

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 1 : Simulation - Wikipedia

*We consider , portfolios composed by stocks of the U.S. equity market, considering different scenarios in a simulation framework. Results indicate there is no clearly dominant risk measure. Despite this lack of dominance, including deviation terms consistently exhibits advantages regarding performance.*

Visualization of a direct numerical simulation model. Historically, simulations used in different fields developed largely independently, but 20th century studies of systems theory and cybernetics combined with spreading use of computers across all those fields have led to some unification and a more systematic view of the concept. Physical simulation refers to simulation in which physical objects are substituted for the real thing some circles [4] use the term for computer simulations modelling selected laws of physics , but this article does not. These physical objects are often chosen because they are smaller or cheaper than the actual object or system. Interactive simulation is a special kind of physical simulation, often referred to as a human in the loop simulation, in which physical simulations include human operators, such as in a flight simulator or a driving simulator. Continuous simulation is a simulation where time evolves continuously based on numerical integration of Differential Equations. Hybrid Simulation sometime Combined Simulation corresponds to a mix between Continuous and Discrete Event Simulation and results in integrating numerically the differential equations between two sequential events to reduce number of discontinuities [7] Stand Alone Simulation is a Simulation running on a single workstation by itself. Fidelity is broadly classified as 1 of 3 categories: Specific descriptions of fidelity levels are subject to interpretation but the following generalization can be made: Low " the minimum simulation required for a system to respond to accept inputs and provide outputs Medium " responds automatically to stimuli, with limited accuracy High " nearly indistinguishable or as close as possible to the real system Human in the loop simulations can include a computer simulation as a so-called synthetic environment. This was the best and fastest method to identify the failure cause. Computer simulation A computer simulation or "sim" is an attempt to model a real-life or hypothetical situation on a computer so that it can be studied to see how the system works. By changing variables in the simulation, predictions may be made about the behaviour of the system. It is a tool to virtually investigate the behaviour of the system under study. A good example of the usefulness of using computers to simulate can be found in the field of network traffic simulation. In such simulations, the model behaviour will change each simulation according to the set of initial parameters assumed for the environment. Traditionally, the formal modeling of systems has been via a mathematical model , which attempts to find analytical solutions enabling the prediction of the behaviour of the system from a set of parameters and initial conditions. Computer simulation is often used as an adjunct to, or substitution for, modeling systems for which simple closed form analytic solutions are not possible. There are many different types of computer simulation, the common feature they all share is the attempt to generate a sample of representative scenarios for a model in which a complete enumeration of all possible states would be prohibitive or impossible. Several software packages exist for running computer-based simulation modeling e. Monte Carlo simulation, stochastic modeling , multimethod modeling that makes all the modeling almost effortless. Modern usage of the term "computer simulation" may encompass virtually any computer-based representation. Computer science[ edit ] In computer science , simulation has some specialized meanings: Alan Turing used the term "simulation" to refer to what happens when a universal machine executes a state transition table in modern terminology, a computer runs a program that describes the state transitions, inputs and outputs of a subject discrete-state machine. Accordingly, in theoretical computer science the term simulation is a relation between state transition systems , useful in the study of operational semantics. Less theoretically, an interesting application of computer simulation is to simulate computers using computers. In computer architecture , a type of simulator, typically called an emulator , is often used to execute a program that has to run on some inconvenient type of computer for example, a newly designed computer that has not yet been built or an obsolete computer that is no longer

## DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

available , or in a tightly controlled testing environment see Computer architecture simulator and Platform virtualization. For example, simulators have been used to debug a microprogram or sometimes commercial application programs, before the program is downloaded to the target machine. Simulators may also be used to interpret fault trees , or test VLSI logic designs before they are constructed. Symbolic simulation uses variables to stand for unknown values. In the field of optimization , simulations of physical processes are often used in conjunction with evolutionary computation to optimize control strategies. Simulation in education and training[ edit ] Main article: Adaptive educational hypermedia Simulation is extensively used for educational purposes. It is frequently used by way of adaptive hypermedia. Simulation is often used in the training of civilian and military personnel. In such situations they will spend time learning valuable lessons in a "safe" virtual environment yet living a lifelike experience or at least it is the goal. Often the convenience is to permit mistakes during training for a safety-critical system. There is a distinction, though, between simulations used for training and Instructional simulation. Training simulations typically come in one of three categories: Constructive simulation is often referred to as "wargaming" since it bears some resemblance to table-top war games in which players command armies of soldiers and equipment that move around a board. In standardized tests , "live" simulations are sometimes called "high-fidelity", producing "samples of likely performance", as opposed to "low-fidelity", "pencil-and-paper" simulations producing only "signs of possible performance", [18] but the distinction between high, moderate and low fidelity remains relative, depending on the context of a particular comparison. Simulations in education are somewhat like training simulations. They focus on specific tasks. Normally, a user can create some sort of construction within the microworld that will behave in a way consistent with the concepts being modeled. Seymour Papert was one of the first to advocate the value of microworlds, and the Logo programming environment developed by Papert is one of the most famous microworlds. As another example, the Global Challenge Award online STEM learning web site uses microworld simulations to teach science concepts related to global warming and the future of energy. Project Management Simulation is increasingly used to train students and professionals in the art and science of project management. Using simulation for project management training improves learning retention and enhances the learning process. These may, for example, take the form of civics simulations, in which participants assume roles in a simulated society, or international relations simulations in which participants engage in negotiations, alliance formation, trade, diplomacy, and the use of force. Such simulations might be based on fictitious political systems, or be based on current or historical events. This is also called a Social media stresstest. In recent years, there has been increasing use of social simulations for staff training in aid and development agencies. The Carana simulation, for example, was first developed by the United Nations Development Programme , and is now used in a very revised form by the World Bank for training staff to deal with fragile and conflict-affected countries. Specifically, virtual firearms ranges have become the norm in most military training processes and there is a significant amount of data to suggest this is a useful tool for armed professionals. Virtual simulations allow users to interact with a virtual world. Virtual worlds operate on platforms of integrated software and hardware components. In this manner, the system can accept input from the user e. There is a wide variety of input hardware available to accept user input for virtual simulations. The following list briefly describes several of them: For example, if a user physically turns their head, the motion would be captured by the simulation hardware in some way and translated to a corresponding shift in view within the simulation. The systems may have sensors incorporated inside them to sense movements of different body parts e. Alternatively, these systems may have exterior tracking devices or marks that can be detected by external ultrasound, optical receivers or electromagnetic sensors. Internal inertial sensors are also available on some systems. The units may transmit data either wirelessly or through cables. Eye trackers can also be used to detect eye movements so that the system can determine precisely where a user is looking at any given instant. Physical controllers provide input to the simulation only through direct manipulation by the user. In virtual simulations, tactile feedback from physical controllers is highly desirable in a number of simulation environments. High fidelity instrumentation such as instrument panels in virtual aircraft cockpits

## DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

provides users with actual controls to raise the level of immersion. For example, pilots can use the actual global positioning system controls from the real device in a simulated cockpit to help them practice procedures with the actual device in the context of the integrated cockpit system. This form of interaction may be used either to interact with agents within the simulation e. Voice interaction presumably increases the level of immersion for the user. Users may use headsets with boom microphones, lapel microphones or the room may be equipped with strategically located microphones. Current research into user input systems[ edit ] Research in future input systems hold a great deal of promise for virtual simulations. Systems such as brainâ€™computer interfaces BCIs offer the ability to further increase the level of immersion for virtual simulation users. Using the BCI, the authors found that subjects were able to freely navigate the virtual environment with relatively minimal effort. It is possible that these types of systems will become standard input modalities in future virtual simulation systems. Virtual simulation output hardware[ edit ] There is a wide variety of output hardware available to deliver stimulus to users in virtual simulations. Visual displays provide the visual stimulus to the user. Stationary displays can vary from a conventional desktop display to degree wrap around screens to stereo three-dimensional screens. Wrap around screens are typically utilized in what is known as a cave automatic virtual environment CAVE. Stereo three-dimensional screens produce three-dimensional images either with or without special glassesâ€™depending on the design. Head-mounted displays HMDs have small displays that are mounted on headgear worn by the user. These systems are connected directly into the virtual simulation to provide the user with a more immersive experience. Weight, update rates and field of view are some of the key variables that differentiate HMDs. Naturally, heavier HMDs are undesirable as they cause fatigue over time. If the update rate is too slow, the system is unable to update the displays fast enough to correspond with a quick head turn by the user. Slower update rates tend to cause simulation sickness and disrupt the sense of immersion. Field of view or the angular extent of the world that is seen at a given moment field of view can vary from system to system and has been found to affect the users sense of immersion. Several different types of audio systems exist to help the user hear and localize sounds spatially. Special software can be used to produce 3D audio effects 3D audio to create the illusion that sound sources are placed within a defined three-dimensional space around the user. Stationary conventional speaker systems may be used provide dual or multi-channel surround sound. However, external speakers are not as effective as headphones in producing 3D audio effects. They also have the added advantages of masking real world noise and facilitate more effective 3D audio sound effects. These displays provide sense of touch to the user haptic technology. This type of output is sometimes referred to as force feedback. End effector displays can respond to users inputs with resistance and force. These displays provide a sense of motion to the user motion simulator. They often manifest as motion bases for virtual vehicle simulation such as driving simulators or flight simulators. Motion bases are fixed in place but use actuators to move the simulator in ways that can produce the sensations pitching, yawing or rolling.

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 2 : Compare Pathfinder Against Evacuation Simulation Software | Thunderhead Engineering

*dynamic simulation model to investigate the steady-state and dynamic performance of chillers operating with R22 and alternative refrigerants. Eighth International Refrigeration Conference at*

Building energy simulation models are imperative for the planning, optimisation, and energy performance prediction of buildings. Due to the high level of complexity involved in the process and the pervasiveness of large number of interdependent factors and constraints, as well as the need for advanced mathematical knowledge, achieving a truthful simulation of real-world building performance tends to be challenging. This challenge also lies in the limitation of present building energy simulation models to include occupant behaviours thoroughly. Most predictive models for building energy performance take occupants into account by prefixed values, deterministic scenarios, and predefined schedules. For this reason, it is important, when estimating the building energy performance, to take into account occupant behaviour. A need arises to predict energy performance with consideration to occupant behaviour. The research proposes a novel methodology based on a probabilistic model built on the basis of knowledge derived from occupant behaviour. Different machine learning algorithms are employed to predict different human actions i. This allows the inclusion of behavioural trends, patterns and their impact on energy consumption, which can be further employed as occupant behaviour-specific inputs into constructing the proposed predictive model. The predictive model is then used for co-simulating to predict building energy performance, which eventually leads to more accurate prediction of the building energy performance, thus minimising energy performance gap. The research is comprised of the following setups: This stage provides insights to the occupant-related parameters affecting energy performance identified through previously conducted research and case studies. The stage is summarised as follows: The output of this stage is the input for next stage in which the model will be built. Data will be will be acquired, which will be used to build the Knowledge Base. Selected educational buildings will be used as case study for our research. This stage can be summarised as follows: Advanced evaluation techniques will be employed to identify behavioural trends and patterns. Different machine learning algorithms are employed to predict different occupant behaviour markers. This allows the inclusion of the behavioural trends, and their impact on the energy consumption, which will be further employed as occupant behaviour-specific inputs into constructing the proposed predictive model. A probabilistic modelling tool to co-simulate current building energy simulation tools will be developed. Model is validated using the empirical data set from the case studies; the model is then tested and compared to the real case scenarios. The research attempts to provide quantifiable benefits in terms of energy savings. By providing more accurate predictions, studying different alternative design, and operation scenarios, optimized solutions and improved decisions can be made. This promotes energy efficiency in buildings and guide occupants to more responsible behaviour. Thus, a step towards meeting energy efficiency targets. By using machine learning techniques, we will be able to develop a tool that will quantify the impact of occupant behaviour on energy consumption, thus providing more accurate predictions and consequently, bridging the energy performance gap.

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 3 : EDEM Version Now Available

*HEDGING DERIVATIVES RISKS – A SIMULATION STUDY Abstract This paper undertakes a simulation study to investigate (a) the performance of alternative hedging strategies against various derivatives risks and (b) the impact of model misspecification on hedging performance.*

Evaluating Pathfinder Against Alternative Methods Introduction With so many evacuation simulation software tools on the market, it can be difficult to compare them, especially for those who have never used one. First, this paper will address the benefits of transitioning from hand calculations to software simulation for egress analysis. Following is an examination of how different tools can reduce project costs through time savings, improve analysis confidence, and enable professional visual results. Throughout the paper, we will use Pathfinder as an example. Pathfinder enables performance-based pedestrian movement, evacuation, and congestion studies through software-based simulation. Stadiums, hospitals, skyscrapers, aircraft, and other buildings can be analyzed to provide realistic visual results in a fraction of the time that manual computation requires. This cost-effective tool provides a faster time-to-results method for engineers to improve the confidence of their analysis and present a professional visual report. This method is widely accepted today and is included as an optional model in Pathfinder. Spreadsheet calculators have also been developed to speed up the time required. However, many engineers feel more confident with artificial intelligence models, like the Steering mode in Pathfinder, which performs individual occupant decisions in a dynamic environment. In , Erica Kuligowski and Richard Peacock completed an analysis of 30 evacuation models due to the overwhelming growth in software tools that had entered the market. At the time, the idea of using evacuation model simulation was still new and uncertain for many engineers. Evacuation calculations are increasingly becoming a part of performance-based analyses to assess the level of life safety provided in buildings. In some cases, engineers are using back-of-the-envelope hand calculations to assess life safety, and in others, evacuation models are being used. The occupants are assumed to be standing at the doorway to the stair on each floor as soon as the evacuation begins. The calculation focuses mainly on points of constriction throughout the building commonly the door to the outside and calculates the time for the occupants to flow past these points and to the outside. Pathfinder is chosen across the world as a leading tool for evacuation analyses, despite an overwhelming number of other models on the market. In this example, occupants on each of the five floors use the two stairways to exit the building. The floors are singular rooms and the stairways have a landing between each floor. The calculations involve determining the controlling components of the model, based on flow rate, and determining the time for occupants to move through them. This results in a Time savings for calculating this single instance of the example are limited since it is not very complex. However, if the Examples might include widening the doors to the stairways, reducing the load capacity of a floor, or designing additional stairways. Each of these proposed changes would need to be recalculated which increases the project time. This example is quite modest, yet stadium projects often exceed 50, occupants with complex routes of stairs, corridors, and aisles. Therefore any changes made to a larger project are going to significantly impact the amount of effort required to recalculate by hand. Confidence in hand calculations may falter as the complexity of the model rises unless special attention is paid to the assumptions made. In a theater model, occupants will have additional time to exit their seats and file into the aisles. Hospital analyses may require the implementation of assisted evacuation for disabled occupants. These situations present unique challenges, and also offer up many opportunities for human error. A miscalculation may be hard to detect if there is no way to compare with expected results. For this reason, it is important to visualize large models for a quick sanity check. Visual results are difficult with only hand calculations, as there are only a few values to draw conclusions from. The travel time for each section and flow rates through doors can only give a yes or no indication of whether the proposed design meets a total evacuation time requirement. These results do not explain why the design does or does not meet requirements via a demonstration of traffic movement. Densities

## DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

are only calculated at doorways and therefore it can be hard to understand congestion in corridors, stairwells, and corners. Without information on individual occupants, it is harder to determine different exit times of alternate routes. Statistics on individual speed or jam time become impossible. Compare the Important Criteria When considering multiple models, feature lists can list an exhaustive amount of information that is often difficult to compare. In the spirit of the previously shown model review, this section will highlight the fundamental design choices that allow a model to overcome the problems identified earlier. These areas can vary wildly between models and impact the capabilities most. Time savings from a simulation tool requires learning to be efficient, and understanding how to create or import a building model is one of the biggest obstacles. When creating 3D spaces, even users who are accustomed to other 3D CAD engineering tools are likely to find a few unfamiliar options. For example, creating negative space in Pathfinder allows users to define impassable areas in the navigation mesh simply by deleting sections of the floor. This saves time by reducing the amount of tools needed and the number of objects in the model. A convenient file format known as FBX is popular among many users due to its easy conversion from proprietary Autodesk formats and its retention of detailed texture information. Depending on the software product, the import process can be as simple as selecting the floors to be extracted with a 1-button tool, or it can include more complex management of objects. A concise Fundamentals guide should quickly educate the new user on how to achieve efficient usage of both creation and import tools. Users who want to tackle the more advanced concepts that a modern tool offers should seek training opportunities. Confidence in model algorithms comes from lauded researchers in the pedestrian planning and evacuation fields such as Dr. By studying their experimental results, developers can simulate their findings and create parameters which allow the user to make adjustments. One foundational example of model characteristics is the movement structure that occupants are placed on. Do they move in a chessboard-like fashion on a grid system, or are they able to freely flow on a continuous mesh? Visual results can alleviate the confusion clients often feel from the jargon of pedestrian planning. Creating a professional video is the most effective method to deliver clear and concise results. Movement is best understood visually, and a video can quickly pinpoint traffic problems or contaminant hazards. When providing fire safety consultation, additional information overlays may be desired. Pathfinder solves this problem by using contour plots for traffic and smoke values since the information is dynamic across time and space. The Thunderhead Stadium video is shown below, also on the Pathfinder main page, highlights some capabilities through the use of its video creation tools. The sweeping camera angles, occupant path visualization, textures, and occupant animations were all achieved using standard Pathfinder features. A demonstration video should compare similarly to a client presentation in the conference room. Ally with Your Software Vendor As with any software product, knowing how its company values a particular product among their portfolio should be considered. This section will compare how Thunderhead Engineering supports the Pathfinder community. Frequent maintenance is our commitment to Pathfinder, which has seen an average of 3 releases per year including major feature enhancements and maintenance bug fixes. Pathfinder has seen exponential growth since its introduction in We are constantly expanding our client list, and their successful projects and academic research are becoming more and more outstanding. Many already find Pathfinder to be the most valuable egress tool on the market, yet we have ambitions to grow its capability even further and continue this release cycle for years to come. Strong community relationships have built a growing network in the Pathfinder community, primarily achieved by showing up to the biggest conferences and events of the year. Our product managers and senior staff attend a variety of events including major annual SFPE conferences around the globe in addition to local chapter meetings. Additionally, we retain strong university connections by providing free academic licensing. All of this allows us to hear the demands of our audience while contributing education, awareness, and better tools. Effective support enables us to retain a large majority of our users. All software purchases include a service plan to speak to our support team and keep users moving forward. Additionally, our growing community continues to help each other by providing help alongside Pathfinder developers and instructors on our public forum. This is also a great way to see what other

## **DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES**

professionals and researchers are doing. For non-English speakers, Thunderhead Engineering has many certified partners around the world who provide translated versions of our software and support customers in their native language and time zone. Contact us with any questions or requests. **Discovering Valuable Features**  
After analyzing the big picture of pedestrian simulation, the next step is to compare more specific features. Pathfinder capabilities are continually expanding, so see the full details in our Features overview.

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 4 : Simulating Equity Prices - MATLAB & Simulink

*A simulation is an imitation of the operation of a real-world process or system. The act of simulating something first requires that a model be developed; this model represents the key characteristics, behaviors and functions of the selected physical or abstract system or process.*

The market for Performance Testing has evolved over time with some newcomers and also test tools that have been around for years and have been updating their features to rise up to the challenges of modern applications. One important note is that I am only going to list full-featured Performance testing tools that are used for End-to-End Load testing, Endurance validation and capacity planning of Enterprise-level applications. This only works on open websites that do not have authentication and do not need to be tested with complex Business processes test cases. This will be covered below. LoadRunner LoadRunner is the oldest and most mature performance test tool in the market, it has been around since , it really picked up on version 5 or 6 in This tool was originally created by Mercury Interactive, which was acquired by HP in Later in HP sold its software division to Micro-focus. LoadRunner is unique in that its core features are divided into 5 different software installations: It has a wide range of technologies and communication protocols that it can test, however it is not very well adjusted to modern technologies like Cloud computing. Some of its features are not matched by other competitors or not matched with the same level of quality, for example: Its Analysis and Detailed Report features. LoadRunner is able to cross-reference, overlap metrics, do comparisons, with metrics from servers resources and load tests results. It can create fairly detailed Word Document Reports that are as close to be ready to be send away as it gets. The ability to create complex test scenarios with groups of users starting at different times, ramping up independently. You can even make changes at run-time like increasing or decreasing the number of vusers on a specific script and know what each vuser is doing at a specific moment. It integrates well with SiteScope to monitor applications and HP Performance Center to schedule and pool resources to run multiple load tests in parallel. LoadRunner has the widest range of applications and protocols it can test. LoadRunner protocols are libraries with custom functions that make scripting to test these technologies somehow easier and it requires less figuring out stuff as it would be with JMeter or VS. Supports Windows, Mac and Linux. It takes less time to setup and get started than other alternatives, notably JMeter. It integrates with Jenkins for Continuous-release scenarios, however it is not a seamless integration. Recently, LoadRunner is also able to run JMeter, Selenium and Nunit scripts but it requires an interface library and some manual configuration. Limited scripting language support. Until it was Ansi-C only. After LoadRunner can also be scripted with JavaScript. Ansi-C is not a OOP language. Not only the software itself is costly, but the protocols web, citrix, SAP, etc. JMeter This tool by Apache has been around since and gained popularity throughout the s, taking market share from LoadRunner mainly because it is a free, open-source alternative that can be expensively customized. JMeter feels a bit dated because of its IDE and some of its features. Reporting is limited when compared to LoadRunner. This obviously attracts teams that want to save time and effort learning more than one tool. However it is also open-sourced and has very good community and industry support whom have extended and fixed bugs on it throughout the years. Compared to LoadRunner, there are no licenses for protocols or virtual users, you can simulate as many users as your infrastructure can handle. Very flexible, it runs on any OS that supports Java: Windows, Linux, Mac, etc. It has a drag and drop declarative view for scripts, you can make changes to each request in a dialog interface. This somehow compared favorably with LoadRunner, but this feature is also offered by other tools e. It is not the most user friendly tool, it is focused on the technology rather than making it easier to do things like defining an scenario based on business requirements or scaling the load. This can be improved with extensions created by the community and industry, these extensions are not free though. As mentioned before it has good support of third-party ALM tools. Some people advertise that scripting is not essential on JMeter, this may be true for simple Database or API testing but for long workflow based test cases on complex Web

## DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

applications that require correlations, parametrizations to handle logins, cookies, sessions, etc. Load Testing is embed into Visual Studio which makes it much more powerful than any other tool because it has access to VS features meant for developers such as line by line debugging, breakpoints, source control, collaboration, saving results to SQL, connections to databases, writing custom code, including external libraries, Nuget packages, creating extensions, customizing scenarios, management of cookies, sessions, etc. On that point, scaling is supported and easy to use and setup. You install an Agent software on the load generation machines and a Controller software to coordinate it all. Alternatively you can use their integrated cloud load generation feature which is very easy to use. This requires an Azure subscription and it does have an extra cost based on cores and virtual users minutes VUM , but you get a good amount of VUM with a free subscription. Very good integration with the Microsoft ALM tool stack: Reporting, results, tracking to requirements and builds can easily be managed in VSTS. It has a good monitoring and analysis features that overlap and compare metrics from any Windows machine to which it has access. You get any metric that is accessible to PerfMon. It has a simple enough IDE that makes easy visualizing scripts WebTests in a declarative way, make edits to it, do correlations and extractions in the IDE without doing any scripting. Recording works really well and auto-correlations for supported applications like SharePoint make your life much easier. For more complex scenarios, programming skills are needed but the Visual Studio IDE makes it easier when compared to other alternatives. If you already have Visual Studio Enterprise or an MSDN subscription, that is all you need, there is not a separate license for the Load Testing feature, for virtual users, extra protocols, etc. If you use your own-on premise hardware for scaling the load, you can simulate as many v-users as you need. The fact that it is part of Visual Studio makes it more powerful but also ties it a lot to developers. Also the fact that is not an standalone tool makes it a bit of an obscure feature that gets lost among the many features of Visual Studio. For this however, you would need programming skills and know what you are doing. It is a pretty popular LoadRunner competitor and has been gaining market in the last years. It integrates with a good number of third-party tools for monitoring like AppDynamics, Dynatrace and supports mobile and UI test scripts from Selenium and Perfecto. Integrates with Jenkins for DevOps processes. Supports C and JavaScript for scripting. It has a full-featured IDE that is easy to use and had solid auto-correlation and edition features. Supports load testing on-premises and cloud load generation unlike JMeter. Good customer support and documentation. It has a better integration with third-part tools than LoadRunner but this integration is to App Monitoring and UI testing tools rather than to ALM or Continuous Release scenarios, so tracking to requirements, builds and bugs is not easy to achieve. Silk Performer Originally created by Segue, acquired by Borland where it gained its most notoriety, it was acquired by Micro-Focus in Micro-Focus now has two of the top offering in the Load Testing market, the other on being LoadRunner. It is a tool very similar to LoadRunner in features but these are not at the same level on quality or maturity. It supports scaling the load thru load generators. Wide-range of protocols it supports: The main drawback is that it uses a proprietary scripting language which means that it has an initial learning curve. Editing scripts, correlations and parametrizations are not as straightforward than LoadRunner or other tools in this article. Price-wise, it is a proprietor tool with a hefty price tag that is similar but perhaps a bit lower than LoadRunner. Monitoring system resources is not as easy when compared to other tools, it is restricted to a set of defined counters. LoadRunner provides more monitoring features. It is one of the most recent robust tools in the market. Limited Protocols, lacks on Execution and monitoring. JMeter specializes in small companies with very limited budgets that want keep using a particular programming language and want to integrate with other open-source ALM tools. Do you need to align with a particular technology? The same if you need to align with IBM. If you are working in a cloud development. For Azure though, you may be better using Visual Studio since it provides the most benefits because of its integration to VS Team Services Or if your team want to align with open-source technologies like Jenkins, JMeter is the best pick. What type of application do you need to test? Load Testing Tools List. Retrieved from Software Testing Help:

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 5 : Imitation of Life: Phaco Simulators

*terms of three performance measures; i) resource utilization, ii) throughput, and iii) work in progress (WIP) have been compared in order to determine best routing alternative selection policy, corresponding dispatching policy, and identify the best combination of those two policies.*

Phaco Simulators Virtual reality simulators are assuming increasing importance in residency training. Here are two on the market today. Although cataract procedures are the most commonly performed ophthalmic surgeries, they demand uncommon motor control and concentration. According to a survey of American ophthalmology training programs, the mean number of cataract procedures residents performed while in training was Growing legal and ethical concerns surrounding the use of human patients as teaching cases, along with with reported increased costs in terms of experienced surgeon time and complication rates with resident-performed procedures,<sup>2</sup> are prompting interest in alternative surgical training models. Here is a look at two VR cataract surgery simulators: We set one up at our sister institution in Saudi Arabia. Sikder, who is also an unpaid advisor to ImmersiveTouch. The MicroVisTouch features a blunt-tip handpiece attached to a robotic arm. The virtual reality platform transforms the handpiece into whichever cataract instrument the trainee needs to perform a given surgical step during a simulated procedure. The MicroVisTouch can simulate the capsulorhexis, clear corneal incision and phacoemulsification steps of cataract surgery, and additional modules representing other steps are in the works. Sikder; trainees hold that blunt-tip instrument to simulate the appropriate instrument for whatever stage of surgery they are performing. In the VR immersion, the handpiece becomes a keratome, hook or forceps, for example, as the simulated procedure requires. But there are certain steps that do have tactile feedback. What we find in the operating room when training beginning residents is that they will often lose control of their instruments because that tension differential is so great. From that perspective, having the ability to train on a surgical simulator that allows that specific step to be practiced and finessed before going to the operating room is valuable. Its hardware consists of a model head on an adjustable table with a mechanical eye that is wired to a computer interface and a microscope. This setup allows the surgical trainee to assume a realistic posture. The Eyesi includes cataract surgical instruments and foot pedals. Entry into the eye generates a high-fidelity virtual image of the operative eye that is viewable through the microscope. Access can be superior or temporal. Trainees can practice independently anytime, since the Eyesi is touchscreen activated and users can log in and get started immediately. Trainees can practice the steps in a divide-and-conquer phaco, with the exception of suturing. The latest software update, Eyesi 3. The Eyesi platform can also be used with a vitreoretinal package for added flexibility. The Eyesi can play back simulated surgeries, allowing trainees to see what went right“or wrong. They also learn to work while looking through a microscope. It also enforces the habit of learning incrementally even if a mentor is not present. Use of the Eyesi has been shown in studies to correlate with real-life surgical skills in experienced cataract surgeons,<sup>4</sup> and one study<sup>5</sup> suggested that training with the Eyesi gave residents who trained on it shorter phaco times and fewer intraoperative complications in the OR. Hendershot observes that the skills acquired on the Eyesi carry over into real-life procedures. Sikder agrees with Dr. Hendershot that simulators deserve a place in the curriculum. Across a variety of medical and surgical specialties, simulator training has demonstrably increased trainee knowledge and skill, although the effects on patient outcomes are less marked. Simulators play a role, but in isolation they cannot really prepare you for the actual experience of performing surgery. I think the use of simulators in that way is the next step in surgeon education. Hendershot disclosed no financial interest in the products discussed in this article. Sikder has no financial interest, but disclosed her role as an unpaid advisor to ImmersiveTouch. Rowden A, Krishna R. Resident cataract surgery training in United States residency programs. J Cataract Refract Surg Update on simulation-based training and assessment in ophthalmology: Surgical simulators in cataract surgery training. Br J Ophthalmol High correlation between performance on a virtual-reality simulator and real-life cataract surgery. Acta Ophthalmol

## **DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES**

Sep Accessed 2 Feb Influence of surgery simulator training on ophthalmology resident phacoemulsification performance. Technology-enhanced simulation for health professions education: A systematic review and meta-analysis.

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 6 : Artificial Intelligence and building performance - UK Construction Online

*Modeling and Simulation of High Performance a successful entrance to the personal vehicle mass market as a viable alternative to the Some of the main features.*

D is a diagonal matrix with  $X_t$  along the diagonal. SP]; Convert daily prices to returns: Stochastic Differential Equation Dimensions: In other words, the sde object requires only two inputs: In this case, this information is insufficient to determine unambiguously the dimensionality of the state vector and Brownian motion. You resolve the dimensionality by specifying an initial state vector, `StartState`. Drift Rate Specification Rate: Diffusion Rate Specification Rate: Thus, the dimensionality is more easily resolved. This is in contrast to the sde object, which required an explicit state vector to uniquely determine the dimensionality of the problem. Once again, the class of each object is clearly identified, and parameters display like fields of a structure. In particular, the Rate parameter of drift and diffusion objects is identified as a callable function of time and state,  $F(t, X_t)$  and  $G(t, X_t)$ , respectively. The additional parameters, A, B, Alpha, and Sigma, are arrays of appropriate dimension, indicating static non-time-varying parameters. Constant Elasticity of Variance Dimensions: Generalized Geometric Brownian Motion Dimensions: However, all three objects represent the same multidimensional market model. Also, `cev` and `gbm` objects display the underlying parameter B derived from the `sdeld` object as `Return`. This is an intuitive name commonly associated with equity models. Each row of S is an observation of the state vector  $X_t$  at time t. Plot the simulated paths. Plot the first paths. Separable GBM models have two specific simulation methods: The details of a single index for any given trial show that the price paths of the Euler approximation and the exact solution are close, but not identical. The following plot illustrates the difference between the two methods: This simple approximation suffers from discretization error. This error can be attributed to the discrepancy between the choice of the  $dt$  time increment and what in theory is a continuous-time parameter. The discrete-time approximation improves as `DeltaTime` approaches zero. The Euler method is often the least accurate and most general method available. All models shipped in the simulation suite have this method. In contrast, the `simBySolution` method provides a more accurate description of the underlying model. This method simulates the price paths by an approximation of the closed-form solution of separable models. Specifically, it applies a Euler approach to a transformed process, which in general is not the exact solution to this GBM model. This is because the probability distributions of the simulated and true state vectors are identical only for piecewise constant parameters. When all model parameters are piecewise constant over each observation period, the simulated process is exact for the observation times at which the state vector is sampled. Since all parameters are constants in this example, `simBySolution` does indeed sample the exact solution. For an example of how to use `simBySolution` to optimize the accuracy of solutions, see `Optimizing Accuracy: About Solution Precision and Error`. Inducing Dependence and Correlation This example illustrates two techniques that induce dependence between individual elements of a state vector. It also illustrates the interaction between Sigma and Correlation. The first technique generates correlated Gaussian variates to form a Brownian motion process with dependent components. These components are then weighted by a diagonal volatility or exposure matrix Sigma. The second technique generates independent Gaussian variates to form a standard Brownian motion process, which is then weighted by the lower Cholesky factor of the desired covariance matrix. The market model to simulate is:

## Chapter 7 : What are the best Performance Testing Tools? â€“ Testing Spot

*The simulation model quantifies logistic and financial performances in various alternative logistic scenarios for multi-compartment distribution in the catering supply chain. This stochastic simulation model was constructed on the basis of a value chain analysis yielding activities and performance indicators (PIs).*

# DOWNLOAD PDF SIMULATED PERFORMANCE OF ALTERNATIVE MARKET MODEL FEATURES

## Chapter 8 : Simulation of the Colombian Firm Energy Market

*The market for Performance Testing has evolved over time with some newcomers and also test tools that have been around for years and have been updating their features to rise up to the challenges of modern applications.*