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Special Session on: **Deep learning based fault diagnosis and prognostics under varying model development resources**

Due to the fruitful achievements in computation intelligence and a great diversity of open-source fault diagnostic and prognostics datasets, vigorous development of deep learning (DL)-based fault diagnosis and prognostics has been witnessed in academia field. Notwithstanding, large-scale deployment of DL-based fault diagnosis and prognostics in industrial field is still in the infancy stage, for which an underlying bottleneck can be attributed to the high resource-consuming of DL model development. That is, massive condition monitoring data annotated with run-to-failure labels should be acquired under both the actual operating conditions and all possible failure modes to develop the DL models, and further to guarantee their prediction performance and generalization capacity.

In order to enhance the large-scale deployment of DL-based diagnosis and prognostics in industrial field, this special session aims to discuss recent advancements in the DL-based fault diagnosis and prognostics by leveraging varying resources for model development. The list of topics includes, but is not limited to:

- Collaborative fault diagnosis and prognostics
- Deep transfer learning based fault diagnosis and prognostics
- Physics-informed deep learning based fault diagnosis and prognostics
- Federated learning based fault diagnosis and prognostics
- Fault data generation under small sample scenario

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(8) Special Session on “Deep learning based fault diagnosis and prognostics under varying model development resources” Organized by Special Session Chairs Dr. Weiwen Peng (Sun Yat-sen University, China, Email: pengww3@mail.sysu.edu.cn), Dr. Cheng-Geng Huang (University of Electronic Science and Technology of China, China, Email: cheng-geng.huang@uestc.edu.cn), Dr. Jun Zhu (Northwestern Polytechnical University, China, Email: j.zhu@nwpu.edu.cn). Please indicate the title of the Special Session, if you submit to a Special Session.