spotters, shortening response times in wildland areas.
- 02 **Fire-spread and risk modelling.** Tools such as Technosylva forecast fire behaviour to guide evacuations and resource placement, increasingly used by state agencies and utilities.
- 03 **Drones and thermal imaging.** Unmanned aircraft with thermal cameras give commanders live views of hotspots, structural conditions and search areas.
- 04 **Smarter dispatch and records systems.** Computer-aided dispatch and reporting platforms reduce administrative time and improve how calls are prioritised and documented.
- 05 **Simulation-based training.** Virtual and scenario training tools allow rehearsal of rare and dangerous incidents without live-fire costs or risk.
- 06 **Very low measured task applicability.** Occupation-level measures from Microsoft Research and the Anthropic Economic Index find almost none of the role's work suited to language models, and official exposure is rated low.

Impact by sector

The headline figure is an average. Where you work changes the picture.

Wildland and rural fire services	The most technology-forward setting, with AI detection cameras, spread modelling and drones central to planning and response.
Large urban departments	Adopt drones, data-driven deployment and digital command tools, but the high-volume structural and medical work remains traditional.
Small and volunteer departments	Encounter AI mainly through dispatch and records software; budgets limit anything more specialised.
Industrial and airport fire services	Use fixed sensors, robotics for hazardous environments and detailed pre-plans, with AI supporting monitoring rather than response.

Skills to build

The skills that keep the human part of this work valuable as the routine part is automated.

- 01 Core suppression, rescue and physical fitness.** The defining skills of the role are untouched by AI; keep them sharp because they remain the basis for every promotion and assignment.
- 02 Emergency medical qualification.** Medical response dominates call volume in many services, and paramedic skills are among the most valued and transferable you can hold.
- 03 Drone operation and thermal imaging.** Licensed drone pilots who can interpret thermal images are increasingly needed for size-up, search and wildland work.
- 04 Incident command and decision-making.** Leading under uncertainty with imperfect information is the human core of the job; formal command training and experience build it.
- 05 Data and reporting literacy.** Accurate use of records systems and an understanding of how incident data drives resources help you influence your department's future.
- 06 Interpreting models and sensors.** Understanding what fire-spread forecasts and detection systems can and cannot tell you makes you a better briefer and a safer responder.

Tools in use

KINDS OF TOOL WORTH KNOWING

- 01

Thermal-imaging drones. Unmanned aircraft with thermal cameras, from manufacturers such as DJI, used for size-up, search and hotspot mapping.
- 02

Hazardous-environment firefighting robots. Remote-controlled suppression units for industrial fires and unstable structures; niche today and not a substitute for crews.

NAMED TOOLS ALREADY IN USE

Pano AI	VISIT
AI-powered camera network that detects and confirms wildfire ignitions and alerts agencies.	
Technosylva	VISIT
Wildfire spread modelling and risk forecasting used by fire agencies and utilities for planning and response.	
ESO Fire	VISIT
Records-management and reporting software used by fire departments for incident documentation and analytics.	
ImageTrend	VISIT
Incident reporting and data platform widely used across fire and EMS services.	

In practice

Ways people in this role are already using AI, and what they get from it.

Early wildfire detection EXAMPLE 1	HOW	A regional agency receives an automated alert from an AI camera network that has spotted a smoke column, confirms it remotely and dispatches before any public call.
	GAIN	Earlier initial attack while the fire is still small.
Drone size-up at a structure fire EXAMPLE 2	HOW	A trained crew member launches a thermal drone on arrival to show the incident commander hotspots, roof integrity and exposure risks.
	GAIN	Better-informed tactical decisions and safer crew positioning.
Faster incident reporting EXAMPLE 3	HOW	The company officer completes the incident report in the records system from a tablet at the station, with fields pre-filled from dispatch data.
	GAIN	Less administrative time and more consistent data for the department.

How this role compares

Three neighbouring roles chosen to show the direction of travel.

Dispatchers MORE EXPOSED	AI IMPACT AI call-handling, triage and routing are automating substantial parts of dispatch work. WORK MOVES TO Complex incident coordination, multi-agency communication and judgement in ambiguous calls.
Emergency Medical Technicians (EMTs) DIFFERENT SKILLS, GROWING	AI IMPACT AI supports documentation and triage while patient care remains hands-on and demand continues to grow. WORK MOVES TO Clinical skill, patient assessment and care under pressure.
Police Officers COMPLEMENTARY, LESS EXPOSED	AI IMPACT Analytics and reporting tools assist, but patrol, response and community work remain human and physical. WORK MOVES TO Public safety, de-escalation and investigation on the ground.

Closing judgement

If you are a firefighter, AI is going to tell you about the fire sooner and give you a better picture when you arrive, and then it is going to get out of your way. The physical work, the rescue and the decisions on the ground are yours and will stay that way. Where you can get ahead is in the growing technical side: drone operations, data-informed pre-planning, digital command tools and the reporting systems that now shape how departments are funded and evaluated. Treat those as additional skills on top of the trade, not as a replacement for it.

Evidence and revisions

What the exposure figure rests on, what changed when it was last revised, and the published work cited for this role.

SCORE

9

WINDOW

7-15 years (unchanged)

The 5 October 2026 review held the score.

Exposure Index v2. Inputs: task applicability 14/100 (Microsoft AI applicability score 0.07 for Firefighters); observed usage 0/100 (Anthropic observed exposure 0.00); official exposure tier 10/100 (BLS: low); labour-market trajectory not yet mapped for this occupation, so its weight was spread across the other inputs; published adoption rating 10/100 (low adoption). Weighted base 9.4. Final score 9. New report: the window of 7-15 years is set from the score band.

HOW THE FIGURE IS BUILT (EXPOSURE INDEX V2)

Task applicability — Microsoft Research, AI applicability score	14 × 39%	5.5
Observed usage — Anthropic Economic Index, observed exposure	0 × 22%	0.0
Official exposure tier — US BLS AI-exposure category	10 × 22%	2.2
Labour-market trajectory — US BLS projected employment change 2025–35	not measured	—
Published adoption rating — This report’s adoption level	10 × 17%	1.7
Weighted base		9.4
Exposure score		9

MEASURES BEHIND THE SCORE

US Bureau of Labor Statistics · *Employment Projections 2025–35 and AI Exposure Categories* (27 August 2026)
AI-exposure tier: Low. Projected employment change not yet mapped for this occupation. Matched to Firefighters.

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Microsoft Research · *Working with AI: Measuring the Applicability of Generative AI to Occupations* (10 July 2025)
AI applicability score 0.07 for SOC 33-2011; scaled to 14/100 as the task-applicability input.

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Anthropic · *Anthropic Economic Index report: Cadences* (26 June 2026)
Observed exposure 0.00 for SOC 33-2011; scaled to 0/100 as the observed-usage input.

PUBLISHERPDF

UK Department for Science, Innovation and Technology · *Assessment of AI capabilities and the impact on the UK labour market* (28 January 2026)
UK context: around 70% of UK workers are in occupations with tasks AI could perform or enhance, above the US average; a one-standard-deviation rise in exposure was associated with a 3.9% fall in UK job postings.

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<https://www.careerguard.ai/sources>

§ 12 APPENDIX

Method and sources

Each report was written from a large body of published research. The exposure score itself is computed, not written: it is the CareerGuard Exposure Index, a weighted average of occupation-level measures from the US Bureau of Labor Statistics (AI-exposure classification and 2025–35 projections), Microsoft Research (AI applicability scores) and Anthropic (observed exposure), together with the adoption rating published on the report. The organisations and publications below are the standing literature behind the narrative sections. Every source, with dates, licences and archived copies where we are permitted to hold them, is catalogued in the research library.

Exposure Index v2 (October 2026). Each input is scaled to 0–100 and weighted: task applicability 35% (Microsoft AI applicability score ÷ 0.5), observed usage 20% (Anthropic observed exposure ÷ 0.75), official exposure tier 20% (BLS very high = 100, high = 70, moderate = 40, low = 10), labour-market trajectory 10% ($50 - 2.5 \times \text{projected \% employment change}$), published adoption rating 15% (very high = 85, high = 70, medium-high = 55, medium = 40, low-medium = 25, low = 10). Inputs not measured for an occupation are dropped and the remaining weights renormalised. An editorial adjustment of at most ± 12 points is allowed only for automation channels the measures cannot see (robotics, self-service, machine vision, medical imaging, RPA/OCR, generative video) and is always logged with its reason. Scores are whole numbers, not rounded to five. The change window shifts one notch (a year at each end) per ten points of movement.

I GLOBAL AND MACROECONOMIC IMPACT OF AI ON WORK

World Economic Forum

The Future of Jobs Report series — Employer survey of expected job growth and decline, skill shifts and technology adoption (2020, 2023 and 2025 editions); *Artificial Intelligence and the Future of Entry-Level Work* (2026).

AI governance and transformation reports — Frameworks on ethical AI, talent strategy and industry transformation.

McKinsey Global Institute

AI, Automation and the Future of Work series — Research quantifying automation potential by task, sector and demographic, from "Jobs Lost, Jobs Gained" to "Agents, robots, and us" (2025).

Industry-specific reports — Financial services, healthcare, manufacturing and others.

PwC

Global AI Jobs Barometer — Annual analysis of job postings and productivity by AI exposure (2024–2026 editions).

Upskilling Hopes and Fears survey — Employee perceptions and readiness.

Microsoft Research and Anthropic

Working with AI (2025); *Anthropic Economic Index* (2025–2026) — Occupation-level usage data from Copilot and Claude conversations, the two observed-usage measures behind the 2026 revision.

Stanford Digital Economy Lab and Stanford HAI

Canaries in the Coal Mine? (2025–2026); *AI Index Report (annual)* — Payroll evidence on early-career employment in exposed occupations; annual measurement of AI capability, investment and adoption.

Deloitte

Human Capital Trends series — Workforce, talent and HR technology trends.

Tech Trends series — Emerging technologies and their business implications.

Accenture

Technology Vision series — Forward-looking analysis of emerging technology, with emphasis on AI.
Fjord Trends — Design, innovation and human experience in a digital world.

Boston Consulting Group

AI/ML insights and industry solutions — "The AI Revolution in the Workplace" and related research.

EY

AI and workforce reports — Adoption, talent strategy and ethics.

IBM Institute for Business Value

AI and automation studies — Business models, workforce evolution and leadership.

OECD

AI Policy Observatory — International data and policy on AI, labour markets and skills.
Employment Outlook — Labour-market trends including technological impact (2023–2026 editions).

International Labour Organization

Generative AI and Jobs: A Refined Global Index of Occupational Exposure (2025) — Task-level exposure gradients for every ISCO occupation; successor to the 2023 global index.

International Monetary Fund

Staff Discussion Notes on AI and work (2024, 2026) — Complementarity framing: where AI augments and where it substitutes.

UK Department for Science, Innovation and Technology

Assessment of AI capabilities and the impact on the UK labour market (2026) — UK occupational exposure and job-posting evidence.

Brookings Institution

AI and automation research — Economic and social implications, displacement and skills.

Yale Budget Lab and Goldman Sachs Research

Tracking the Impact of AI on the Labor Market; AI and the US labour market (2026) — Aggregate labour-market monitoring; macro displacement estimates.

Oxford University (Oxford Martin School)

The Future of Employment — Frey & Osborne and subsequent research on susceptibility to automation.

MIT Technology Review

AI & Work — Reporting on AI research and its implications for industries and jobs.

Gartner

Hype Cycle for Artificial Intelligence — Maturity and adoption of AI technologies.
Future of Work reports — Workplace models and talent strategy.

U.S. Bureau of Labor Statistics

Employment Projections 2025–35; AI Exposure Categories; Occupational Outlook Handbook — Ten-year employment projections and, from the 2025 cycle, an AI-exposure tier for every detailed occupation.

Indeed Hiring Lab

AI at Work Report (2025) and posting-market updates — Skill-level transformation estimates and job-posting trends by occupation.

II CORE AI AND MACHINE-LEARNING RESEARCH

OpenAI

Research papers, blog and API documentation — Large language models, generative AI, safety and societal impact.

Google DeepMind

Research papers and blog — Reinforcement learning, AI for science, AGI and ethics.

Meta AI

Research papers and blog — Large language models, computer vision, AI for social good.

Hugging Face

Transformers library and model hub — Open-source state-of-the-art NLP models.

TensorFlow and PyTorch

Documentation and community forums — Core frameworks illustrating practical capability.

arXiv

cs.AI, cs.LG, cs.CV, cs.CL — Pre-print research.

NeurIPS and ICML

Conference proceedings — Top-tier academic research.

ACM and IEEE

Journals and proceedings — ACM Computing Surveys; IEEE Transactions on AI.

Kaggle

Datasets and competition solutions — Applied machine learning on real-world problems.

The Alan Turing Institute

Research and reports — Responsible and applied AI.

III ETHICAL AND RESPONSIBLE AI DEPLOYMENT

NIST

AI Risk Management Framework — Voluntary framework for managing AI risk.

European Commission

AI Act — Risk-tiered legal framework for AI.

Ethics Guidelines for Trustworthy AI — Principles for responsible development.

Partnership on AI

Research and best practice — Responsible AI development.

AI Now Institute

Annual reports — Social implications: power, inequality, rights.

ACM FAccT

Proceedings — Fairness, accountability and transparency.

Data & Society

Publications — Social implications of data-centric technology.

WIPO

Conversation on IP and AI — Intellectual-property implications of AI.

IEEE Global Initiative on Ethics of AI/IS

Ethically Aligned Design — Recommendations for ethical AI design.

Center for AI and Digital Policy

Policy briefs — Accountable AI policy.