Classification of Toddler Nutritional Status Using Radial Basis Function Neural Network

Dharaka Pranamya Mahadhika Damar[1], Siti Sa'adah[2], Gia Septiana Wulandari[3]

[1,2,3]Fakultas Informatika, Universitas Telkom, Bandung
[1]dharakamd@student.telkomuniversity.ac.id, [2]sitisaadah@telkomuniversity.ac.id,
[3]giaseptiana@telkomuniversity.ac.id

Abstract Nutritional status is one of the toddlers' health indicators. Parents without knowledge about toddlers' nutritional status might cause negative outcomes for toddlers' nutrition. Toddlers with bad nutrition might have negative effects on their bodies. Hence, it is necessary to observe toddlers' nutritional status, which can be done by using three anthropometric measurements: weight for age (WFA), height for age (HFA), and weight for height (WFH). A data distribution index is needed for the measurement process, but parents cannot have it. Therefore, a personalization system implementation using machine learning classification was needed to provide the measurement to make it convenient to find out toddlers' nutritional status. This research's objective is to classify toddlers' nutritional status based on three anthropometric indexes measurement using the Radial Basis Function (RBF) Neural Network algorithm. The classification model's performance was tested using different layers and epochs parameters to discover and obtain the highest accuracy. The highest accuracy in the WFA index obtained was 91.58%, with layers used 36 and epochs used 2000 and 2200. The highest accuracy in the HFA index was obtained 92.11%, where 144 layers and 2000 epochs are used. The highest accuracy in the WFH index obtained was 90.00% with 108 layers and 2400 or 2600 epochs. The result shows that the RBF classification is able to classify toddlers' nutritional status with anthropometric indexes with range accuracy from 90% to 92%.

Keywords: Nutritional status, anthropometric, machine learning, classification, radial basis function

---