DEEP LEARNING AND FINANCIAL ENGINEERING

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ABSTRACT

Traditional financial engineering based on mathematics has contributed significantly to the development of the field of derivatives. However, despite the efforts of numerous researchers, there are still too many critical unresolved issues. For example, except for a few simple statistical models, there is no evaluation formula for vanilla options. Therefore, practitioners in the financial industry still refrain from using statistically superior models because they cannot estimate the model parameters. In addition, many researchers have tried for decades to improve the speed of calculating the value of American options, but without success. There are many other unresolved problems, but it is a common opinion of the academic community that it is difficult to fundamentally resolve them using the existing mathematical approach. Surprisingly, however, it is increasingly revealed that many current challenges in financial engineering can be solved with the clever use of recent deep learning techniques.

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