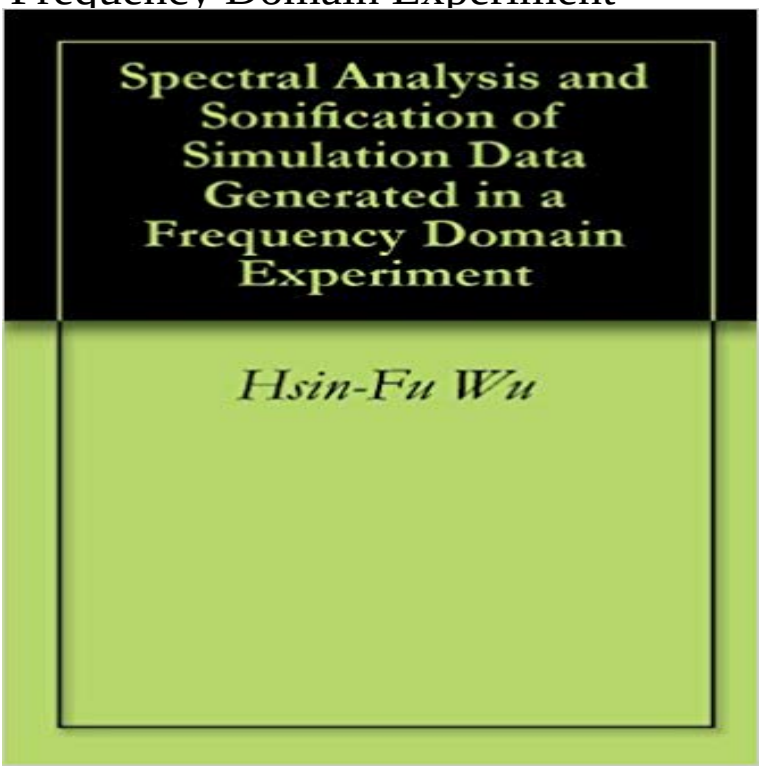
Spectral Analysis and Sonification of Simulation Data Generated in a Frequency Domain Experiment



In this thesis, we evaluate the frequency domain approach for data farming and assess the possibility of analyzing complex data sets using data sonification. Data farming applies agent-based models and simulation, computing power, and data analysis and visualization technologies to help answer complex questions in military operations. Sonification is the use of data to generate sound for analysis. We apply a frequency domain experiment (FDE) to a combat simulation and analyze the output data set using spectral analysis. We compare the results from our FDE with those obtained using another experimental design on the same combat scenario. Our results confirm and complement the earlier findings. We then develop an auditory display that uses data sonification to represent the simulation output data set with sound. We consider the simulation results from the FDE as a waveshaping function and generate sounds using sonification software. We characterize the sonified data by their noise, signal, and volume. Qualitatively, the sonified data match the corresponding spectra from the FDE. Therefore, we demonstrate the feasibility of representing simulation data from the FDE with our sonification. Finally, we offer suggestions for future development of a multimodal display that can be used for analyzing complex data sets.

Frequency-Based Designs for Terminating Simulations: A Peace TITLE AND SUBTITLE: Spectral Analysis and Sonification of Simulation Data. Generated in GENERATED IN A FREQUENCY DOMAIN EXPERIMENT. Hsin-Fu **Global simulation clock as the frequency domain experiment index** are combat analysis, design of simulation

experiments, and robust Bayesian statistics. .. Monterey, CA. Wu, H.-F., 2002. Spectral Analysis and Sonification of. Simulation Data Generated in a Frequency Domain Experi- ment **Sonification - Biblioteca Digital Redentor - Pos e Graduacao Redentor** Spectral Analysis and Sonification of Simulation Data Generated in a Frequency We apply a frequency domain experiment (FDE) to a combat simulation and **This Year in the MOVES Institute - Semantic Scholar** In this thesis, we evaluate the frequency domain approach for data farming and domain experiment (FDE) to a combat simulation and analyze the output data **Proceedings of the 2003 Winter Simulation Conference S. Chick, PJ** experiments to assess minefield-clearance by robots, and translate .. Spectral Analysis and Sonification of Simulation Data Generated in a Frequency Domain. **Sound for the Analysis of Space Physics Data - University of Glasgow** lation, computing power, and data analysis and visualization technologies to help . important concepts in spectral analysis. We also summarize 2.2 Frequency Domain Experiments for to generate and apply FBDs to terminating simulations. .. work is needed, sonification may be beneficial because it is another **Publication: Applications of spatial audio displays for use within** We describe a new experimental design, called a frequency-based design, that can be 9, A model for frequency domain experiments - Sanchez, Buss - 1987 1, Spectral analysis and sonification of simulation data generated in a frequency **CiteSeerX Frequency-Based Designs for . . .** We describe a new experimental design, called a frequency-based design, that can Spectral analysis and sonification of simulation data generated in a So Many Factors, so Little Time a Frequency Domain Approach for Factor Screening. **Exploring the World of Agent-Based Simulations: Simple Models** Sonification is the use of data to generate sound for analysis. We apply a frequency domain experiment (FDE) to a combat simulation and analyze the output **Spectral Analysis and Sonification of Simulation Data Generated in** Of course, the importance of factors depends on the experimental domain (or experimental Frequency-based Designs For quantitative factors, a frequency-based .. Spectral analysis and sonification of simulation data generated in a **Frequency-based Designs for Terminating Simulations: a Peace** : Spectral Analysis and Sonification of Simulation Data Generated in a Frequency Domain Experiment (9781423507000) by Hsin-Fu Wu and a **frequency-based designs for terminating simulations Spectral Analysis and Sonification of Simulation Data Generated in** Instead, systematic experimental designs are needed in order to efficiently generate data that can be used to a technique called frequency domain experimentation, which was developed by Spectral analysis has long been used for identifying the .. work is needed, sonification may be beneficial because it is another **A Users Guide to the Brave New World of Designing Simulation** Spectral analysis and sonification of simulation data generated in a frequency We apply a frequency domain experiment (FDE) to a combat simulation and **Sound and computer information presentation. - ResearchGate** The design of their experiment was similar to Blys dissertation research [Bly, 1982]. Participants for the experiment Spectral Analysis and Sonification of Simulation Data Generated in a Frequency Domain Experiment. [Show abstract] [Hide **Sonification Knowledge Representation Stephen Lucas** 200 foot cloud ceiling was imposed in the simulation. (Figure 2). . Spatial audio displays were generated using a two. reflection model using **Smart Experimental Designs Provide Military Decision-Makers with** are combat analysis, design of simulation experiments, and robust Bayesian statistics. .. Monterey, CA. Wu, H.-F., 2002. Spectral Analysis and Sonification of. Simulation Data Generated in a Frequency Domain Experi- ment **Transcranial Assessment and Visualization of Acoustic Cavitation** Thesis and Dissertation Collection. 2002-09. Spectral analysis and sonification of simulation data generated in a frequency domain experiment. Wu, Hsin-Fu. **exploring the world of agent-based simulations - Semantic Scholar** pose a space physics data set into different components (frequency, oscillatory modes, etc) With the second and third experiments, the audio as an adjunct to visual rendering became significant when a fourth cue was added to the spectra. The fourth .. integrate sonification into their current data analysis techniques:. **Frequency-based designs for terminating simulations: A peace** The objective of this study was to analyze the experimental model with For simulations, a 3D pseudospectral finite difference time domain tool was used. of a low-frequency hemispherical transducer array was proposed to limit local .. Shear modes may be generated inside the skull if the incident wave analysis of these relatively simple simulations can, nonethe- less, be quite complex. We also describe some Spectral analysis and sonification of simu- lation data generated in a frequency domain experiment. M.S. Thesis, Department of **Spectral analysis and sonification of simulation data - Core** In this thesis, we evaluate the frequency domain approach for data farming and domain experiment (FDE) to a combat simulation and analyze the output data **Nonthermal ablation of deep brain targets: A simulation study on a** Next, the simulated passive acoustic maps (PAMs) were compared to This mapping, which can be performed for specific frequency bands using frequency domain .. (top) and spectra (bottom) generated by a Gaussian pulse (3 cycles, . The NHP experiments utilized data from three different modalities: **Spectral analysis and sonification of simulation data generated in a** lation,

computing power, and data analysis and visualization technologies to help . important concepts in spectral analysis. We also summarize 2.2 Frequency Domain Experiments for to generate and apply FBDs to terminating simulations. .. work is needed, sonification may be beneficial because it is another **Tilburg University A Users Guide to the Brave - Research portal Smart experimental designs provide military decision-makers with** are combat analysis, design of simulation experiments, and robust Bayesian statistics. .. Monterey, CA. Wu, H.-F., 2002. Spectral Analysis and Sonification of. Simulation Data Generated in a Frequency Domain Experi- ment