# Automatic Data Annotation And Self-Learning Methods For Adaptive Machine Learning Applications.

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## BRIEF DESCRIPTION

This technology introduces a novel method for automatic data annotation and generation, enhancing machine learning model accuracy and adaptability

## FULL DESCRIPTION

Researchers at UC Irvine have developed an innovative approach to automatically generate and annotate training datasets for machine learning (ML), focusing on improving model accuracy and adaptation to new situations. It leverages causal relationships between interacting entities to automatically select and label data samples in real-time, post-deployment. This method significantly reduces the labor and time costs associated with manual data annotation, facilitating continual learning and adaptation of ML models in dynamic environments.

## SUGGESTED USES

- Advanced driver assistance systems through automatic data generation.
- Autonomous driving, particularly in understanding driver yield intention and lane changing behaviors.
- Continual learning platforms for machine learning models across various fields.
- Integrated software and hardware platforms for enhancing AI applications with continual learning capabilities.
- Real-time decision-making systems in dynamic environments such as manufacturing, agriculture, IoT, Virtual/Mixed Reality, and autonomous navigation.

## ADVANTAGES

- Significantly reduces labor and time costs for data annotation.
- Improves machine learning model accuracy through enhanced dataset quality.
- Facilitates continual learning and model adaptation to new data without manual intervention.
- Leverages causal relationships for automatic data labeling, enabling better domain adaptation.
- Minimizes the need for large sets of manually labeled data.

## PATENT STATUS

Patent Pending

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## OTHER INFORMATION

## CATEGORIZED AS

- **Computer**
  - Software

## RELATED CASES

2024-931-0

## RELATED MATERIALS

» Y. Ren, A. Yen and G. Li, "A Self-Labeling Method for Adaptive Machine Learning by Interactive Causality" in IEEE Transactions on Artificial Intelligence, vol. 5, no. 05, pp. 2093-2102, 2024. doi: 10.1109/TAI.2023.3311782

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