



Machine learning for food security: current status, challenges, and future perspectives

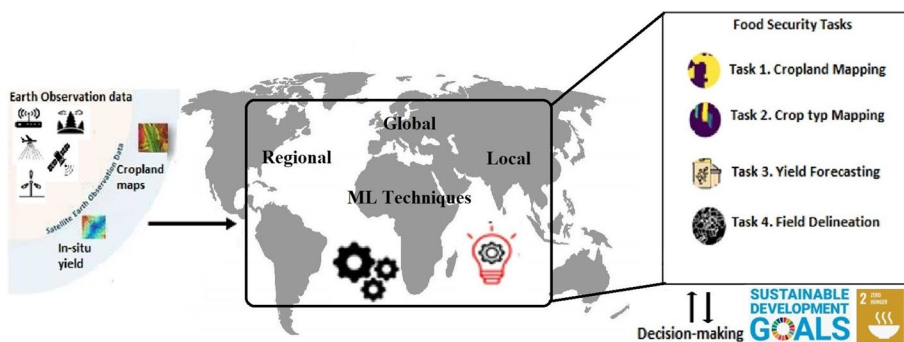
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Abstract

A significant amount of study has been conducted on food security forecasting, yet, few systematic reviews of the literature in this context are available. Recently, Machine Learning (ML) techniques have been widely applied to support food security using heterogeneous and complex data. The current manuscript exposes a systematic literature review to investigate various ML and Deep Learning (DL) models used in food security tasks (e.g. cropland mapping, crop type mapping, crop yield prediction and field delineation). This literature review identifies a clear end-to-end process of food security employing ML and DL models. Regular literature reviews and syntheses in food security are required to enable the researchers to expand on existing knowledge and identify key knowledge deficits and new research directions in this field. Eventually, it summarizes the challenges of using ML and DL in food security analysis in complex and heterogeneous data, computational analysis, evaluation challenges and future directions.

Graphical abstract



Keywords Machine learning · Deep learning · Data analytics · Food security · Heterogeneous data

Extended author information available on the last page of the article

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