

THE USE OF INTERPRETABILITY IN MACHINE LEARNING FOR REGULATORY COMPLIANCE

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ABSTRACT

As machine learning (ML) technologies proliferate across industries, the demand for regulatory compliance has intensified, particularly concerning the interpretability of these models. This abstract discusses the critical role of interpretability in machine learning as a cornerstone for ensuring adherence to regulatory frameworks. Interpretability enhances transparency by enabling stakeholders, including regulators, to understand the decision-making processes of complex ML algorithms. This understanding is crucial in sectors such as finance, healthcare, and legal systems, where decisions significantly impact individuals and communities.

The exploration of various interpretability techniques, such as local interpretable model-agnostic explanations (LIME) and Shapley additive explanations (SHAP), reveals their potential to demystify ML models, thereby facilitating trust and accountability. Moreover, incorporating interpretability into the ML development process not only aligns with regulatory standards but also fosters ethical AI practices by promoting fairness and reducing bias. As regulatory bodies increasingly mandate explainability in AI systems, organizations must adapt their ML practices to integrate interpretability as a fundamental principle.

This paper highlights the symbiotic relationship between interpretability and regulatory compliance, underscoring the necessity for organizations to embrace interpretability to navigate the evolving landscape of regulatory requirements effectively. By leveraging interpretability in machine learning, businesses can not only achieve compliance but also enhance user trust and improve decision-making processes, ultimately leading to more responsible AI deployment.

KEYWORDS: Machine Learning, Interpretability, Regulatory Compliance, Transparency, Explainability, Ethical AI, Decision-Making, Trust, Bias Reduction, Fairness, AI Standards, Accountability, LIME, SHAP, AI Deployment

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