

Deep Learning Across Disciplines: From Trajectory Recognition to Image Classification, and from Stock Market Forecasting to Signal System Prediction



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Deep learning has emerged as a transformative technology that transcends traditional disciplinary boundaries. This paper explores the application of deep learning techniques across a diverse set of domains, from trajectory recognition to image classification, and extends to the realms of stock market forecasting and signal system prediction. We begin by discussing the foundational algorithms that enable trajectory extraction and analysis, highlighting their efficacy in real-world navigation and motion tracking scenarios. Subsequently, we delve into image classification, illustrating how convolutional neural networks have revolutionized the accuracy with which machines interpret visual data. In the financial sector, we examine the deployment of recurrent neural networks and other predictive models that leverage deep learning to forecast stock market trends, demonstrating their potential to outperform traditional econometric models. Lastly, the paper explores the use of deep learning in predicting signal system behaviors, crucial for communication technologies and automated control systems. Through comparative analysis and case studies, this paper demonstrates the versatility of deep learning frameworks and their profound impact on technological advancement across varied applications.

Biography:

Dayi Jin is an accomplished Algorithm Engineer and researcher with a strong background in electronic engineering and artificial intelligence from Stevens Institute of Technology, USA. Specializing in trajectory extraction, inertial measurement units, and gesture recognition technologies, Dayi has developed cutting-edge algorithms such as the deep learning networks HCR-net and the IF-ConvTransformer for human activity recognition. With extensive experience in image classification, stock market forecasting, and signal system prediction, Dayi has contributed significantly to the field of AI, presenting his work at international conferences. His expertise is complemented by a solid foundation in engineering from China.