***Title:*** Fuzzy machine learning

***Abstract:*** The traditional machine learning models lack the ability to handle real-world uncertainty, provide interpretable models, and offer a robust mechanism to support dynamic environment. Fuzzy sets, fuzzy logic and fuzzy systems are well renowned for their capability to model uncertainty, enhance models' interpretability and offer an efficient and flexible way of representing data and navigating prediction models. Thus, the integration of machine learning and fuzzy techniques is prevailing and has gained great success in many areas. This special session aims to provide a forum for researchers to share the latest results in integrating fuzzy techniques and machine learning methods.

***Keywords:*** Fuzzy systems, fuzzy classification, machine learning, fuzzy trees, and fuzzy data processing.

***Rationale:*** The integration of machine learning and fuzzy techniques has gained great popularity in many areas resulting in fuzzy neural networks, fuzzy clustering, and fuzzy transfer learning. In this session, we aim to study the theories, models, algorithms and application of fuzzy machine learning and provide a platform to host novel ideas. The main topics of this special session include, but are not limited to, the following:

• Fuzzy technique-based feature selection and extraction

• Fuzzy rule-based knowledge representation in machine learning

• Fuzzy classification, fuzzy regression, and fuzzy clustering

• Fuzzy transfer learning

• Fuzzy concept drift

• Fuzzy neural networks to modelling complex problems

• Fuzzy support vector machine, fuzzy decision trees

• Fuzzy modelling for handling uncertainties in machine learning models

• Methods to improve models' interpretability using fuzzy techniques

• Methods to enhance models' robustness using fuzzy techniques

• Granular clustering, modelling and control

• Fuzzy techniques for aggregation, combination and information fusion in machine learning models

• Fuzzy machine learning based decision support

• Applications in transport, ICT, healthcare, business intelligence and more

***Related special sessions previously organised:*** "Fuzzy Machine Learning" in FUZZ-IEEE 2023, "Handling Uncertainty in Big Data by Fuzzy Systems" in FUZZ-IEEE 2022, 2021, and 2020. Accepted papers: 6-12 each year.

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***Expected number of submissions:*** 8-15 papers.