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Fuzzy Logic Based Multi User Adaptive Test System Atif Ali Khan, Oumair Naseer Doi : 10.7321/jscse.v2.n8.1 Abstract . The present proliferation of e-learning has been actively underway for the last 10 years. Current research in Adaptive Testing System focuses on the development of psychometric models with items selection strategies applicable to adaptive testing processes. The key aspect of proposed Adaptive Testing System is to develop an increasingly sophisticated latent trait model which can assist users in developing and enhancing their skills. Computerized Adaptive Test (CAT) System requires a lot of investment in time and effort to develop, analyze and administrate an adaptive test. In this paper a fuzzy logic based Multi User Adaptive Test System (MUATS) is developed. Which is a Short Messaging Service (SMS) based System, currently integrated with GSM network based on the new psychometric model in education assessment. MUATS is not only a platform independent Adaptive Test System but also it eases the evaluation effort for adaptive test process. It further uses fuzzy logic to pick the most appropriate question from the pool of database for a specific user to be asked which makes the overall system an intelligent one. Keyword : Adaptive test system; fuzzy logic; e-learning; psychometric model; short messaging service; educational assessment	1-13
A Formal Framework for the Formalization of Informal Requirements Florent Peres, Jing Yang, Mohamed Ghazel Doi : 10.7321/jscse.v2.n8.2 Abstract . Systems' requirements are usually written in a natural language since it generally means a greater understanding among the various stakeholders. However, using an informal language potentially gives rise to interpretation problems, which are to be resolved prior to using (automated) verification techniques. This article tackles an important issue pertaining to requirement engineering: how to guide and help requirements' formalization? In order to support the formalization process, we propose a methodology based on a formal structure, which is the corner stone of the refinement process. The operating mode of the refinement process is highly iterative: the aforementioned structure is constructed incrementally until its validity is formally obtained. Although this process is formally backed up, it is a fundamentally subjective one, which means that interpretation errors can still occur. In case of errors, it is essential to be able to backtrack refinements until an interpretation error is found. This is why we require that each refinement be associated with a justification which may subsequently be analyzed in case an error occurred during the verification phase. This formalization process was designed to be used alongside an (unspecific) engineering process, in charge of the implementation. Once the formalization is complete, it is checked against the implementation using testing techniques, or directly against an implementation model via model-checking. Keyword : Requirement formalization; Requirement Engineering; Requirement	14-27

refinement; Requirement traceability

[Long Term Energy Demand Forecasting based on Hybrid, Optimization: Comparative Study](#) 28-36

Wahab Musa, Ku Ruhana Ku-Mahamud, Azman Yasin

Doi : [10.7321/jscse.v2.n8.3](#)

Abstract . The objective of this research is to develop a long term energy demand forecasting model that used hybrid optimization. To accomplish this goal, a hybrid algorithm that combined a genetic algorithm and a local search algorithm method has been developed to overcome premature convergence. Model performances of hybrid algorithm were compared with former single algorithm model in estimating parameter values of an objective function to measure the goodness-of-fit between the observed data and simulated results. Averages error between two models was adopt to select the proper model for future projection of energy demand.

Keyword : Energy demand forecasting ; Hybrid algorithm ; Optimization

[Analysis of a two echelon Queueing-service system by considering Speed-Quality tradeoff in service](#) 37-48

Ata G.zare, Alireza Haji, Farshid Jamali

Doi : [10.7321/jscse.v2.n8.4](#)

Abstract . In this paper we study a two-echelon system including a vendor and a service provider in customer-intensive services which introduced by Anand et al. (2011). Customers wish for high quality of service, which leads to longer service time for the service-provider. In the other hand, longer service times can cause to longer waiting time which is not desired for customers. So, tradeoff between service rate and quality of service/or product is critical. The market demand is according to Poisson process. The vendor will immediately send the order to the service-provider which works as a M/M/1 production system. The transportation time between the service-provider and vendor controlled by the service-provider, and is assumed to be deterministic and constant. Each customer has a different waiting cost per unit time and different expected value from a product or service; therefore, they decide whether to join the system or not based on the service value, price and expected waiting cost. We derive the speed quality equilibrium of the system as well as the optimal service rate and maximum demand attraction. Furthermore, we investigate the best policy of the system including optimal transportation time, price and service rate. We show that the optimal transportation time is independent from Degree of customer-intensity (α) of the service. Also, the equilibrium price will cause classifying the market, namely “market base” for small values of α , and “individual base” for high values of α . Unlike in the “market base”, losing the much market share is not undesirable in the “individual base”.

Keyword : speed-quality equilibrium, two-echelon system, service value, demands attraction

[Words ordering and corresponding verb-subject agreements in English-Arabic machine translation: Hybrid-based approach](#) 49-60

Mohammed Abu Shquier, Omer Abu Shqeer

Doi : [10.7321/jscse.v2.n8.5](https://doi.org/10.7321/jscse.v2.n8.5)

Abstract . Recently Machine Translation (MT) has become a testing ground for many ideas in artificial intelligence (AI) as well as linguistics. Word ordering plays an important role in the translation process between languages. This research is attempting to examine the implications of using verb subject object (VSO) and subject verb object (SVO) words order on the agreement requirements in MT. Approach: The main objective of this research is to develop a hybrid-based MT (EA-HBMT) to improve the quality of MT from English to Arabic. Transfer-based MT is used to obtain an intermediate representation that captures the “meaning” of the original sentence in order to generate the correct translation. Example based-technique is used as well to handle the irregular cases. Semantic analysis process is mainly conducted to detect the statements that require the use of SVO construction rather than VSO. Results: we have constructed an agreement and ordering tests suite; that has been used in testing different agreement and ordering features in four Arabic MT systems, they are, ALKAFI, GOOGLE and TARJIM SAKHR versus EA-HBMT. These examples have been used in exploring and evaluating the agreement and ordering problems throughout three experiments. In the first experiment we have classified the problems that cause that agreement and ordering into twelve and we compare between the four systems outputs with the original translation of the input text based on these twelve problems. In the second experiment we tested each statement separately, by comparing the particular on-line translation with the original human translation based on the number of the correct translated words in the target language. Conclusion: Based on the achieved results, we have managed to perform the Symantec analysis within Arabic source texts by using hybrid-based machine translation and also achieved reasonable improvements in translation quality over related approaches.

Keyword : MT, EA-HBMT, Agreement, ordering

[An Introduction to Distributed Cryptography Based on Quantum Cryptography](#)

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Leila Pashaie Bonab, Mehdi Bahrami, Jaber Karimpour, Mohamdali Jamali

Doi : [10.7321/jscse.v2.n8.6](https://doi.org/10.7321/jscse.v2.n8.6)

Abstract . Cryptography is important part of a security plan system. So, if we have a secure cryptography in a system, we have an opportunity to have a secure system and make a system by stability of 99.9% on the network. In this paper we will review the Quantum Cryptography as base model in our idea and after that we'll extend it for use on the network for distributed machine. Therefore we will show that cluster of machine which use distributed quantum machine, how it works base on our idea and how we can have a secure machine.

Keyword : Quantum Cryptography ; Security Systems ; Distributed Systems



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