

Abstract

# A New Approach to Detecting Deforestation †

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**Abstract:** Deforestation in coffee-growing regions has long been difficult to accurately detect at scale, hampering efforts to protect rainforests. Recent advances in satellite technology and machine learning, however, offer a solution. Our team has developed a more precise method to address these challenges, combining improved imagery with these machine learning tools to more effectively monitor deforestation related to coffee production. Our approach not only enhances precision but also provides a more consistent and transparent framework for reporting deforestation events within coffee supply chains. This innovation supports ongoing efforts to combat deforestation and reduce the environmental impact of the coffee industry, offering a new resource for both policymakers and organizations on the ground. Furthermore, this work signals the broader potential of applying machine learning to address systemic environmental challenges.

**Keywords:** deforestation; satellite imagery; machine learning; environmental monitoring; climate change; sustainable agriculture; supply chain transparency; regulatory compliance; land use change

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