Machine Learning Models and Meta Heuristic Algorithms for Intelligent Machining
(Code: t8dbi)

Goal:

Machine intelligence is deployed in manufacturing industries with integrating sensory devices, controllers, machine vision, and artificial intelligence. Artificial intelligence can be employed in any real time application to monitor and control the operations by taking the required decisions. Artificial Intelligence (AI) is a discipline where machines are trained to mimic the problem solving and decision-making capability of human beings, while Machine learning (ML) and deep learning (DL) are subsets of AI. The ultimate implementation method is to acquire the data through various sensors/devices and train the machine to understand the pattens of data, so that machines are capable of predicting or forecasting in response to the unseen data. It may help in reducing wastages in the production and increasing the profit consequently. ML approach can be applied in mechanical engineering industries to identify the root causes of a broad range of issues and solve for higher performance. After spread of the significance of Industry 4.0 and technological advancements over the industrialists, many notable research and product developments have been done in the past few years. This special session aims to bring researchers, engineers, scientists, and industrialists to show case the machine learning (ML) models pertaining to production system. The model could be related to prediction of tool condition, quality of the product, scheduling, 3D printing, molding, welding, foundry etc. Prospective authors are invited to share their research outcomes and challenges in integrating machine learning models in production system.

Topics:

- Machine learning model for machining of metals, alloys or composites
- Meta heuristic algorithm integration towards optimizing ML model performance.
- Meta based ML models.
- Manufacturing process control and optimization.
- Deep Learning model assisting the process control.
- Time series prediction model in production.
- Additive manufacturing of parts using ML models
- Weld quality maintenance

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