2nd International Conference on Computer Assisted System in Health (CASH 2016)

1 – 2 September 2016
Kuala Lumpur, Malaysia

International Conference on Computer

Assisted System in Health

CASH2016

Organized by

Universal Academy of Science and Technology

Universiti Putra Malaysia

Design *for* Scientific Renaissance

International Conference on Computer Assisted System in Health – CASH 2016

Background

The International Conference on Computer Assisted System in Health (CASH) provides a platform related to special research interest where computer technology is applied pre-, intra- and/or post-operatively to improve the outcome of any surgical procedures, assist diagnostic procedure and enhance related clinical database management system. The main purpose of this conference is to provide an international discussion for academics, scientific researchers, clinical scientists, surgeons, engineers, and industrial partners for exchanging new ideas as well as the latest developments in this area of research. Secondary purpose is to promote research collaboration between participants from different countries and disciplines. CASH 2016 holds from September 1-2, 2016 at Palace of the Golden Horses, Kuala Lumpur, Malaysia. The conference program consists of high-profile plenary/keynote lectures, workshops, invited sessions, oral and poster sessions, and exhibitions.

GENERAL CHAIR FOREWORD

It is with my pleasure to write this foreword for the proceedings of the International Conference on Computer Assisted System in Health (CASH) 2016. We are delighted co-hosting CASH 2016 together with Design for Scientific and Renaissance (DSR).

Observing the high quality of the papers submitted represent the thinking and collaboration among computer and medical expert. Their collaborations helped to make their contributions outstanding and contributed to the most recent scientific knowledge. I do hope that these proceeding will be furnished to scientific groups and renowned as an excellent references document. I also trust that it will motivate and stimulate further study and research in all related areas.

The main intention of collaboration between two major fields; computer scientist and medical practitioner, is to contribute to society and produce products computer related that will able to automate medical procedure and assist the task of medical practitioner. This vision has moderately expressed itself in the enthusiasm and fine result of Computer Assisted Surgery and Medical Imaging to facilitate the tasks of clinicians and shorten the medical procedure time for each patient and ensure that close cooperation can realize more sophisticated computer systems.

Thank you very much for attending and participating CASH 2016 conference. I would really like to express my appreciation to DSR, committees and participants who make this conference successful. I wish everyone; especially the participants and committee successfully trigger brilliant ideas, thoughts, sharing experience and have wonderful time. Welcome to our expanding community, Computer Assisted System in Health.

General Chair

A.P. Dr. Rahmita Wirza O.K. Rahmat

Publications of CASH Conference

Selected papers will be published in the following Journals.

- Journal of Advanced Medical Research
- Journal of Advanced Science and Engineering Research
- Journal of Advanced Computer Science and Technology Research
- Journal of Advanced Biomedial and Pathbiology Research
- International Journals on Computer Assisted System in Health

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- Wael Jabbar Abed Al-nidawi, Almustaqbal University College, Iraq.

KEYNOTE SPEAKER 1

Prof Dr Pawel Suwinski
Head of the Healthcare Advisory Department
at Malaysian Genomics Resource
Centre Berhad

Topic: The Latest in Pharmacogenetic Testing for Improved Patient Care

Abstract: Advances in computing have enabled pharmacogenetics (PGx) which is the study of human genetic variation that influences drug metabolism and risks for adverse drug reactions in individuals. 1 in 4 patients are prescribed drugs which could injure them. The risks increase exponentially when < 3 medications are prescribed; and when < 6 medications are prescribed, the risk exceeds 80%. The US FDA estimates that ADRs are the 4th leading cause of death. Prof Dr Pawel Suwinski will provide an update on the science behind PGx testing, and its use across pain management, cardiovascular and mental health applications. He will also highlight the results of numerous large scale clinical studies concluded within the last 3 years.

Biography: Prof Dr Pawel Suwinski is a medical professional with experience in clinical genomics, healthcare informatics, healthcare economics, and healthcare industry research. He obtained his MBBS degree from Warsaw Medical University. He has an MScin Healthcare Management and a Graduate Certificate in Human Clinical Genetics. Prof Dr Pawel is currently a Clinical Geneticist and he heads the Healthcare Advisory Department at Malaysian Genomics Resource Centre Berhad.

KEYNOTE SPEAKER 2

Prof Datin Dr Rozi Mahmud
Director of Cancer Resources and Education Centre (CaRE), UPM

Topic: Bridging the Gaps The Computer Scientist, Mathematicians and Engineers, Current and Future Contributions in Medicine

Abstract: There is significant overlap between researches within the discipline of Computer Science, Mathematicians and Engineering in Medical informatics and health services research. These fields need individuals who are capable of working at the intersection of informatics, health services research and/or public health. Closer collaboration among different training programs with the medical fraternity is highly desirable as these fields need individuals who are capable of working at the intersection of informatics, health services research and/or public health. To develop recommendations for establishing collaborations among researchers who will be designing, evaluating, or using information systems for clinical, health services and public health research. To initiate research proposals in six main areas.

Biography: Prof Dr. Rozi Mahmud is a professional expert in Medical Radiation, Observation Medicine, Bioengineering, Paediatric radiology, Digital Breast Imaging and Biopsy Technique. She obtains her Bachelor of Medicine from Universiti Malaya, and her Master in Radiology (MMed Rad) from Universiti Kebangsaan Malaysia. Currently, Prof Dr. Rozi Mahmud is a director of Cancer Resource & Education Center (CaRE), UPM.

KEYNOTE SPEAKER 3

Prof Dr. Shihab A. Hameed
ECE Engineering, IIUM University, Malaysia

Topic: ICT: Toward Better Health

Abstract: In this 21 century; the Information and Communication Technology ICT become an essential and effective driving force in our life. Today, ICT industry has an appreciated contribution to the global economy associating with innovation, invention and rapid development of almost all the aspect of human life (Education, Health, Industry, Entertainment, etc.). The health sector is one of the core and critical sectors that have great effect on human life and willingness in all countries. ICT can play a great rule in improving health sector and bring sustainability for life. The rapid and deep advancement in ICT field (software, Hardware, and Communication) make it a suitable, effective and cheap tool to improve health sector. ICT is the core for hundreds of applications and devices in the health or medicine sector, which costs billions of USD Dollars and offers job for tenths of thousands of peoples. Governments, universities, research centers, and infidels have an appreciated and innovative effort in education, research, and development of ICT for health field, but we still in need for more effort to protect human life and offering better health.

Biography: Dr. Shihab A. Hameed is a Full Professor of Computer and Information Engineering in Department of Electrical and Computer Engineering, IIUM University Malaysia. He is a Senior Member in several professional Societies (IEEE, IACSIT, IACSE, ARISE). He is a Member of Board of Study for Computer and Information Engineering Program. Prof Hameed obtained his Ph.D in Computer, Software Engineering from UKM University. He has More than Thirty Five years of Industrial and Educational Experience. His Research Interest is Mainly in Software Engineering and Quality, Healthcare and Medical Applications, Multimedia and Mobile Apps, Professional Ethics, Green ICT and E-Waste, Surveillance and Monitoring Systems.

Accepted Papers

GUI Based Design and Implementation of a Cost Effective ECG Device

Adil Farooq, Samia Aroos, Laraib Mumtaz and Maria Murad

Abstract

The need for constant health monitoring now days especially for heart diseases is essential. We present in this paper design and development of low cost, efficient and user friendly ECG monitoring device. Most of the heat rate measurement devices and tools available are expensive and obscure. Our implemented device monitors the patient's body information using three lead silver chloride ECG disposable electrodes and detects the pulse signal. The detected heart pulse signal is first filtered and then amplified. The device displays the heart signal on a Matlab developed graphical user interface while simultaneously showing the digitized pulse rate on a LCD. The device was tested on human subjects aged 20-24. The results achieved were reliable compared with electrocardiogram reports.

Effect of Rehabilitation Program by Using Hypermedia on Treatment Some of Shoulder Tissues Injuries for Badminton Players

Mazin Hadi Kzar, Dafer Namoos, and Ammar Hamza Hadi

Abstract

The important of present study is to design rehabilitation program by using hypermedia for some injuries of smooth tissues in shoulder joint. This joint is most important to help badminton players in achieving their daily and sport tasks due to upper limp movements depend on health and active of this joint. Experimental approach with a manner of equal single station was used in present study and study simple consisted of 6 badminton players from Babylon and Al-Mahaweel clubs who have less sharp tissue smooth injury such (muscles, ligaments, pocket). We used (SPSS) to analyses pre, medal, post-tests data. In conclusion, hypermedia is positive benefit to rehabilitee of injuries of smooth tissues in shoulder joint for badminton players and we recommend that the important of using hypermedia by computer to rehabilitee injury players in other sport events.

Using Personas and Empathic Approach in the development of Smoking Cessation Mobile Application

Mehak Shabir, and Azrina Kamaruddin

Abstract

The use of mobile applications for healthcare is a new and vigorous area that could enhance the welfare of individuals across the globe. Health applications in technological devices (smartphones, PDAs) empower upsurge-frog-proportion convenience to enhance entry to health improvement and mediations. These health applications prove beneficial in a number of aspects, such as supplying therapeutic content through a digital device, mobile welfare applications, and the applications constructed to access digital health and private health evidence. Tobacco smoking can be injurious to health, creating a number of afflictions and damaging the health condition of smokers. Smoking cessation enhances life expectancy since it shortens the danger of expiring from certain smoking-associated afflictions for instance, lung cancer. In this study, our main aim is to propose a smoking cessation application using personas and empathic approach.

The strategies and policies of IT systems implementation in Malaysian hospitals and its benefits and challenges

Fatimetou Zahra Mohamed Mahmoud

Abstract

This research aimed to study the transformation of nonprofit Nowadays, among all the industries in Malaysia the healthcare industry is in rapid and great growth, and it can be considered as a very controversial and sensitive one among the different industries because it relates the economy, the technology and the health care. Thus the challenge is to supply a high health care quality for patient using the best tools, process and to be on time in addition to the minimum cost possible. Thus, the aim of this research is to investigate the current situation of the health care sector in Malaysia regarding the strategies, policies and the implementation of the technology benefits and the challenges. The findings show an increase of the health information system implementation especially in public hospitals based on an outsourcing strategy and the follow of lean healthcare management and risk management for best implementation. This implementation of HIS has approve its efficiency and benefits by reducing costs and time, better safeguards of patient files and increase in the quality of healthcare in addition that it makes the work process more smooth, organized and accurate.

The effect of electronic patient records inaccuracy and duplication in the loss of patient identity in Public Malaysian hospitals

Fatimetou Zahra Mohamed Mahmoud

Abstract

This study objective is to evaluate and clarify from an information technology perspective the correlation between the inaccurate patient data and the duplication of electronic patient records with the loss of the patient identity, and how it can affect the patient's lives and quality of health provided to them. Furthermore, it highlights what are the possible solutions that can be applied in public Malaysian hospitals to overcome this issue. To attempt this goal, a study of previous work in this field was done to understand what the results of the previous research was. Some of the solutions are the use of Biometric technology to unify the EMR of each patient in the whole levels of the hospital, the unique identification of each patient by having a UPI and a unique MPI to store patient records, the continuous control and update of changes in the system to well manage the data integrity, the application of data cleansing, profiling and powerful data governance processes, having a well trained staff in the organization, the use data matching algorithms. In addition, from the start point of the implementation the normalization of the database can help to reduce any data redundancies. Furthermore, the application of data deduplication to reduce the amount and size of data stored in the data base.

Coronary Artery Labeling and Segmentation in X-ray Angiography

Rohollah Moosavi Tayebi, Rahmita Wirza, Puteri Suhaiza Binti Sulaiman, Mohd Zamrin Dimon, Fatimah Khalid, Samaneh Mazaheri

Abstract

Cardiac image processing is an essential tool for diagnosing heart diseases. In this paper, an automatic approach is proposed for coronary artery labeling and segmentation in angiography images, which is very helpful for indexing coronary arteries in angiography images. Recently, few algorithms have been proposed for blood vessels segmentation in medical imaging modalities, however, they lack for labeling part. This paper presents a new approach for coronary artery segmentation, labeling, and centerline labeling. To this end, firstly preprocessing is done to enhance angiography images. Then, main coronary arteries are segmented by applying modified Starlet wavelet transform. Afterwards, centerlines are extracted by using morphological operation and detached by convolving with appropriate filter. Finally coronary arteries are labeled by masking process. The proposed approach is evaluated by cardiologist on 80 angiograms of 10 dataset.

A Review on Electrical Impedance Tomography for Early Breast Cancer Detection

Mehrnoosh Akhtari-Zavare, Latiffah Abd. Latiff

Abstract

Electrical impedance tomography (EIT) is a new non-invasive, mobile screening method which does not use ionizing radiation to the human breast. It is based on the theory that cancer cells display altered local dielectric properties, thus demonstrating measurably higher conductivity values. This article reviews the utilization of EIT in breast cancer detection. It could be used as an adjunct to mammography and ultrasonography for breast cancer screening.

Effect of Psychological Program by Using Computer on Improving Self-Modern Ideas for Badminton and Fencing Players

Mazin Hadi Kzar, Dafer Namoos, Ammar Hamza Hadi

Abstract

The importance of study being the first study to the knowledge of researchers to ensure that the importance of computer using in the implementation of psychological programs to prepare players for different situations which they face during the games and competitions, this study tries to discover and add new information about the impact of computer using in the psychological preparation for players and its important in their sport and public life. The researchers used the experimental method with a design of equal groups which included pre and post-tests. Study community included (38) junior players distributed into (20) fencing players and (18) badminton players. Subject of the study was selected purposively and divided into two groups, experiment one group included (10) fencing players and second experiment group involved (10) badminton players. We used SPSS to analysis our data which they received from pre and post-tests. The researchers concluded that the psychological program by computer using had a positive impact on improving the skill of self-modern ideas among the study subject and we recommend using modern techniques in the preparation and application of psychological programs through preparation for competitions and Arab and international competitions.

Monitoring and Prediction of ICU Patient with Pediatric Congenital Heart Disease Using Data Mining approach

Hasan Sarwar, Sharmin Parveen, Sharmin Nahar Sharwardy, Zahidur Rahman, Md Sharifuzzaman, Md Nurul Akhter Hasan

Abstract

Globally, Congenital Heart Disease (CHD) causes a large number of children morbidity and mortality every year. In spite of significant technological advancements in medical science, there is still a lack of accurate prediction system for the risk assessment of mortality. This study is an attempt to develop an android web-based system to predict mortality after surgery of Tetralogy of Fallot (TOF) patients in the considered group. In this system, the real time transmission of patient data to the doctor is made available by efficient management of Electronic Heath Records (EHRs) of pediatric patients with congenital heart diseases in ICU. The approach is based on Decision Support Systems (DSS) where machine learning is being used for identification of risk assessment DSS has the ability to discover hidden patterns and relationships in medical data. The study shows that the proposed DSS approach assist the physician's decision making about risk assessment of mortality after cardiac surgery more accurately.

Echocardiography and CT Scan Integration using Hybrid Registration Method

Samaneh Mazaheri, Puteri Suhaiza Sulaiman, Rahmita Wirza, Mohd Zamrin Dimon, Fatimah Khalid, Rohollah Moosavi Tayebi

Abstract

Echocardiography is an ideal imaging modality for the diagnosis of cardiac disease, due to its flexibility, convenience of use, low cost, minimal disruption of the procedure, and lack of compatibility problems with standard operating theater equipment. However, the low quality of echocardiography images often limits their utility as a means for guiding procedures, since it is often difficult to relate the images to their anatomical context. Multi-modality registration of computed tomography and echocardiography adds value to diagnostic examinations, as well as treatment planning and execution of various clinical procedures. Particularly automatic image based registration of such data is challenging, mostly because both modalities have very different imaging physics and characteristics. In this paper, we present a method for hybrid non-rigid registration echocardiography to high quality pre-operative models based on computed tomography images, to improve the interpretability of images while maintaining them as a flexible anatomical and functional imaging modality. The proposed registration is performed in a two-level procedure which integrates feature-based and intensity-based approaches. This technique can potentially be used to improve the diagnosis of cardiac disease by augmenting echocardiography images with high-resolution computed tomography images and to facilitate intra-operative image fusion for minimally invasive cardio-thoracic surgical navigation. The proposed algorithm is tested for sixteen clinical real datasets and quantitative and qualitative evaluations are conducted as well.

3-D Reconstruction of Coronary Arteries from multiple different Angiographic views – A survey

Mahmood Mohammed Ali, Rahmita Wirza O.K. Rahmat, Puteri Suhaiza Binti Sulaiman, Hizmawati Binti Madzin, Sazzli Shahlan Kasim

Abstract

Three dimensional reconstruction of the coronary artery vessel of the X-Ray angiography image is one of the useful technique that can effectively remedy the shortage angiographies imaging technique. There are lots of techniques and algorithms proposed for reconstruction coronary arteries in angiograms. But based on our knowledge, there is not any review paper to categorize and compare them together. In this paper, we have divided these techniques into two major basic categories and propose a survey for the geometric model. We studied all the papers in the geometric model and found there are two classifications: (1) based on methods, Which has subdivided into (a) Epipolar Constraint Methods (ECM). (b) Deformable-Model-Based Methods (DMM). (2) Based on input data, which has also subdivided into (a) calibrated data. (b) un-calibrated data. Finally, we made three tables, the first table was to compare all algorithms in each category against criteria such as: angiography types, number of image view, Use phantom data, shape coronary artery output, whole tree output and software implementation. The second table was to brief geometric model Methods description, Advantages and Disadvantages. And the last table was to brief description of angiography types, Advantages and Disadvantages.

3D Holographic Rendering For Medical Images Using Manipulated Lighting in a 3D Pyramid Display

Sarah Qahtan Mohammed Salih, Puteri Suhaiza Sulaiman, Ramlan Mahmod, Rahmita Wirza O.K. Rahmat

Abstract

3D data visualization and 3D display have received extensive attention from researchers due to the rapid growth in computer graphics in the human's daily life. Despite the massive studies efforts consumed for 3D visualization, the shape perception of a 3D model has not yet been satisfied. In this study, we enhanced the visualization of 3D data for a hologram pyramid display by proposing a procedure named the hololighting style which consists of two steps. The first step is enhancing the shape perception of the 3D data. We proposed a new lighting system to emphasise the shape feature by employing non-photorealistic rendering as an alternative to the traditional lighting. The second step in the procedure is 3D hologram rendering for the hologram pyramid display. The screen is split in this step into nine segments for creating four viewports to contain 3D object from four views which are front, back, left and right. These steps are created and implemented using Visual C++, OpenGL 4.5. The results showed the enhancement of the 3D data as a hologram floating inside a transparent pyramid. The quality of the hologram is reported to be preferred when compared to a traditional 2D display. Moreover, the shape of the 3D data was reported to be enhanced by the new lighting style when compared to traditional lighting.

Privacy and Security Concern for Electronic Medical Record Acceptance and Use: State of the Art

Odai Mohammad Ahmad Enaizan, Najwa Hayaati Mohd Alwi, Nurzi Juana Mohd Zaizi

Abstract

Healthcare sector boosts the usage of information technology (IT) in terms of functions and utility. Electronic Medical Record (EMR) is one of the major applications in the field of e-health. Applying EMR system in the real world may improve the quality of health care and reduce medical errors. However, the level of acceptance and usage of EMR systems among healthcare professionals is low due to privacy and security concerns. To increase the use of EMR, it is important for this issue to be addressed. The aim of this paper is to explore the different factors that affect the EMR acceptance and use, and provides recommendations regarding the development of EMR in the context of privacy and security.

Effect of Using Medical Technology to Correct Motion Range of the Injured Ankle Joint for Fencers

Mazin Hadi Kzar, Dafer Namoos, Ammar Hamza Hadi

Abstract

The aim of present study is to study the important aspects of using a training program by depending on medical technology to return injured fencers to normal level before the injury and help to correct the range of motion of the ankle joint and the best possible level ensures their speedy return to the playgrounds. The study used the experimental method with one group because it is suitable to the study problem, and subject of the study included (5) injured players from fencing players of Diyala clubs in Iraq. We used SPSS to analysis our data and we concluded that rehabilitation program by using medical technology resulted in treatment of motion range of ankle joint and we recommend using this technology with other body joints.

BRISK Key Points Locations based Hand Position Estimation for Hand Gesture Trajectory Tracking Method

Eman Thabet, Fatimah Khalid, Puteri Suhaiza Sulaiman and Razali Yaakob

Abstract

In recent years, dynamic hand gesture tracking has attracted the attention of many researchers. However, 2Dvision-based approaches have motivated a sizeable body of research and the rapid improvement of web cameras has facilitated their application to hand-held (portable) appliances, it is a critical process which has encountered many difficulties in the real world. These problems include variations in hand appearance, complicated background as well as confusion and drifting problems caused by the need to look for the hand in the total scene. To overcome these problems, this paper proposed a novel algorithm to track moving hand positions by searching corner points of the hand's last position, assuming that the difference between current and previous hand positions is little since the aim is to track the trajectory of hand movement. The proposed method uses a set of features such as the orientation, corner features, skin color and motion features as the main factors of the proposed algorithm. Consequently this algorithm provides a reliable estimation of hand positions to achieve hand gesture tracking.

Catheter Detection using Threshold Value Normalization and Labeling for Automatic Initialization in Intravascular Ultrasound Segmentation

Suhaili Beeran Kutty, Rahmita Wirza O.K Rahmat, Sazzli Shahlan Kassim, Hizmawati Madzin, Hazlina Hamdan

Abstract

Intravascular ultrasound image shows the morphological structure of the artery, mainly the lumen and the media-adventitia. Including in this image is the catheter shape located in the middle of the image. This project research is to identify catheter shape using threshold value normalization. Next, labeling and extraction algorithm used to detect the shape of the catheter. Finally, the boundary of the catheter shape traced and plotted on the original image. The detection was compare using Hough Transform Algorithm. The result can be used as initialization points for automatic intravascular ultrasound segmentation.

Delaunay triangulation of a missing points

Noorehan Awang and Rahmita Wirza Rahmat

Abstract

Surface reconstruction of scattered data points is one of the challenging area where the main purpose is to produce a smooth surface. In this research, Delaunay triangulation method was used to construct surface of scattered data points for six different test functions. In certain cases, some surface producing holes after scanning where it becomes difficulty to produce a smooth surface. This research intends to test the accuracy of Delaunay triangulation in generating different surface when the points of scattered data were removed. The points removed were according to the percentage of points and the new surface was generated for every removing point. The result of the study shows interpolating surface produced by the removing points and the total absolute error with mean absolute error was calculated and compared.

Analytical study to the pain of elbow joint for injured tennis players

Maher Abdul Hamza

Abstract

The game of tennis individual games that require the player high physical effort, so it has to be physical construction of the player commensurate with the requirements of this game. But the problem is that the coaches do not rely on the physical construction Specialist of the game, in terms of the balance of power between the parties of the body and the instrument used in the game in question, which in turn resulted in accurate chronic injuries eventually led to the ill in the elbow joint. The sample search included (4) of the injured players advanced to the game of tennis and aged (23.1 ± 0.89) and who suffer from chronic pain in the elbow joint. After conducting tests and analyzing the performance of the players noted the researchers that the amount of force exerted by the player to beat the reaction Tennis force as a reaction is not sufficient for the continuation of the player with the same performance, forcing him to make a much larger force than usual and this naturally led to the injury of the players. And according to the relevant research results, the researchers concluded that the focus on training is very important to protect the relative strength of the elbow joint from injury, as well as with the rest of the body parts, which is focused on performance. Also, training in accordance with the mechanism of skill specialization for each important skill in increasing the amount of strength and avoids injury that the player be a dividing line between the player and the court. This paper uses computer based analytical study to the pain of elbow joint for injured tennis players

Valve Leaflet Detection Using Enhanced Thin Tissue Detector And Pixel Tracker

Naziffa Raha Md Nasir, Rahmita Wirza Ok Rahmat, Puteri Suhaiza Sulaiman, Suhaini Kadiman and Mohd Zamrin Dimon

Abstract

In the past decades, echocardiography has appeared as an important modality in medical field to assess heart's function and structures as well as for diagnosis and evaluation. Many image processing researches are done to enhance the imaging aspect and produce better quality of image. Accurateness in measuring tricuspid valve is an important issue, not only for surgical decision-making process but also in deciding the suitable surgical technique on patient such as valve implication or ring placement. In this paper, we will discuss on techniques that have been applied recently in detection of tricuspid valve's leaflets and as for experiment, three dimensional transesophageal echocardiography images were used using pixel tracking technique and thin tissue detector. Our findings will be focusing more on those techniques applied on 3D echocardiography images from different angels and positions.

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3D Reconstruction Methods Based on Multi-view for Complex Anatomy, Learning – a Preliminary Study

Suriati Ahmad, Rahmita Wirza O.K Rahmat, Rafidah Binti Hod

Abstract

Contemporary educational methods for teaching complex anatomical regions are considered inadequate as it is nearly impossible for medical students to investigate in depth the layered anatomy structures and explore the complex structures from different angles which might enlighten their perception and understanding. The explanatory text and the visual representations of the anatomy area appearing in a number of manuscripts are inadequate to convey the complexity and the volume of the information related to the complex region. Notably the 2D representations were intended to be used as preparatory means of information to cadaveric dissections and demonstrations which can effectively present the three-dimensional relationships of the said anatomy area. However, the shortage of cadaveric material presented a significant issue in this learning method, the only prominent method left to explore, was the digital reconstruction of the human body which offers a better real-life representation. Studying AR (Augmented Reality) in medical education could provide benefits for medical education and provide students a more personalized and exploration learning experience. We intend to explore on how to use natural gestures for input in AR medical education applications, which provide intuitive interaction and also research on 3D representation of the human brain anatomy, with an uncluttered view, where the primary target of the evaluation was to highlight the spatial relation between different layers, organs and structures of the body. To fulfill our intention, our first stage is to explore the 3D reconstruction based on multi-view to visualize more information needed with high accuracy. Feature detection and matching, fundamental matrix estimation, camera self-calibration, 3D reconstruction and dense surface reconstruction are key proportions of 3D reconstruction. We intend to understand the main algorithms in these parts by examining and comparing merits and drawbacks of the methods as discussed in the chosen references.

CASH 2014

19-21 December 2014 Putrajaya, Malaysia

Universal Academy of Science and Technology

Universal Academy of Science and Technology (UNITECH) was established by a number of scholars, researchers and academicians in various fields especially in the field of Science and Technology; their primary aim is to disseminate knowledge among human beings all over the world.

Design for Scientific Renaissance

Design for Scientific Renaissance is established by a number of scholars in various fields; their primary aim is to disseminate knowledge among human beings all over the world.

DSR's Vision

To promote a scientifically fair globalized world.

DSR's Missions

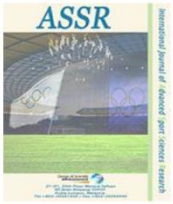
To provide the base for promoting advanced research.

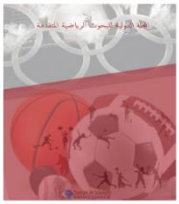
To publish articles and papers in various fields, that adds high value empirically and theoretically.

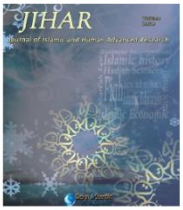
CASD Medical Sdn. Bhd

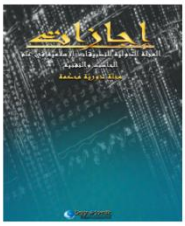
CASD Medical Sdn. Bhd. was incorporated in December 27, 2013 under Malaysia Company Act 1965 with the registration number of 1075506-X. A start-up company seeded from Universiti Putra Malaysia, CASD Medical serve the best in quality and reliability services and state-of-the-art technologies to cater the needs and expectations of the individual and organization in their information visualization and management activities. CASD Medical Sdn. Bhd. assist medical practitioner in making decision and visualize their information through the use of our product and technology. Whether you are a single person or a large business, we designed our system to suit and solve your problem.

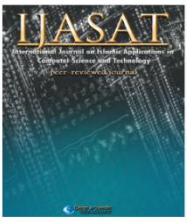
CASD Medical Sdn Bhd believes that the team's holistic approach and vast research experience will place us at the forefront of Computer Assisted Healthcare System today. It is the aim of this company to offer clinical practitioner a feature rich solution.

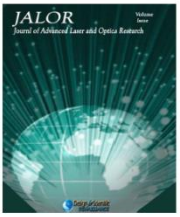


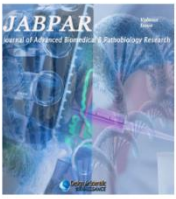


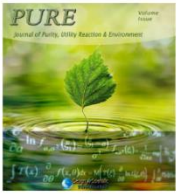


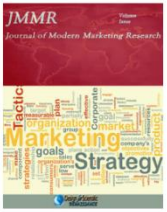












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