



POSITION STATEMENT

Auditing of Automated Decision Systems

Adopted by the IEEE-USA

Board of Directors (February 2024)

IEEE-USA emphasizes the need for immediate legislative action to establish robust auditing protocols for automated decision-making systems (ADS)ⁱ, with varying degrees of human oversight or intervention. This urgency is particularly relevant as Americans increasingly engage with ADS that can have significant impacts on their rights. It is imperative such systems are not only reliable and trustworthy, but also demonstrably fair and equitable. Further, AI developers and deployers should be assured of a leveled playing field in an environment with transparent and well-established rules. Such rules include having access to clearly defined audit criteria and processes. These measures should balance societal risks and the need for innovation, while simultaneously safeguarding the confidentiality of proprietary competitive information.

IEEE-USA RECOMMENDATIONS:

A. ESTABLISH AN INSTITUTIONAL STRUCTURE FOR AI AUDIT OVERSIGHT

PROMOTE PUBLIC TRUST AND SAFETY. ADS operating in high-risk domainsⁱⁱ (e.g., welfare, housing, healthcare, employment, finance, education, critical infrastructure, etc.) can provide essential life-altering and life-sustaining services, while also protecting human safety, rights and dignity. However, these systems have been known to encode historic biases and produce unfair outcomes. Verifying that these systems are performing in accordance with U.S. laws and regulations requires rigorous auditing; the benefits of which build and maintain public trust and safety.

PROVIDE CLEAR GUIDELINES WHICH ENABLE FAIR COMPETITION. ADS developers choosing to conduct business in a high-risk domain, must adhere to the laws and regulations governing these sectors. Standards, such as those developed by IEEE, are designed to inform laws that help to create a leveled playing field for competition. For instance, these guidelines can shape governance practices and set up liability guardrails across the industry, making the competitive playing field more equitable for all.

1. **Establish an ADS Audit Ecosystem:** The USG must establish an ecosystem comprising various agencies, actors, and accountable parties to ensure that ADS in high-risk domains are compliant and maintain public trust. The USG must ensure each player performs their respective roles, in concert with the entire ecosystem. The ecosystem includes, but is not limited to:

- a. Domain-specific regulations and corresponding ADS audit criteria.
- b. Criteria for assessing the societal legitimacy of ADS.
- c. Risk-based approach for prioritizing auditing activities, focusing on ADS -- with the highest potential impact on safety, rights, and public trust.
- d. Investigatory functions to examine infractions and violations.
- e. Standards and guidelines for ADS audit processes and procedures; authorizing private organizations to train and certify independent auditors and oversee certification program

- compliance; training government ADS auditors; and periodically updating and evaluating materials for effectiveness.
- f. Cross-section collaboration for understanding emerging issues and risks; refining auditing standards and practices; and tackling unique challenges that Small and Medium Enterprises (SMEs) face when auditing, due to resource constraints.
- g. Training and certifying organizations focused on domain-specific auditing criteria, processes, and procedures.
- h. Mechanisms for enhancing transparency of the auditing process and its outcomes for the public.
- i. Channels for collecting and integrating ADS user feedback.
- j. Cooperation with international parties working on ADS auditing.

2. **Establish a Sustainable ADS Auditor Network:**

- a. **Government ADS Auditors:** The USG must establish a base of government ADS auditors to conduct routine audits on high-risk ADS within government, as well as regulatory enforcement investigations on high-risk ADS within the private sector. Interdisciplinary teams should include technical experts and professionals from fields such as law, ethics, sociology, psychology, and other social sciences to comprehensively evaluate ADS from a sociotechnical perspective.
- b. **Independent ADS Auditors:** To protect consumers and build public trust, the USG must allow and enable external independent auditors to conduct routine audits of ADS, especially those that are high-risk and making critical decision. (e.g., conformance with NYC Law 144).
- c. **Government oversight of organizations that certify independent AI auditors:** The USG must issue “authorizations to operate” to private organizations that certify independent auditors and monitor their activities. In doing so, it must validate the quality of the certification program(s) and oversee the ongoing efficacy of the program(s). Specifically, the USG must verify that certification programs are domain relevant, include rigorous education and training on all elements identified in the recommendations herein, and require a proctored exam administered by an authorized certifying organization. Continuing education must also be required for an AI auditor to maintain current knowledge. In addition, the USG must monitor for unauthorized actors attempting to usurp the system.

B. ESTABLISH STANDARDIZED AUDIT PROCESSES AND CRITERIA

RELIABLE AUDIT OUTCOMES. Clear and transparent ADS audit criteria and processes enable auditors to follow predictable practices generating reliable and consistent audit reports. Trustworthiness in auditing practices and processes will ensure clear and concise failure points are identified within risky systems. Clear audit criteria will allow developers to establish governance mechanisms aligning with risk mitigation needs, while constant and reliable audit reports will allow developers to focus on curing the failure points the auditor identifies.

PREDICTABLE IP PROTECTION AND ENFORCEMENT. ADS audits not only foster public trust in new technologies, they can also protect intellectual property (IP) and trade secrets of developers through the use of non-disclosure agreements. This protection is vital in maintaining the integrity and competitive edge of ADS innovations. Moreover, well-defined enforcement measures are necessary to ensure fair competition among market players. These measures should be clear, enforceable and balanced to protect all involved stakeholders’ interests, maintaining a healthy and competitive AI industry landscape.

3. **Establish ADS Registration and Licensing Rules and Systems**

- a. **Registration:** The USG must require all public and private developers of high-risk and/or critical ADS to register their systems in a central, federally-hosted (USG provides technical and administrative support), publicly-accessible database. This registry must comprehensively identify the accountable party, core frontier models embedded in the system (if any), current algorithmic impact assessment, date of the most recent audit, the intended use(s) of the system, known misuses, prohibited uses, and adverse incident reporting contact information, at a minimum. This level of detail is essential to ensure transparency and accountability in the use of critical ADS systems. Similar to the device registration and listing for medical devices at the FDA, the USG can construct an open-access searchable database for high-risk ADS.
- b. **Licensing:** For ADS systems deemed as “red line” due to their high-stakes nature, such as facial recognition technologies used in public spaces, the USG must require a licensing regime to regulate the use of these systems in highly sensitive environments to ensure ethical use.

4. **Define expectations for audit processes.** The USG must establish clear and transparent guidelines that govern the exchange of information between auditors and auditees to ensure fair and trustworthy audit practices. Such guidelines should include provisions for non-disclosure agreements, defining the scope and methodologies of audits, protecting intellectual property, detailing the requirements for documentation, setting standards for certification validity, and establishing disclosure norms. Additionally, the guidelines should outline corrective measures for audit failures, including timelines for remediation and enforcement actions for repeated failures or non-compliance. These steps are critical in fostering fair and reliable auditing practices.

5. **Develop audit criteria by industry domain and use cases.** It is imperative that the USG develop clear, transparent, measurable, and achievable audit criteria relevant to each domain and use case (e.g., autonomous vehicles/geolocation privacy vs. fair housing/benefits determination), balancing society’s safety and rights-respecting needs with the implementation challenges developers face. The audit criteria should encompass a comprehensive range of different evaluations (e.g., pass/fail, etc.) across the AI lifecycle including but not limited to: ethical validity criteria (e.g., stakeholder engagement, risk identification and mitigation mapping, ethical choices verification, data representativeness and robustness, etc.); technical validity criteria (e.g., data traceability, model documentation, infrastructure reliability, etc.); statistical testing, evaluation, verification and validation criteria (e.g., over-fit/under-fit performance, 4/5ths test, performance consistency, etc.); and deployment validity criteria (e.g., adverse incident management system verification, legal compliance, drift monitoring verification, organizational management policy compliance, etc.)

These recommendations aim to establish a robust framework for the registration, licensing, and auditing of ADS systems thus ensuring these systems are used responsibly, ethically, and transparently while also being adaptable to the unique needs and challenges of different industry sectors and use cases.

ⁱ Automated decision system as defined by the **Algorithmic Accountability Act of 2023** is: “any system, software, or process (including one derived from machine learning, statistics, or other data processing or artificial intelligence techniques, and excluding passive computing infrastructure) that uses computation, the result of which serves as a basis for a decision or judgment.”

ⁱⁱ High risk domains are critical fields, defined in Executive Order (E.O.) 14110 on Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence in the following manner: “critical fields like healthcare, financial services, education, housing, law and transportation, where mistakes by, or misuses of, AI could harm patients, cost consumers or small businesses, or jeopardize safety or rights.”