JEMIN.AI

AI Digital Twins for Risk Analysis

About Us

Jemin.ai make digital twins that model and understand the real world in fine detail, because we realize that everything and everyone is unique. Since 1988, our AI experts have been building digital twins of the real world using neural network Artificial Intelligence. This example is based on work we did for an emerging-markets investor.

Business Analysis

Some business contracts are riskier than others. By building a digital twin that not just estimates a contract's payoff, but also the uncertainty of the estimate, it is possible to quantify risk as well as return new contracts being considered, and to focus on low-risk sectors. The technique can be applied not just to investments but other contracts such as insurance, credit and mortgages.

Data Design

As with all digital twinning, the first task is to frame the question in a way that artificial intelligence can answer. This usually comes down to identifying how data can be broken down into comparable units and understanding what drives the differences between them. In a contract risk analysis, the comparable units are the contracts themselves. One or more performance measures are then assigned, usually the realized return, and driving factors such as deal size, market sector, political and economic factors. A data table is then designed with each row being a contract and the columns being performance measures and driving factors.

Data Sourcing

Data must be combined from various sources. Some, such as deal size and market sector, will be available in-house. Other data, such as political and economic factors, must be obtained from external sources.

Cleaning & Filling

Data is rarely clean on arrival. Some will be missing, but can be interpolated or even estimated as a digital twinning process in its own right. Data will also be subject to errors, noise and known exceptional circumstances. While artificial intelligence techniques can identify many exceptions, charting the data and eyeballing it is often the easiest solution.

Data Mapping

The last data pre-processing stage is mapping. Text data must be converted to categories. Highly skewed data must be squashed so it is more evenly distributed. Other data must be normalized to ensure the rows are directly comparable, for example absolute return to return per dollar invested.

Build Twin

Finally, the AI is ready to do its work. Our neural network algorithms, which we have perfected over three decades, excel at extracting insights from real-world data, no matter how ugly and ill-conditioned. Crucially for risk analysis, not just a digital twin of return is created, but also a triplet, the digital twin of uncertainty, which quantifies the contract risk.

Delivering Results

Once the digital twin is built, it can be interrogated: What is the risk associated with this new contract proposal? What is the typical risk associated with this type of sector or contract? Which contracts should have been low risk but weren't? The twin and triplet can be exported as a C++ or Excel function convenient analysis of new contracts.

Return on Investment

Typical duration	Daily rate	Total	Typical output	# of contracts	My RoI
10 days	$2K	$20K	Accurate risk model	_____	_____

Contact

jemin.ai 320 City Road, London EC1V 2NZ, UK
Sales: *Richard Hoptroff* email *rgh@jemin.ai* phone *+44 20 7127 0605*