

Information Security Analysts

AI profoundly augmenting threat detection, vulnerability management, and incident response.

EXPOSURE	WINDOW	ADOPTION TODAY	READING
50 Elevated exposure	3–7 yrs until change lands	High	The role is being reshaped. Exposure is the share of today's work AI can plausibly take on within the window.

§ 01WHAT IS HAPPENING

What is happening to information security analysts

Impact

AI tools are automating routine monitoring, identifying sophisticated cyber threats, streamlining vulnerability assessment, and enhancing incident response playbooks. This shifts Information Security Analysts' focus towards strategic defense, complex threat hunting, ethical oversight of AI systems, and proactive risk mitigation.

Risk

Significant augmentation; emphasis on strategic defense, advanced threat hunting, and AI tool validation.

The Information Security Analyst role will be heavily augmented by AI. AI will handle much of the high-volume log analysis, alert correlation, and initial threat identification. Analysts will need to become experts in leveraging AI tools, critically evaluating AI-generated insights, understanding the limitations and biases of security AI, and focusing on complex incident investigation, proactive defense strategies, and human-centric risk assessment. Ethical considerations of AI in surveillance and automated decision-making will be paramount.

Sector readiness

Rapid & Deep Integration

The cybersecurity sector is making substantial investments in AI for threat intelligence, security operations, and risk management. Given the high-stakes nature of cyber threats, integration is rapid and deep, with emphasis on validation, explainability, and compliance in critical security systems.

§ 02 POSITION

Where you stand

- i The Information Security Analyst role is at an inflection point, with AI profoundly transforming how cyber threats are detected, analyzed, and responded to.
- ii AI will automate routine monitoring, alert correlation, and initial incident response, freeing analysts for more complex threat hunting, strategic defense, and human-AI collaboration.
- iii Mastering AI tools, adapting to advanced security intelligence, and maintaining strong analytical and ethical judgment will be crucial for navigating the evolving cyber landscape and ensuring robust organizational security.

§ 03 ACTIONS

15 POINTS

What this means for you

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

- 01 **AI-Enhanced Threat Detection & Alert Correlation.** Information Security Analysts are leveraging AI systems to process vast amounts of security logs and events, automatically correlating alerts from disparate sources to identify sophisticated threats that human analysts might miss. This significantly reduces alert fatigue and speeds up initial threat identification.
- 02 **Automated Vulnerability Management & Prioritization.** Information Security Analysts are utilizing AI tools that scan systems for vulnerabilities, predict potential exploits, and prioritize patches based on real-world threat intelligence and asset criticality. This moves beyond simple scanning to proactive, risk-based vulnerability management.
- 03 **Intelligent Incident Response Automation.** Information Security Analysts will increasingly oversee AI-powered Security Orchestration, Automation, and Response (SOAR) platforms. These systems automate routine incident response playbooks, execute initial containment actions, and collect forensic data, allowing analysts to focus on complex decision-making and strategic recovery.
- 04 **Predictive Risk Assessment & Threat Modeling.** AI is enabling Information Security Analysts to move from reactive defense to proactive risk assessment. AI models analyze threat intelligence, asset configurations, and historical breach data to predict potential attack vectors and prioritize defensive measures before an incident occurs.
- 05 **AI-Powered Security Analytics & Threat Hunting.** Information Security Analysts are employing AI tools for deep security analytics and proactive threat hunting. AI can identify subtle anomalous behaviors across networks and endpoints that indicate advanced persistent threats (APTs) or insider threats, augmenting human intuition in complex investigations.

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- 06 **Automated Compliance & Audit Management.** AI systems are continuously monitoring security configurations and data access for compliance with regulatory standards (e.g., GDPR, HIPAA, PCI DSS). Information Security Analysts will oversee these systems, ensuring adherence, generating audit reports, and flagging potential non-compliance issues for remediation.
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- 07 **AI in Identity & Access Management (IAM).** Information Security Analysts are integrating AI into IAM solutions to detect anomalous user behavior, predict credential compromise, and automate access reviews. AI enhances security by identifying insider threats and suspicious login patterns more effectively than traditional methods.
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- 08 **Cloud Security Posture Management (CSPM) with AI.** With pervasive cloud adoption, Information Security Analysts are using AI-powered CSPM tools to continuously monitor cloud environments for misconfigurations, compliance violations, and vulnerabilities. AI provides automated remediation suggestions and risk prioritization for complex cloud infrastructures.
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- 09 **Ethical AI in Security & Bias Awareness.** Information Security Analysts will need to critically assess the ethical implications of AI tools in security (e.g., facial recognition, behavioral analytics). This involves understanding potential biases in AI outputs, ensuring data privacy, and upholding civil liberties while enhancing security.
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- 10 **Human-AI Teaming in Security Operations Centers (SOCs).** Information Security Analysts are operating in human-AI teams within SOCs. AI acts as an intelligent co-pilot, providing real-time threat intelligence, suggesting investigation paths, and automating initial responses, allowing human analysts to focus on nuanced judgment and complex cyber warfare.
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- 11 **AI for Threat Intelligence Fusion.** Information Security Analysts are leveraging AI to collect, analyze, and synthesize vast amounts of global cyber threat intelligence from diverse sources (e.g., dark web, open-source intelligence, malware analysis). AI helps identify emerging attack campaigns and TTPs (Tactics, Techniques, and Procedures) faster.
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- 12 **Automated Security Testing & Vulnerability Discovery.** AI tools are assisting in security testing, including automated penetration testing and fuzzing, to uncover vulnerabilities in applications and networks. Information Security Analysts are using these tools to identify weaknesses before attackers do, enhancing proactive defense.
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- 13 **Continuous Learning & Specialization.** The dynamic nature of cyber threats and AI advancements requires Information Security Analysts to continuously learn about new AI security tools, attack vectors, and defensive strategies. This means specializing in areas like AI security architecture, incident response, or threat intelligence.
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- 14 **AI-Assisted Security Architecture Design.** Information Security Analysts are collaborating with AI to design more robust and resilient security architectures. AI can analyze design proposals for potential weaknesses, recommend security controls, and model the impact of various threat scenarios on system integrity.
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- 15 **Data Governance & Privacy Enforcement with AI.** Information Security Analysts are involved in using AI tools to classify sensitive data, monitor data flows, and enforce privacy policies automatically. This helps ensure compliance with regulations like GDPR or CCPA and protects sensitive information from breaches.
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What is pushing this change

- 01

Increasing Volume & Sophistication of Cyber Threats. Cyber adversaries are constantly evolving their attack methods, requiring more sophisticated, AI-driven defenses.
- 02

Explosion of Security Data (Logs, Alerts, Threat Intel). Modern IT systems generate massive amounts of logs, alerts, and network traffic, overwhelming human analysis capabilities.
- 03

Shortage of Skilled Cybersecurity Professionals. There's a significant global shortage of experienced security analysts, driving the need for AI to augment existing workforces.
- 04

Demand for Proactive & Predictive Defense. Organizations want to prevent breaches before they occur, rather than just react to them, which AI can enable.
- 05

Rapid Cloud Adoption & Distributed Environments. Securing complex cloud and hybrid environments, with distributed data and users, requires AI for continuous monitoring and anomaly detection.
- 06

Regulatory Pressure & Compliance Demands. Governments and industries are imposing stricter data privacy and security regulations, driving investment in AI for compliance.
- 07

Advancements in AI/ML Algorithms. Breakthroughs in areas like deep learning and reinforcement learning enable AI to perform more complex security tasks.
- 08

Global Threat Landscape & Geopolitical Risks. Cyber threats are often global and state-sponsored, requiring intelligence analysis at scale, which AI can assist with.
- 09

Cost Reduction Pressures in IT/Security. Organizations seek to improve security posture and efficiency without a proportional increase in human headcount.
- 10

Digital Transformation Initiatives. Companies are digitizing more processes and data, expanding the attack surface and increasing the need for robust security.

Impact by sector

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

Security Operations Center (SOC) Analysts (Tier 1/2)	Heavy use of AI for alert triage, log analysis, threat correlation, and initial incident detection. Focus on complex investigations and human-AI teaming.
Vulnerability Management Specialists	AI for automated vulnerability scanning, prioritization based on exploitability, and patch management recommendations. Focus on strategic remediation and risk assessment.

Incident Response (IR) Analysts	AI for rapid forensic data collection, attack path analysis, and automated containment actions. Focus on complex investigation and recovery strategy.
Security Architects	AI for threat modeling, secure design pattern generation, and automated compliance checks during architectural reviews. Focus on strategic defense-in-depth.
GRC (Governance, Risk, Compliance) Analysts	AI for continuous compliance monitoring, policy enforcement, and risk assessment automation. Focus on strategic governance and regulatory interpretation.

Skills to build

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

- 01 **AI/ML Literacy & Data Science Fundamentals.** Understanding AI/ML concepts, their applications in cybersecurity, and ability to work with large datasets and interpret AI-driven insights from security tools.
- 02 **Advanced Analytical & Problem-Solving Skills.** Ability to analyze complex security incidents, identify root causes, and develop effective solutions, often leveraging AI-provided data.
- 03 **Cybersecurity Domain Expertise.** Deep knowledge of cyber threats, attack vectors, defensive strategies, and security frameworks (e.g., MITRE ATT&CK).
- 04 **Security Tool Proficiency (AI-enabled).** Proficiency in using AI-powered SIEM, EDR, SOAR, vulnerability management platforms, and other security tools.
- 05 **Ethical Judgment & AI Bias Detection.** Understanding potential biases in AI security algorithms, ensuring data privacy, and applying ethical principles in automated security decisions.
- 06 **Communication & Reporting.** Clearly articulating complex technical security findings, AI-driven insights, and remediation recommendations to technical and non-technical stakeholders.
- 07 **Threat Hunting & Proactive Defense.** Ability to proactively search for undetected threats in networks and systems using AI-driven analytics and threat intelligence.
- 08 **Adaptability & Continuous Learning.** Willingness to learn new AI technologies, adapt security workflows to evolving threats, and stay updated on the rapidly changing cybersecurity landscape.

Tools in use

KINDS OF TOOL WORTH KNOWING

- 01

SIEM/XDR (Security Information & Event Management/Extended Detection & Response) with AI. Platforms that aggregate security logs and alerts from across the IT environment and use AI/ML to detect advanced threats and anomalies.
- 02

SOAR (Security Orchestration, Automation, & Response) Platforms. Software that automates security workflows, orchestrates security tools, and automates incident response playbooks.
- 03

Vulnerability Management Platforms with AI. Platforms that use AI to automate vulnerability scanning, prioritize remediation, and predict exploitability based on threat data.
- 04

Cloud Security Posture Management (CSPM) with AI. Tools that use AI to continuously monitor cloud environments for misconfigurations, compliance violations, and security risks.
- 05

Threat Intelligence Platforms with AI. Platforms that collect, analyze, and disseminate cyber threat intelligence, leveraging AI to identify emerging threats and TTPs.
- 06

Generative AI for Security Documentation/Scripting. Large Language Models (LLMs) used to assist in drafting security policies, incident reports, penetration test summaries, or security scripts.

NAMED TOOLS ALREADY IN USE

- Splunk Enterprise Security (with UBA) / Microsoft Sentinel / CrowdStrike Falcon Insight XDR**

VISIT

Leading SIEM and XDR platforms that integrate AI for user behavior analytics (UBA), anomaly detection, and automated threat investigation.
- Palo Alto Networks Cortex XSOAR / Splunk SOAR (Phantom) / Swimlane**

VISIT

Comprehensive platforms that automate and orchestrate security workflows, enabling faster and more consistent incident response.
- Tenable.io (with Lumin) / Qualys (Cloud Platform)**

VISIT

Leading vulnerability management platforms that use AI to prioritize vulnerabilities based on risk and exploitability.
- Palo Alto Networks Prisma Cloud / Wiz / Lacework**

VISIT

Cloud-native security platforms that leverage AI for continuous monitoring, risk assessment, and compliance enforcement across cloud environments.
- Recorded Future / Mandiant Threat Intelligence (with AI)**

VISIT

Prominent threat intelligence platforms that use AI/ML to analyze vast amounts of open-source and proprietary threat data.
- ChatGPT / Google Gemini (for security-related text/scripting)**

VISIT

Generative AI models that can assist security analysts in drafting security reports, policies, code for scripts, or summarizing complex threat intelligence.

In practice

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

Automate Alert Triage in a SOC EXAMPLE 1	HOW Implement an AI-driven SIEM system that automatically correlates security alerts from various sources (endpoints, networks, cloud). The AI filters out noise, identifies true positives, and prioritizes critical alerts for the Information Security Analyst to investigate. GAIN Reduces alert fatigue, increases the accuracy of threat identification, and speeds up the initial stages of incident response.
Proactively Hunt for Undetected Threats EXAMPLE 2	HOW Utilize an AI-powered security analytics platform that learns normal network and user behavior. The Information Security Analyst uses this AI to identify subtle anomalies (e.g., unusual data access patterns, lateral movement) that might indicate an advanced persistent threat, enabling proactive threat hunting. GAIN Enables proactive defense, uncovers sophisticated attacks that bypass traditional security measures, and strengthens overall security posture.
Streamline Vulnerability Prioritization EXAMPLE 3	HOW Deploy an AI-enhanced vulnerability management platform. The AI automatically scans assets for known vulnerabilities, then prioritizes them based on exploitability, real-world threat intelligence, and the criticality of the affected system, guiding the Information Security Analyst on remediation efforts. GAIN Optimizes remediation efforts, ensures critical vulnerabilities are addressed first, and significantly reduces the organization's attack surface.
Automate Incident Response Playbooks EXAMPLE 4	HOW Configure a SOAR (Security Orchestration, Automation, and Response) platform with AI. When a specific type of security incident (e.g., phishing attempt) is detected, the AI automatically executes an initial response playbook, isolating affected systems, collecting forensic data, and notifying the Information Security Analyst. GAIN Speeds up incident containment, ensures consistent response actions, reduces manual workload, and allows analysts to focus on complex investigation and recovery.

Enhance Threat Intelligence Gathering EXAMPLE 5	HOW	Employ an AI-powered threat intelligence platform that continuously scrapes the dark web, underground forums, and open-source intelligence. The AI identifies emerging attack campaigns, new malware variants, and attacker TTPs, providing the Information Security Analyst with actionable, real-time threat insights.
	GAIN	Provides timely and comprehensive insights into the evolving threat landscape, enabling the Information Security Analyst to implement more effective defensive strategies.

§ 09

CONTEXT

How this role compares

Three neighbouring roles chosen to show the direction of travel.

Tier 1 SOC Analysts (Alert Triage) / Basic Compliance Auditors (Checklist-based) MORE EXPOSED	AI IMPACT	Very High (AI excels at high-volume alert correlation, initial triage, and automated checklist validation.)
	WORK MOVES TO	Role redefinition towards overseeing AI systems, handling complex escalations, or specializing in more nuanced aspects of threat analysis or compliance.
AI/ML Security Researchers / Cyber Threat Intelligence Specialists DIFFERENT SKILLS, GROWING	AI IMPACT	Foundational (They develop the core AI algorithms for threat detection or specialize in advanced AI-driven threat intelligence.)
	WORK MOVES TO	Deep expertise in AI/ML algorithms, cybersecurity research, data science, and advanced threat intelligence analysis.
Chief Information Security Officers (CISOs) / Security Strategists COMPLEMENTARY, LESS EXPOSED	AI IMPACT	High Strategic Dependence & Augmentation (Leverage AI-driven insights for overall security strategy, risk appetite, and budget allocation), but core leadership, executive decision-making, and organizational culture remain human.
	WORK MOVES TO	Overall cybersecurity strategy, risk governance, incident communication, executive leadership, and fostering a security-aware culture.

§ 10

VERDICT

Closing judgement

For Information Security Analysts, AI is not a replacement but a powerful force multiplier that will redefine their critical role. It automates the routine and amplifies their ability to detect, analyze, and respond to increasingly sophisticated cyber threats. The future analyst will be a master of human-AI teaming, blending their invaluable judgment, critical thinking, and strategic defense skills with AI's analytical power to ensure the most robust cybersecurity posture.

§ 11 BASIS

REVISED 4 OCTOBER 2026

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

45 to 50

WINDOW

3-7 years (unchanged)

The 4 October 2026 review moved the score up by 5 points.

Microsoft's AI applicability score for the matching occupation is 0.22, in the upper half of 785 US occupations; Anthropic's observed exposure (the share of the occupation's tasks already being done with Claude) is 0.49, which is heavy by the standards of the 756 occupations measured; the US Bureau of Labor Statistics places it in the 'very high' AI-exposure tier; BLS projects employment to grow 21.0% over 2025–35. Blending our 2025 editorial figure (60%) with the 2026 evidence composite (40%) moves the score from 45 to 50.

MEASURES BEHIND THE SCORE

US Bureau of Labor Statistics · *Employment Projections 2025–35 and AI Exposure Categories* (27 August 2026)

AI-exposure tier: Very high. Projected employment change 2025–35: +21.0%. Matched to Information security analysts.

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Microsoft Research · *Working with AI: Measuring the Applicability of Generative AI to Occupations* (10 July 2025)

AI applicability score 0.22 (percentile 74 of 785 occupations) for SOC 15-1212.

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Anthropic · *Anthropic Economic Index report: Cadences* (26 June 2026)

Observed exposure 0.49 for SOC 15-1212 (percentile 99 of 756 occupations).

PUBLISHER PDF

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>

Method and sources

Each report was written from a large body of published research and then, in October 2026, re-scored against occupation-level evidence: the US Bureau of Labor Statistics AI-exposure classification and 2025–35 projections, Microsoft Research's AI applicability scores and Anthropic's observed-exposure data, cross-checked against the reports listed in the Evidence section above. 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.

Scores are revised by blending the previous editorial figure (60%) with a composite of the three occupation-level measures (40%), capped at fifteen points per revision and rounded to the nearest five. The window shifts one notch when a score moves ten points or more. Hand adjustments are recorded with their reason in the revision log.

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.