

Editorial

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Machine Learning perspectives

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How to cite this article: Fujita H. Machine Learning perspectives. *J Smart Environ Green Comput* 2023;3:1-2.
<https://dx.doi.org/10.20517/jsegc.2023.01>

Received: 9 Jan 2023 **Accepted:** 1 Feb 2023 **Published:** 8 Feb 2023

Academic Editor: Witold Pedrycz **Copy Editor:** Ke-Cui Yang **Production Editor:** Ke-Cui Yang

Training in Machine Learning is a crucial aspect that affects the credibility of the system in terms of performance and is employed for robust applications such as in healthcare systems. Machines or algorithms, in wide challengeable applications in security or vision or health care early predictions, learn from data. Nevertheless, in most cases, the extensive and unbalanced data and noise make it unreliable in prediction accuracy. Supervised machine learning is and was one of the aspects of providing artificial intelligence-based solutions. However, this is and was limited due to the difficulty of labeling big data and many crucial problems in weak relations and noise in data. Semi-supervised learning, for example, Multiview learning, could assist in solving these problems. In many published research, there are still problems in providing machine learning models that are unbiased and efficient in terms of robustness and resilience in data-driven systems. Multiclass classification still has problems in terms of clear definition in class classification, bias, imbalance and weak relations, making machine learning for multiclass classification insecure for classification or regression analytics. This causes limitations in applying such technology in medical applications and diagnosis prediction. In my lab research group, we have tackled these problems in a one-class classification project. These are related to providing more robust accuracy prediction with some uncertainty that can help us have more accurate classification and prediction. We have applied such findings in health care for heart sickness and seizure early prediction like in <https://doi.org/10.1016/j.cmpb.2022.107277> and <https://doi.org/10.1016/j.cmpb.2021.106149>.



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We also have deep learning models, which also have challenges related to evidential deep learning and fairness relative to data. There are important issues in expanding research in evidential deep learning, in which uncertainty prediction of variational Auto encoders can provide decisions on evidential distribution, which in turn helps to provide a measure of uncertainty in decision.

We currently have a research project titled “Healthcare Risk Prediction on Data Streams Employing Cross Ensemble Deep Learning”, which is supported by Japan Science Promotion Society (JSPS). In this project, we have employed one-class classification deep neural network for health care prediction. For more references on such outcomes, please visit the web of science: <https://www.webofscience.com/wos/author/record/D-6249-2012>.

DECLARATIONS

Authors’ contributions

The author contributed solely to the article.

Availability of data and materials

Not applicable.

Financial support and sponsorship

None.

Conflicts of interest

Not applicable.

Ethical approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

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