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(54) Title: HYBRID MACHINE LEARNING MODEL FOR CODE CLASSIFICATION

(57) Abstract: An embodiment involves a hybrid machine learning classifier that uses a random forest of decision tree classifiers to predict a tariff code prefix, and uses a plurality of expert trees to predict a tariff code suffix from properties related to chemical components associated with the respective tariff code prefixes. The embodiment also involves: determining a proportion of a dominant chemical component in comparison to other chemical components in a new set of chemical components; calculating similarity scores for the new set of chemical components and words associated with the tariff code prefixes; generating a feature vector from the proportion and the similarity scores; and obtaining a predicted tariff code including a predicted tariff code prefix determined by applying the random forest to the feature vector, and a predicted tariff code suffix determined by traversing a particular expert tree in accordance with properties related to the new set of chemical components.