

Identification of Nutritional Deficiency in Children Through Deep Learning Techniques

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Abstract: *The issue of malnutrition remains severe in many countries around the world, particularly in those that are still in the process of development. The authors did this study to compare three deep learning models—EfficientNet-e7, ShuffleNet, and a specially designed Convolutional Neural Network (CNN)—to see how well they can detect malnutrition from pictures of children's faces. The dataset used for training and validation is evaluated using various metrics, including accuracy, precision, recall, F1-score, and computational efficiency. The main conclusion is that while the EfficientNet-e7 model is the most accurate, the custom CNN performs similarly or even better in a more lightweight version. The primary objective of this study is to harness artificial intelligence to detect malnutrition in children accurately and early, which can expedite and enhance medical interventions. Index Terms—Child health, nutritional deficiency, deep learning, convolutional neural networks, EfficientNet, ShuffleNet, medical image analysis, malnutrition detection, machine learning in health care intervention..*

Keywords: Child health, nutritional deficiency, deep learning, convolutional neural networks, EfficientNet, ShuffleNet, medical image analysis, malnutrition detection, machine learning in healthcare

