

# A Time Series Vision Transformer for Fault Diagnosis: toward a Unified Model for Fault Diagnosis



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## Abstract

Recently, the transformer model (transformer) and its variants have achieved rapid development and good performance in natural language processing (NLP) and computer vision (CV) tasks. The transformer shows a unified model for deep learning-based computer vision. We argue whether the transformer model can be applied to industrial big data analysis. This talk will start by answering this question and propose TSViT, a method for time series industrial data analysis that integrates the convolution model (CNN) and the transformer model, and can extract the spatiotemporal characteristics of the data. The experimental results show that the TSViT model outperforms other methods. The further optimized transformer model is expected to be a unified model for industrial big data analysis.

## About the Speaker

Ph.D. Supervisor, Docent (Associate Professor), School of Information Technology and Electronic Engineering, University of Oulu, Finland, Ph.D. in Manufacturing Automation from Huazhong University of Science and Technology, China, and Ph.D. in Network Information Systems from the University of Oulu, Finland, Member of the Academic Committee of the International Intelligent Manufacturing Alliance, Guest Editors of IEEE Journal of Internet of Things, IEEE Transactions on Industrial Informatics, Former Professor of Algonquin College, Research fellows at University of Toronto, Carleton University, France INRIA and Finland VTT of ERCIM, Tsinghua University, Guest Professors of Huazhong University of Science and Technology, China, supervised and participated in more than 20 projects in China, EU, and Canada, led the multimedia-Internet of Things-cloud computing (MiTC) Lab, published more than 170+ papers on computer and network information systems (H-index 23) in renowned academic journals and conferences, established cooperative relationships with many universities in China, Europe, and Canada. Industrial experience includes being the Principal Engineer and General Manager at Fortune 500 companies in the fields of Cloud and Industrial Internet.