DAT390, Monday, 27th November 2023

15.10 Razieh Kaveh

Classification confidence visualization of ANNs with adversarial robustness

Feedback by: Julie Overrein and Suhail Rauf

Classification confidence visualization [...] helps us understand how sure a computer is about its predictions […] using visual tools like heatmaps to show which parts of the input data are crucial for [...] decisions [...]. We propose a bidirectional learning approach for neural networks that [...] can significantly improve the robustness of neural networks to noise and adversarial attacks, and it outperforms [...] deep belief networks and auto-encoders. We also introduce hybrid adversarial networks [...] that combine supervised and unsupervised learning […].

15.20 Trishaban Jegatheeswaran

Application of semi-supervised learning in the process industry

Feedback by: Eljar Alihosseinzadeh and Aydin Baris Ustun

This report examines the application of semi-supervised learning (SSL) in the process industry, focusing on […] quality control and operational efficiency in environments with large, partially labelled datasets. The study begins with a literature review on [...] particularly […] industrial settings. [...] The report discusses […] a semi-supervised learning model in a simulated process industry setting, comparing its performance against traditional methods. It also examines pseudo-labelling, a technique central to semi-supervised learning in data-limited scenarios.

15.30 Avnik Orbelians

Evaluating digital tools for welfare assessments of Atlantic salmon

Feedback by: Mahrin Tasfe and Bastian Undheim Øian

[...] study [...] of hyperspectral imaging in aquaculture, an integration of spectroscopy and imaging [...] surpassing the capabilities of traditional colour-based systems. The heightened spectral resolution is leveraged to assess the welfare of Atlantic salmon [...] to compare fish welfare assessments, encompassing human scores, machine learning-based lesion quantification in colour images, and hemorrhaging quantification through spectral analysis. Results are […] in progress.

15.40 Petter Bøe Hørtvedt

Laser disdrometers: Instrument characteristics and uncertainties

Feedback by: Asim Rasheed and Joel Yacob Teklemariam

Disdrometers are measurement instruments for precipitation. From sensory data on interruptions of a laser beam, optical transmission disdrometers can resolve individual droplets and their velocity, yielding data on the particle velocity and size distribution (PVSD). This work aims at improving the interpretation of the sensory data obtained by an Ott Parsivel^2 transmission disdrometer by using appropriate methods from data analysis and machine learning. That equipment is in use by NMBU's meteorologists.

15.50 David Ajaegbu

Data-driven approach for the prediction of power flexibility

Feedback by: Awo Arab and Sougata Bhattacharya

Supervised by Leo Rydin Gorjão. (There has been no material on this other than the title.)