

—Special Section on Deep Learning Technologies : Architecture, Optimization,
Techniques, and Applications—

The IEICE Transactions on Information and Systems announces that it will publish a special section entitled “Deep Learning Technologies : Architecture, Optimization, Techniques, and Applications” in May 2023.

Deep learning techniques (e.g. neural network (NN), convolutional neural network (CNN), recurrent neural network (RNN), long short-term memory (LSTM) network, gate recurrent unit (GRU) network, etc.) have been popularly applied to data analyses and management. For instance, CNN and auto-encoder can be used to analyze the pattern recognition and extract the features of data in various applications (e.g. regression, classification, image recognition, etc.). Furthermore, the RNN, LSTM network and GRU network can be used to perform the time-series inference for chronology oriented data (e.g. speech data, weather data, transportation data, stock market data, etc.). In the application in transportation, the advanced driver assistance systems and autonomous cars have been developed based on deep learning techniques, which perform the forward collision warning, blind spot monitoring, lane departure warning, traffic sign recognition, traffic safety, infrastructure management and congestion, and so on. However, how to enhance the performance and efficiency of these deep learning techniques is one of the biggest challenges for implementing these real-time applications.

Furthermore, several optimization techniques (e.g. stochastic gradient descent (SGD), adaptive moment estimation (Adam), Nesterov-accelerated adaptive moment estimation (Nadam) algorithms, etc.) have been proposed to support deep learning algorithms for faster solution searching, e.g. the gradient descent method is a popular optimization technique to quickly seek the optimized weight sets and filters of CNN for image recognition. The hybrid approaches typical of mathematics in engineering and computer science such as the deep learning and optimization techniques can be investigated and developed to support a variety of data analyses and management.

1. Scope

This special section aims at timely dissemination of research in these areas. Possible topics include but are not limited to :

- Deep learning for data analyses
- Deep learning for data managements
- Deep learning for transportation
- Deep learning for geographical information systems
- Deep learning for financial technology
- Deep learning for bio-informatics
- Deep learning for business intelligence
- Deep learning for e-business, m-commerce, and social-commerce
- Deep learning for enterprise systems and supply chain integration
- Deep learning for Internet of things

2. Submission Instructions

- A manuscript should be prepared according to the guideline given in “The Information for Authors” (https://www.ieice.org/eng/shiori/mokuji_iss.html). We encourage the authors to use the IEICE Style File (<https://www.ieice.org/ftp/index-e.html>). The preferred length of the manuscript is 8 pages for a PAPER and 2 pages for a LETTER with the format determined by the IEICE Style File.
- Submit the manuscript through the IEICE Web site (https://review.ieice.org/regist/regist_baseinfo_e.aspx). Choose “[Special-DL] Deep Learning Technologies : Architecture, Optimization, Techniques, and Applications” in the menu of “Journal/Section” in the submission page. Do not choose “[Regular-ED] Information and Systems” or other special sections.
- Authors must agree to the “Copyright Transfer and Article Processing Charge Agreement” via electronic submission.
- Submission deadline of the manuscript is 01 April, 2022.

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* The standard period of 60 days between the notification (of conditional accept) and the second submission can be shortened according as the review schedule.

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