Intelligent Systems as Decision Support Systems

Advanced intelligent systems are constantly being improved to become more computationally efficient as well as more accurate. While they are capable of arriving at answers quickly by solving large cases and performing complex computations, there is still a lot of uncertainty in whether the answer that has been identified is the most optimal one. Additionally, a lot of AI-based solutions lack the encoding of prior knowledge or experience into them. While there is a lot of work taking place in order to interpret this information into the advanced systems, they are still not capable of representing the experience or prior knowledge that a human operator possesses.

The categories of AI/ML are still nascent in their development. This is the reason most intelligent systems are being developed to play supporting roles to human operators in control rooms in order to help them make the final decision with more visibility and awareness of the situations being faced by the power system. These decision support tools would still require human operators to assess, verify the results before finally making a decision based on the systems' recommendations. An example of such a decision support tool is described in [1]. This is a tool aimed at enhancing control centre operations by optimising advanced Power Flow Control (PFC) devices on the network. Here, new setpoints are calculated for the PFC devices which the results are then validated. However, the final decision on whether to apply the changes or not, is at the operator's discretion.

[1] Subramanian, M., Hayden, M., Rafferty, M., Esfandyari, A., Ali, F., Stamatiadis, D., . . . Kelly, A. (2022). Development of Innovative Power Flow Controller-compatible RTCA Decision Support Tools for Enhancing Control Centre Operations. *CIGRE.* Paris.