Detailed Table of Contents

Online Portfolio Selection (OLPS) requires a careful mix of assets to minimize risk and maximize rewards over a trading episode. The stochastic, non-stationary aspect of the market makes decision-making very complex. Heuristic methods relying on historical returns were traditionally used to select assets that found a balance of risk and reward. However, improvements in modeling time series from Neural Networks led to new solutions. Deep Reinforcement Learning (DRL) has become a popular approach to solve this problem, but its methods rarely reach a consensus among publications. In other fields, solutions using non-Markovian state representations are frequent. Crafting rewards to improve agent learning is common but has effects on the resulting behaviors. The resulting processes are rarely compared to other recent State-of-the-Art solutions but to heuristic algorithms. The proliferation of approaches motivated us to benchmark them using traditional financial metrics, and evaluate their robustness over time and across market conditions. We aim to evaluate the contributions to measured performance from each method in market representation, policy learning and value estimation.

The widescale implementation of Emergency Remote Teaching during the pandemic has normalized the use of blended and online learning-tools in third-level education. However, many of these digital tools are not designed to achieve specific learning objectives, leading to mixed results reported by instructors and students. Although such tools aim to make the educational experience an active one for students, there is limited empirical data on their effectiveness on knowledge-acquisition and learning. These issues are more pronounced in some disciplines compared to others, and in this paper, we present an assessment of a newly-developed interactive application relevant to music-technology - a discipline that is traditionally reliant on campus-based, in-studio experiences. In a user-study comparing a traditional approach and the use of this interactive application to present the topic 'Noise Ratings' to undergraduates, results show significant improvements on questions in the "Understand" and "Application" taxonomy levels between pre- and post-time intervals.

LitP, is a new data-parallel programming model for .NET respectively C#. It has been designed specifically to run data-parallel calculations in a managed runtime system. It can be used to solve a wide range of problems. Programs are described in vectorized form, but abstract from low-level architectural details of the target hardware. This allows for a good compromise between simplicity and performance. The presented library currently targets GPUs and CPUs, but is in principle well suited to any kind of general purpose, parallel processing unit.

Microservices offer a shorter time-to-market by improving productivity with maximizing the automation of the software development lifecycle. However, when dealing with such systems, there are important design principles like their solidness and test coverage, which should be considered to be able to co-operate well in a distributed environment especially from the architecture level. However, for the provider of a service, it might be challenging to maintain the obligations needed by the consumer. Therefore, in this approach a form of agreement is written by the consumer of the service, which is called contract. In this paper, a language agnostic, no-code

The objective of e-health is to assist patients in improving health care through integrating a wireless body network, communication infrastructure, and hospital network. The patient monitoring system assists patients better understand their health daily. The mobility and dynamism offered by e-health services expose the health system to the risk of attacks and intrusions. However, securing patient information and confidentiality is essential to ensure quality care. Current research on security in e-health focuses on implementing authentication, encryption, and trust-based solutions for implanted and wearable medical devices. These solutions are often computationally expensive and challenging to implement on medical devices with limited resources. This paper proposes a novel intrusion detection system based on agent technology to protect patients' medical data. The proposed method detects network-level intrusions as well as anomalies in sensor data. Our model was experimented with by simulating a hospital network topology. Our simulation results demonstrate that we can achieve high detection accuracy.