

Modeling Patent Legal Value by Back Propagation Neural Network

賴以軒, 車慧中

Technology Management

Management

franky@chu.edu.tw

Abstract

This study aimed at the basis of patent law and proposed a valuation model for the monetary legal value of patents. The damage award of a patent infringement lawsuit was deemed to be the legal value of a patent. 65 Effective samples of infringement lawsuits were extracted from 4,289 patent related lawsuits in U.S. district courts of Delaware, California and Texas. 17 quantitative patent indicators were summarized to describe dimensions of a patent. 9 extracted factors were generated from the 17 patent indicators by Factor analysis. The multi-regression was applied to find the nonlinearity between the damage award and 9 extracted factors. 6 extracted factors which having higher influence to the damage award were thereby suggested via the multi-regression. The Back Propagation Neural Network was applied to construct the valuation model, wherein the 6 extracted factors were the inputs and the damage award was the output. The proposed valuation model was validated to have the predictive power by error analysis. It accommodated to value the possible damage award or to negotiate the settlement fee in disputing patent infringement lawsuits. It also contributed to patent transaction, patent licensing and hypothecation of intangible assets, etc.

Keyword : patent valuation, factor analysis, back propagation neural network