Name: Mohamed Mostafa Mohamed Ibrahim
Abouelhoda

Faculty: Engineering

Dept.: Computer Sciences

Degree: PhD

Title of Thesis: Algorithms and a Software System for Comparative
Genome Analysis

Abstract :

Yergleichende Genomanalyse ist ein relativ neues Gebiet der Bioinfonnatik, das durch die Yerftigbarkeit einer immer groBer werdender Zahl sequenzierter Geno¬men an Bedeutung gewinnt. Die vorliegende Dis~ertation pliisentiert AIgorithmen und Softwarewerkzeuge, mit den en mehrere Genome effizient verglichen werden konnen. Die vorgestellten Algorithmen losen bisher offene Probleme der theoretischen Bioin¬fonnatik, In der Praxis reduzierten wir sowohl die Rechenzeit als auch den PIatzbedarf ftir das Yergleichen der groBen Genome.

Name: Ehab Ahmed Sobhy Tawfik

Faculty: Engineering

Dept.: Electronics and Electrical Communications
Engineering

Degree: MSc

Title of Thesis: Inverting and Fully Differential Current Conveyors and
Applications Suitable for VLSI

Abstract:

Research in analog integrated circuits has recently gone in the direction of low-voltage (LV). The LV circuits have to show also a reduced power consumption to maintain a longer battery lifetime. In this area, traditional voltage-mode techniques are going to be substituted by the current mode-approach, which has the advantage to overcome the gain-bandwidth product limitation. Then, they don't require high voltage gains and have good performance in terms of speed, bandwidth, and accuracy. Inside the current-mode architectures, the current conveyor (CC) can be considered the basic circuit block.

The thesis objective is to introduce new CMOS realizations for different types of current conveyor and to use them in applications suitable for VLSI.

The first chapter of this work is to have a general view of different types of current conveyors. The second chapter proposes new CMOS realizations of the inverting second generation current conveyor with inverting current terminal (ICCII-) followed by some applications. In the third chapter a dual-output inverting third generation current conveyor (ICCIII+-) is introduced; a novel CMOS realization is proposed followed by many applications to show how the ICCIII+- is useful and powerful. The last chapter presents novel CMOS realizations of the fully differential voltage second generation current conveyor with inverting current terminal (FDVCCII-) which is a new proposed block to the second generation current conveyors.

Key words: Current Mode, Current Conveyors.

Name: Noran Mohamed Magdy Mohamed

Faculty: Engineering

Dept.: Civil Engineering

Degree: MSc

Title of Thesis: Fracture Behavior of Reinforced Concrete Flanged Beams under Four Point Bending in Displacement Controlled Environment

Abstract:

A four point bend test in a displacement controlled environment is used to investigate the fracture behavior of the T- shaped reinforced concrete beams. Two parameters were investigated: the ratio of flange width to web width (B/b) and the ratio of flange thickness to beam's height (ts/h). The testing program comprises 12 beams; 3 having rectangular section and 9 having T-section. All beams are 1400 mm in length with a mid span height of 300 mm and a mid span notch of 90 mm. The beams are classified into 3 groups. In the first group, the tested beams have variable flange width to web thickness (B/b):1, 1.5, 2, 2.5, constant ratio of flange thickness to beam height (ts/h) =0.2 and a reinforcement ratio=0.6%. The second group of beams has variable flange width to web thickness (B/b):1, 1.5, 2, 2.5, constant ratio of flange thickness to beam height (ts/h) =0.15 and a reinforcement ratio 0.48%. The third group of beams has variable flange thickness to beam height (ts/h):0, 0.1, 0.15, 0.2, constant ratio of flange width to web thickness (B/b) =1.5 and a reinforcement ratio 0.73%. Measurements included load, steel strain, concrete strain and deflection. Tracking for the mid span crack at each load increment was carried out. The analytical model proposed by Baluch et al. was employed. The experimental results were checked against the new fracture mechanics approach. Also, the experimental results were compared to the results of a finite element program. However, the experimental program revealed that the ratio of flange width to web width (B/b) is more effective than the ratio of flange thickness to beam's height (ts/h). In addition to that, both the fracture mechanics approach and the finite element program are in a good agreement with the experimental results.

Name: Alaa El-Din Ahmed Yousef

Faculty: Regional and Urban Planning

Dept.: Urban Design

Degree: PhD

Title of Thesis: The Effect of Artificial Lighting on Urban Form.

Abstract:

This research attempts to find out how artificial lighting affects the night-time image of the city, and the perception of its urban spaces. The research also attempts on determining how lighting properties may affect the personal sensations of space users.

The research explains lighting properties and measurements in brief, and demonstrates the properties, advantages and disadvantages of different lighting equipments. It also discusses light pollution, its negative effects, causes, and recommendations to reduce it.

Through field observations a comparison is made between day and night visual image in different parts of Cairo in order to find out how artificial lighting affects visual perception. In addition, observations were made to find out the effect of the night lighting on the perception of the urban spaces.

The research demonstrates different methods used in outdoor lighting including buildings, roads, pedestrian paths, bridges, playgrounds, open spaces, fountains, sculptures and famous world spaces.

Empirical Studies

This part includes the selecting of the space case study, building the space computer model, making different lighting alternatives. Also in this section, a comparison is made between real spaces that have the same urban properties but different lighting characteristics, and through photographs of real spaces before and after upgrading their lighting conditions in order to find out how the lighting properties

can effect the human sensation in outdoor spaces. These comparisons are evaluated through users and specialists questionnaires.

After that, questionnaires results are analyzed and the lighting properties of spaces are determined in order to reach the results and general recommendations of the research in the form of drawings and tables.

Finally the research demonstrates and analyzes the influence of the advertisement lighting on the night image of the city and the process of making the lighting master plan.

Simultaneous assay of PSA and HGF yielded a sensitivity of 96% in discriminating between BPH from malignant prostate compared to 91% for HGF and 93% for PSA alone. The metastatic PCa group showed a lower progression free survival associated with high NSE levels.

Conclusions:

The f/tPSA is useful in discriminating between BPH and PCa and thus allowing early intervention and treatment. A cutoff value of 0.24 for f/tPSA is recommended as it detects 87% of cancer cases and at the same time avoids 39 % of unnecessary prostate biopsy. Moreover, combining PSA and HGF was more accurate in discriminating between BPH and malignant prostate .High NSE levels are of prognostic significance in patients with metastatic PCa treated with hormonal therapy.

Key words:

Artificial Lighting, Outdoor Lighting, Urban Form, Visual Image, Urban spaces, Sensation.

Name: Hebat Allah Assem El-Fouly

Faculty: Regional and Urban Planning

Dept.: Urban Design

Degree: MSc

Title of Thesis: The Extent of Applying Action Planning Approach in the Upgrading Projects. Case Study "Manshiet Nasser, Al-Darb Al Ahmar, Old Cairo"

Abstract:

The research studies the upgrading projects management in Cairo. It covers theoretical studies concerning the the two main approaches in upgrading projects management; the traditional approach and the Action Planning Approach. It studies the processes of planning and implementation in each approach and hence deduces the type of relation between them in each one. Field studies of several local upgrading projects are conducted, and through proper analysis, a general overview of the nature of the approach used in recent upgrading projects is identified. Conclusion includes the identification of the current approach used in upgrading projects in Egypt. It also includes several recommendations introduced by the researcher to improve the current management of upgrading projects in Egypt.

Key words:

Upgrading Projects, Planning, Implementation, Slums.

Name: Amira Mohamed Kutb

Faculty: Computers and Information

Dept.: Information Technology

Degree: PhD

Title of Thesis: Hierarchical Quality of Service Routing in Wireless Networks

Abstract:

The scalability is more challenging in the presence of both, the large number of nodes and node mobility. Hierarchical techniques have long been known to afford scalability in wireless networks. There are several clustering algorithms that construct the hierarchical map of the network topology. This thesis focuses on both categories, the 1-hop clustering and the D-hop clustering. For the 1-hop clustering, the thesis considers two clustering algorithms, the Lowest ID clustering algorithm and the Connectivity based clustering algorithm. For the D-hop clustering, it considers also two clustering algorithms, the Max Min-D clustering algorithm and the Connectivity based D-clustering algorithm. Simulation of these clustering algorithms is done using C++ programming language. Evaluation of their performance is illustrated considering different node speed criteria and the network size criteria. The comparison between them proves that the D-hop clustering is more realistic than the 1-hop clustering, and that the Max Min-D clustering algorithm is the clustering algorithm that provides better performance.

Also a new contribution will be illustrated. The quality of service parameters can be used as the clustering criteria for the cluster head selection. The QoS based clustering algorithm uses the same methodology of the Max Min-D clustering algorithm but with different clustering criteria, it uses the average delay parameter as its clustering criteria, leading to a new clustering algorithm known as Max Min-Delay clustering algorithm. Evaluation of the new clustering algorithm is illustrated considering both, the clustering metrics and the routing metrics using the shortest path QoS routing algorithm. The comparison between the new algorithm and the D- hop clustering algorithms proved that the new contribution has the best performance.

Key words:
Wireless Networks, Routing, Quality of Service.

Name: Amal Fawzi Al-Gammal

Faculty: Computers and Information

Dept.: Information System

Degree: MSc

Title of Thesis: Using Process Algebra for the Automatic Verification of Composite Web Services Modeled in UML

Abstract:

There is a great interest paid to the web service paradigm during the last several years. The main contexts that raise this interest are e-commerce, telecommunications and science. But the web services paradigm has a mine of problems that need to be solved. One of the most important problems is to enable the automatic composition of web services to provide a new value-added service. The problem of automatic web service composition is very tightly related to the description of web services, which means that, in order to achieve this novel goal, web services should be described following some rich and formal framework (model). The main models that address the problem of automatic composition are: OWL-S, Roman, Mealy/Conversation and Colombo Models. Each of these models provides a framework for characterizing and describing web services. They also provide different automatic composition algorithms. In our research, we focus on the modeling of the automatic composition problem. The most recent and richest model is the Colombo model, as it unifies all the previously mentioned models. The first problem we discover is that Colombo adapts complex and low-level formalisms which are difficult even for experienced web

service developers. The first contribution of this thesis is that we have used Standard UML 2.0 to simulate every aspect of the Colombo model. To achieve this we have proposed a UML profile by extending the base Standard UML2.0 constructs. We have implemented a prototype for the proposed UML profile on Visual Paradigm for UML (VP-UML) version 6 CASE tool. The second problem is that Colombo is still a theoretical, conceptual model, which means that it does not have an associative language. The second contribution of this thesis is the proposal of a set of related XML documents that can serve as a core for a Colombo language. We have also proposed the transformation rules between the proposed UML profile and the proposed Colombo XML documents. These transformation rules are also implemented in our prototype. Here we assume that the composition algorithm proposed by Colombo accepts and produces XML documents that conform to the DTDs of the proposed XML documents. The third problem we consider is that after the composite web service is produced, there should be some method to analyze and verify that the resulting composite service performs what is expected from it to do, and ensure some important properties (like the system will never reach a deadlock). The third contribution of this thesis is the proposal to map the resulting composite service to Process Algebra (PA) formalisms to be able to utilize the sophisticated automated verification tools associated with PA. Mainly we propose to utilize process equivalence and model checkers tools of PA. The fourth problem is that none of the previous work on web services considers the Spawning issue. Spawning of services is the situation when several instances of a service are activated and executed by interacting with each other. The fourth contribution of this thesis is the proposal of a simple method to model spawning situation using PA notations. Consequently a composite service that includes a spawning situation can be verified the same way as a composite service that doesn't include a spawning situation.