Preface

This book is divided into the retrieval section, the storage section, and the user study section.

RETRIEVAL

Sekhar Mandal *et al.* present a unified algorithm for segmentation and identification of various tabular structures from document page images. Such tabular structures include conventional tables and displayed math-zones, as well as Table of Contents (TOC) and Index pages. After analyzing the page composition, the algorithm initially classifies the input set of document pages into tabular and non-tabular pages. A tabular page contains at least one of the tabular structures, whereas a non-tabular page does not contain any such. The approach is unified in the sense that it is able to identify all tabular structures from a tabular page, which leads to a considerable simplification of document image segmentation in a novel manner. Such unification also results in speeding up the segmentation process, since the existing methodologies produce time-consuming solutions for treating different tabular structures as separate physical entities. Distinguishing features of different kinds of tabular structures have been used in stages in order to ensure the simplicity and efficiency of the algorithm, as explained in this paper and demonstrated by exhaustive experimental results.

Creation of a document image library involves a chain of thorough and intense activities like scanning, per-processing, segmentation, layout analysis, storage and retrieval, etc. Hence, it is still constrained with the requirement of huge manual workloads—particularly for the segmentation and identification of page constituents as a part of the layout analysis. Despite being the most researched field in the domain of Document Image Analysis (DIA), the problems are yet to be solved up to the desired level of accuracy and efficiency. Most of the currently used methods have been designed and tested with some typical applications in mind and have moderate performance apropos the huge variety of document pages in real life. An integrated approach to segmentation and physical analysis of document images is, therefore, imminent for broad classification of the pages utilizing some common criteria. A classification based on the presence of any tabular structure in a page may lead to better segmentation at a lower computing cost. It may be noted that, by the term "tabular structure," which means anything that visually resembles a table. Careful observation would reveal that tabular items are quite common in document pages; for, any table, table of content (TOC), index page, and most of the displayed math-zones exhibit the tabular nature. Moreover, a simple test based on spatial criteria is enough to detect these tabular structures. With this backdrop, here, a novel approach is presented, treating any page as tabular or non-tabular for reaping its benefit in subsequent DIA tasks.

Handwriting bears the touch of personality traits of an individual, and hence has been studied in numerous disciplines including experimental psychology, neuroscience, engineering, anthropology, forensic science, etc. In the realm of computer science, analysis of handwriting has been an important field that strives to interpret, verify, and recognize a particular handwritten document. The segmentation of cursive handwriting is one of the most difficult problems in the area of handwriting recognition. The infinitude of different types of human handwritings amidst the similarities in the shapes of different characters, renders the problem even more difficult. Hence, over the last few years, various works have been presented for specific domains, e.g., Bengali character recognition, text line identification, numeral recognition, address reading, tax reading, office automation, automated postal system, etc.

Handwriting recognition techniques are based on either holistic or analytic strategies. In the holistic method, a top-down approach is employed where the whole word is recognized by comparing its global features against a limited size lexicon. On the other hand, analytic strategies adopt the bottom-up approach starting with characters, strokes etc., eventually producing the meaningful text. Clearly, in connection with handwriting recognition, it is important to extract/segment the words in a cursive writing such that the task of segregating the individual characters and strokes may be taken up. The segmented regions may be found out from the peaks of the projection profile of a gray-level image. It is also important to properly extract the baselines such that the words can be segmented properly. Information about the upper and the lower baselines are necessary to avoid problems arising out of ascending and descending portions of the characters. In general, the baselines are extracted from the projection profile. As per the existence practice, the text line segmentation is usually done by considering a subset of the connected components in a document image. Word segmentation is achieved using the distinction of inter- and intra-word gaps using a combination of two different distance metrics.

To overcome the disadvantage of different distance measures in word segmentation, a gap metric based on the average distance is used for word segmentation. A number of works have been reported in the literature for line and word segmentation in other languages, e.g., Chinese, Arabic, etc. Chinese word segmentation has various applications on Chinese text processing. The algorithm for detection of straight or curved baselines for Arabic handwritten text can be applied on online handwriting or off-line handwritten writing. A method for precise identification of ascending or descending parts of the words has been proposed using lexicon based search.

Mousumi Dutt *et al.* have devised a novel method to segment out the words in a cursive handwriting by using the outer isothetic covers of the words constituting the handwritten document. The method has also the advantage of extracting the upper and the lower baselines by analyzing these covers corresponding to the handwritten words. Owing to the combinatorial nature of its traversal strategy while deriving the minimum-area isothetic covers corresponding to the words, and hence describing the covers as sequences of their vertices (or/and edges), it is endowed with an easy solution to locate the baselines of different words — whatsoever be their patterns and letter-wise constitution — as shown in this chapter. A fast decision policy based on the covers, coupled with usage of operations strictly in the integer domain, make it fast, robust, and efficient, thereby depicting its compliance for real-time applications.

In hospitals and medical institutes, a large number of mammograms are produced in ever increasing quantities and used for diagnostics and therapy. The need for effective methods to manage and retrieve those image resources has been actively pursued in the medical community. The author Jinn-Ming Chang proposes a hierarchical correlation calculation approach to content-based mammogram retrieval. In this approach, images are represented as a Gaussian pyramid with several reduced-resolution levels. A global search is first conducted to identify the optimal matching position, where the correlation between the

query image and the target images in the database is maximal. Local search is performed in the region comprising the four child pixels at a higher resolution level in order to locate the position with maximal correlation at greater resolution. Finally, this position with the maximal correlation found at the finest resolution level is used as the image similarity measure for retrieving images. Experimental results have shown that this approach achieves 59% in precision and 54% in recall when the threshold of correlation is 0.5.

Breast cancer is the most common cancer among women. The National Cancer Institute (NCI) recommends that women over the age of 40 and older should have routine screening mammography every one to two years. The U.S. Preventive Services Task Force (USPSTF) recommends biennial screening mammography for women aged 50 to 74 years. An enormous number of digital mammograms have been generated in hospitals and breast screening centers as mammography is an accurate and reliable method for the detection and diagnosis of breast cancers. These valuable mammograms which show various symptoms, allow radiologists to conduct medical studies and assist them in diagnosing new cases. The most important aspect of image database management is how to effectively retrieve the similar images based on the lesion of a given example. This approach of searching images is known as content-based image retrieval (CBIR), which refers to the retrieval of images from a database using information directly derived from the content of the images themselves, rather than from accompanying text or annotation. CBIR can help radiologists to retrieve mammograms with similar contents.

Due to the nature of mammograms, content-based retrieval for similar lesions is faced with some challenges. Low resolution and strong noise are two common characteristics. With these characteristics, Lesions in mammograms cannot be precisely segmented and extracted for the visual content of their features. In addition, mammograms obtained from different scanning devices may display different features, though some approaches to image correction and normalization have been proposed; Mammograms are represented in gray level rather than color. Even with the change of intensity, monochrome may fail to clearly display the actual circumstance of lesion area.

Content-based image retrieval (CBIR) has been proposed by the medical community for inclusion into picture archiving and communication systems (PACS). In CBIR, relevance feedback is developed for bridging the semantic gap and improving the effectiveness of image retrieval systems. With relevance feedback, CBIR systems can return refined search results using a learning algorithm and selection strategy. In the study presented by Chee-Chiang Chen, as the retrieving process proceeds further, the proposed learning algorithm can reduce the influence of the original query point and increase the significance of the centroid of the clusters comprising the features of those relevant images identified in the most recent round of search., The proposed selection strategy is employed to find a good starting point and to select a set of images at each round to show that search result and ask for the user's feedback. In addition, a benchmark is proposed to measure the learning ability to explain the retrieval performance as relevance feedback is incorporated in CBIR systems. The performance evaluation shows that the average precision rate of the proposed scheme was 0.98 and the learning ability reach to 7.17 through the five rounds of relevance feedback.

Nowadays artificial intelligent (AI) driving has become an emerging technology, freeing the driver from the boring travels. More important, the AI system for automatically driving is supposed to be more secure in theory than the human drivers, because the system will never be too exhaustive to response the accident in time. In automatic driving, Geographic Positioning System (GPS) has become an essential component, which aids AI to find the correct route and drive to the destination along the route following the directions predefined on the electronic map. In theory, AI system should be able to drive only

depending on GPS, following the directions, such as speed limit, one way only, and etc, on electronic map. However, one inevitable situation may happen where the route may be updated due to the road work, route adjusting and etc, while the corresponding directions on the e-map will be updated periodically in half a year. This asynchronization on directions of e-maps and the actual traffic signs will cause the AI system fail from the real time driving.

Some techniques for automatic driving have been developed in recent years, however, most of these developments can only recognize the traffic signs in particular groups, such as triangle signs for warning, circle signs for prohibition and etc but could not tell the exact meaning of every sign. Without understanding the exact meaning of every sign, the AI system cannot drive automatically but need the driver to determine the route when it encounters any traffic signs. Subsequently, it is an essential work to design a system could recognize the exact meaning of every traffic signs. In this paper, Yue Li and Wei Wang propose a framework on traffic system recognition system, which consists of two phrases that a segmentation method is used to detect the traffic sign while the Content-Based Image Retrieval (CBIR) method is used to match the detect traffic signs and the traffic signs in the database.

STORAGE

For image analysis, to investigate more closely a specific area within the image is desired. For this desire, to enlarge the specific area is engaged. In the video sequence, for a specific area within an image frame, zoom in on it could enlarge it. The enlarged area can be recognized efficiently. Image resolution enhancement refers to image processing algorithm which produces a high quality and high resolution image from a low quality and low resolution image. It includes two procedures. The first is the problem for finding a mapping between high resolution image and low resolution image. The second is the problem for calculating all the pixel values of the high resolution image from its low resolution version. The mapping between them is always chosen by a linear mapping system in the literature proposed by Lung-Chun Chang *et al.* However, for the CCD (charged-coupled devices) camera, the resolution of enlarged images is produced by the lens. The linear mapping system is not suitable. In addition, due to the linear mapping system, the scale of the image to be enlarged is always an integer scale once. Thus, in this paper, they focus on the design of the mapping system and the mapping system can enlarge the image by a real scale. In the second procedure, image interpolation addresses the problem of generating a high resolution image from its low resolution version. Conventional linear interpolation schemes (e.g., bilinear and bicubic) based on space-invariant models fail to capture the fast evolving statistics around edges and annoying artifacts. Linear interpolation is generally preferred not for the performance but for computational simplicity. Many algorithms have been proposed to improve the subjective quality of the interpolated images by imposing more accurate models.

The magnifier is a perfect optics tool. It is easy to enlarge the resolution of images by a real scale. In this paper, a virtual magnifier is constructed and simulated. Using the virtual magnifier, the mapping between high resolution pixels and low resolution pixels is obtained. Further, a traditional interpolation algorithm is applied into the mapping of the high resolution image and low resolution image. With three real images, experimental results demonstrate that the proposed algorithm has a high quality in the human visual system.

Nowadays many digital forensic techniques for digital images are developed to serve the purpose of the origin identification and integrity verification for security reasons. Generally speaking, these methods

can be divided into two classes, the methods based on the extracted features, which are usually the high frequency noise inside the investigating images and the methods based on the contents of the images. Different techniques may be developed specially against different forging attacks, while be vulnerable to other malicious manipulations on the images. This chapter presented by Yue Li is to review the most popular techniques in order to help the user to understand the techniques and find the most proper methods for variety forensic purpose in different situations.

The widely applied digital imaging devices bring great convince to the people in daily life. At any time, people can capture scenes around them by the portable cameras or the built-in camera in the mobile; the government can achieve 24-hour surveillance by the widely installed CCTV; the journalists can records the 1/24-second-motions by the professional camera. However, the security of the captured digital images remains unprotected and such problem needs urgently investigation by the research and the engineer. The malicious user can easily forge an image with modified contents or replace the output images of the camera with a fake one. These operations are defined as attacks in the study of security of multimedia and protection of digital libraries while the users who operated these attackers are defined as attackers. Practically, these attacks may be operated for different purposes. For example, the attacker may fake an origin marks in the image to announce an illegal copyright of the digital multimedia products, or the attacker may modify the contents inside an image or a video, which is used as evident in court. It is obvious that these attacks will cause tremendous loss in practical if no proper protections are implied, and therefore, many security techniques have been developed to fight against these attacks.

Digital watermarking is traditionally developed to protect the digital multimedia products. The term of digital watermarking, which is similar to the real watermarking implanting a mark in the secret paper documents or bank notes, refers to an operation embedding an imperceptible mark into the digital multimedia products to authorize the integrity and origin of the images. The user, who needs to authorize the products, extracts and investigates the integrity of the embedded watermark. If the watermark is broken or destroyed, then the product is deemed as forged. Digital watermarking techniques may be developed to achieve advance functions. For example, some techniques can localize which area is modified by the attacker, whereas other techniques can survival after the attack and can be further used to reconstruct the images.

Despite of the advantages in theory and effectiveness in practices, digital watermarking is not widely applied in the implementation due to some disadvantages. Forensic techniques are developed rapidly in recent years and tends to replace digital watermarking as the most effective and applied techniques for digital products and library protection. In this paper, Yue Li reviewed the main classes forensic methods currently used.

Digital image authentication refers to all the techniques performing anti-falsification, digital image copyright protection or access control. A large number of DIA techniques have been developed to authenticate digital images, including cryptography-based digital image authentication (CBDIA) techniques and data-hiding-based digital image authentication (DHBDIA) techniques. This paper presented by Yue Li is not only to provide some practical applications on image authentication, but also describe general framework of image watermarking and the general techniques, including robust watermarking, fragile watermarking and semi-fragile watermarking. Finally, this paper also addresses the potential issues on future research directions, including managing the PRNU database, development of advanced PRNU-based blind authentication techniques, and search for digital fingerprints.

The digital forensic techniques for digital images are developed with the origin identification and integrity verification functions for security reasons. Methods based on photo-response-non-uniform

(PRNU) are widely studied and proved to be effective to serve the forensic purposes. However, due to the interpolation noise, caused by the color filtering and interpolation function the accuracy of the PRNU-based forensic method has been degraded. Meanwhile, the tremendous physical storage requirement and computation consumption limit the applications of PRNU-based method. Therefore, an innovative DPRNU-based forensic method has been proposed in order to solve the above problems. In the method, the artificial component and physical component are separated according to the color filtering array (CFA) and the PRNU are only extracted from the physical component in order to remove the interference caused by the interpolation noise, which increases the accuracy of the camera identification and integrity verification. Meanwhile, due to the separation, the DPRNU are only 1/3 of the size of the traditional PRNU, which saves considerable physical storage in setting up the digital library and fasters the comparison speed between the fingerprints.

The widely applied digital imaging devices bring great convince to the people in daily life. At any time, people can capture scenes around them by the portable cameras or the built-in camera in the mobile; the government can achieve 24-hour surveillance by the widely installed CCTV; the journalists can records the 1/24-second-motions by the professional camera. However, the security of the captured digital images remains unprotected and such problem needs urgently investigation by the research and the engineer. The security problem can be summarized as which person/device produces the image and whether the image is modified. As a result, the digital forensic techniques for digital images are developed with the origin identification and integrity verification functions in order to solve the aforementioned problems.

Generally speaking, the forensic techniques extract a fingerprint, which is a digital feature left by the digital imaging device, and compared it to the reference fingerprints representing a set of imaging devices in the database. Depending on the comparing result, the forensic techniques can identify the origin and verify the integrity of the digital images. Due to the necessity of the reference fingerprint, setting up a digital library, which stores the majority reference fingerprints of the digital devices and connect to internet/intranet, is essential to serve the forensic purposes. With the aids of the digital fingerprint library, the user can identify the source cameras by comparing the fingerprints of the camera under investigation and the fingerprint stored in the library and representing sample cameras. Meanwhile, the user can investigate the integrity of the photo using the fingerprints. Compared to the sample fingerprint in the library, if the investigated fingerprint is partially broken or entirely destroyed, then the corresponding photo can be verified as tampered in the corresponding area or entirely faked due to the destroyed fingerprint. As a result, the digital library of the fingerprint can greatly benefits the user in the forensic application. However, in setting up such digital library, the user may face the serious problem in the physical storage requirement and tremendous time consuming in the computation. The most representative and widely applied forensic method based on PRNU is reviewed and the corresponding limitations in setting up a library on this method in the paper are discussed by the author Yue Li.

The distribution of typhoon and its variation are very important for disaster prevention and worthy of study. The satellite data provides typhoon cloud image for analyzing the cloud structure and wind driven velocity of typhoon. The typhoon cloud images are not clear often, there are many kinds of noise in it, which may affect to accurately segment the helical cloud band or extract some information from the typhoon cloud images. Both noise reduction and contrast enhancement are usually applied in a typhoon cloud image for location, rotation, tracking, and forecast.

Recently, the typhoon eye is the interested behavior for research. Since the portion surrounding the eye will do the most damage, the typhoon center recognition is important for weather forecast and typhoon analysis. When the typhoon reaches to certain strength, there will be an eye appeared at the center. As

the strength of the typhoon getting stronger, the eye tends to a circle and also becomes clearer. When the typhoon arrive the land, its strength will decrease and the eye may be non-clear. However, the typhoon cloud images are planar pictures. Recently a 3-D profile reconstruction is an interesting research topic for recognizing the practical typhoon. The segmentation of the satellite cloud image was sliced in horizontal plane to obtain a series of 2D surfaces, and reconstruct the 3D cloud or storm.

Based on the vertical segmentation, IRT is used to reconstruct a 3-D profile of typhoons from MT-SAT satellite cloud image data. The objectives of this paper presented by Yueh-Jyun Lee *et al.* are three folds: first, to slice the line profile from that satellite cloud image data and present the height variations under the conversion of the temperature; second, to construct the mesh-amplitude model in depicting the height distribution of the cloud top from a surface cloud image. The 3-D profiles of typhoons are constructed with the surface cloud images and the temperatures; third, to recognize the eye of the typhoon. IRT is conducted using the data of the 2010 Megi typhoon in three time interval. An effective early-warning system may become feasible based on this work. They present the numerical results with discussion and conclusions finally.

With the boosting demand for water, and many challenges related to water availability, food security, pollution, and environmental degradation, it becomes an imperative and necessity to establish good water policy planning for sufficient supply of water consumption. An agent with autonomy, self-learning, and coordination can serve as an efficient approach for water policy planning in view of its following features. Firstly, an agent can stand for different institutes or groups related to water resource and fulfill autonomously its duty that is assigned to itself. Secondly, an agent can self-learn and anticipate the oncoming water demand and trend in water resource development, in a changeable and unpredictable environment of water resource. Thirdly, an agent can coordinate and solve a problem in water policy planning from perspectives of its self- and overall-interest. In Addition, agent negotiation is an iterative process through which a joint decision is made by two or more agents in order to reach a mutually acceptable agreement. Many approaches to such negotiation have been proposed, including negotiation support systems (NSSs), a game theory-based model, a Bayesian model, evolutionary computation, and distributed artificial intelligence.

NSSs emphasize support, rather than automation. In the game theory-based model, the agent's utility for each possible outcome of an interaction is used to construct into a pay-off matrix. The aim of the game theory-based model is to formalize agent negotiation in a context in which each agent tries to maximize its own utility with respect to other agents. However, the pay-off matrices are generally based on some unrealistic assumption that all agents have common knowledge of the pay-off matrix. Even if the pay-off matrix is known, it may quickly become intractable for large games that involve multiple issues and agents. As a result, the use of negotiation strategies based on game theory should generally be treated with skepticism. In the Bayesian model, a Bayesian network is used to update an agent's knowledge and beliefs about other agents, and Bayesian probabilities are employed to generate offers.

Fuzzy constraints can serve as a natural means of modeling a buyer's requirements over products' single issues and the combination of the products' multiple issues. They are also appropriate for modeling trade-offs between different issues of a product, and capturing the process by which a buyer relaxes his constraints to reach a partially satisfactory deal. Hence, the authors Menq-Wen Lin *et al.* present a general problem-solving framework for modeling multi-issue agent negotiation in e-marketplace via fuzzy constraint processing. In this framework, all participants involved in water policy planning are modeled as agents. Agent negotiation is formulated as a distributed fuzzy constraint satisfaction problem (DFCSP). Fuzzy constraints are used to define each participant's professional views and demands.

The agent negotiation can simulate the interactive process of all participants' water policy planning. A concession strategy, based on fuzzy constraint-based problem-solving, is proposed to relax demands and a trade-off strategy is presented to evaluate existing alternatives. This approach provides a systematic method to reach an agreement that benefits all participants' water policy planning with a high satisfaction degree of fuzzy constraints, and move towards the deal more quickly since their search focuses only on the feasible solution space. An example application for modeling water policy planning via agent negotiation is considered to demonstrate the usefulness and effectiveness of the proposed approach.

Along with the interest in studying the immune system increasing over the last few years, a new field of research called artificial immune systems has arisen. The artificial immune systems, which is inspired by theoretical immunology and observed immune functions, principles and models, has been applied to the various fields of engineering science to solve many complex problems, such as pattern recognition, robotics, anomaly detection, data mining and optimization.

The authors Wei Wang *et al.* propose an affinity based complex artificial immune system model to simulate the actual immune response. In this model, they build a neighborhood set consisting of several immune cells with higher affinities to a certain input antigen than the other immune cells based on the SOM principles. All the weights of cells located in the neighborhood set have their weights updated according to the affinities. The results of simulation on pattern recognition show that the proposed system model can recognize the transformation patterns in high accuracy and it has obvious higher noise tolerance ability than the previous system models.

USER STUDIES

The attitudes of librarians in Nigerian university libraries have the potential to encourage or discourage digital libraries in e-learning. The author Edwin I. Achugbue addressed and discussed the attitudes of librarians towards digital library in e-learning, the imperativeness of training and knowledge for effective functionality of digital libraries in Nigerian universities. The paper uses descriptive survey method to explore the attitudes of librarians towards digital libraries, advantages of digital libraries and the types of e-learning that can be supported by digital libraries. It was undoubtedly discovered that training and knowledge are sine qua non of a positive attitude towards digital libraries in e-learning. And there was a high interest in the use of online information by researchers and learners but lack of awareness and how best to integrate e-learning resources into digital libraries pose a great challenge to the librarians in Nigerian universities. This paper provides a useful insight into the attitudes of librarians towards digital libraries, the role and influence of digital libraries and online resources on e-learning.

To review the role of public libraries in bridging the digital divide in Delta State is conducted by Justice Owajeme Ofua and Ogochukwu Thaddaeus Emiri. It calls for the adoption of appropriate infrastructure and other innovative measures like introduction of appropriate computer related programs in schools, encouraging citizenry to pick up carrier in the area of science and technology, embanking on enlightenment and awareness programs and setting up regional/local information resource centers by government especially through the use of the internet also, the challenges of digital divide was also revealed. The work concludes that unless appropriate measures are taking in Delta State and Nigeria generally they will be relegated to the background in this knowledge age.

Justice Owajeme Ofua and Ogochukwu Thaddaeus Emiri found out students' perception and attitude to vandalism in the library in their study. To gather the required information, a questionnaire was distrib-

uted to 1400 randomly selected students of university libraries in the South-South zone of Nigeria out of which 718 responded. Result of their responses revealed that vandalism of library materials in the form of theft, mutilation and hiding of books and journals, is largely regarded as a form of academic survival, this makes student to put up "I don't care" attitude to library materials. The major causes of vandalism of libraries materials include limited library collections; restrictions in the use of some materials; number and duration of loans; insufficient number of copies of recommended textbooks; unaffordable cost of personal textbooks; high cost of photocopying as well as peer-influence. Amongst others, researchers recommend the following: training and retraining program for users, extension of loan period; adequate funding; robust security measures and punishment of offenders.

The article conducted by Pereware A. Tiemo and Nelson Edewor is to survey the Information Communication Technology (ICT) readiness of higher institution libraries in Delta State, Nigeria. By means of questionnaires and observation techniques, data were collected from the higher institution libraries. Frequency counts and percentages were used to analyze the data generated. Findings revealed the higher institution libraries ICT demographics, available ICT facilities and equipment, critical service areas automated in these libraries, as well as constraints to ICT use to include poor funding, inadequate skilled manpower, non reliability of electricity supply, inadequate technical support, poor implementation of policies, and lack of maintenance. The study concludes that higher institution libraries in Delta State, Nigeria, are yet to fully embrace ICT in library and information service delivery. Some recommendations that can facilitate the use of ICT in these libraries were also set forth.

In the traditional SCW environments, related Web services are integrated into business processes. The author Fang-Chuan Ou Yang points out that web service still bring less than expected benefits to small corporations and end-users for two reasons: 1) the web service only focuses on data level and is difficult to implement the presentation-centric business contexts. 2) The small corporations and end-users usually do not have enough IT competences to write a client or user interface to interact with web services. In order to solve these problems, the author propose a presentation-preserved compositional approach for service-oriented architecture (PCSOA), which extends the existing data-oriented compositional approaches for web services to provide a more flexible methodology to orchestrate both data level and presentation level services during the workflow integration. A prototype is also built to validate the feasibility of our approach.

The study proposed by Justice Owajeme Ofua and Tiemo Aghwotu Pereware is to focus on technostress, effects and measures taken to avoid it among librarians in university libraries in Nigeria. The descriptive survey design was adopted and five university libraries in Edo and Delta States were used for the study. The sample size for the study was 79 using the purposive sampling technique, the questionnaire was the main instrument used for data collection, simple percentage and Chi square was used in analyzing the data collected. Among the findings were technostress can be avoided by librarians, by taking the following measures; purchasing user friendly interface software, regular Staff training on ICTs, and develops positive attitude towards technology etc.

Universities around the world are now investing heavily on electronic resources especially academic libraries where users are exposed to various e-resources through the Internet. As a way of embracing the new development in e-library, the University of Ilorin, Nigeria, have spent millions of dollars on building usable e-library. However, previous research has indicates that potential users may still not use them. Not this alone, there have been no single study indicating use and acceptance of this library in the context of this university and Nigeria as a whole.

The study is to examine user acceptance of e-library from the perspective of technology acceptance mode (TAM). E-library system characteristics, organizational context and individual characteristics are identified as variables that determine the acceptance of e-library. Design: A survey design approach was adopted to carry out the study. Data was collected through self-designed questionnaire from 1,500 undergraduate users of e-library. Results/Findings: The findings of the study revealed that the entire acceptance constructs: ease of use, perceived usefulness, actual use, satisfaction, relevance, awareness, computer/internet self-efficacy and social influence significantly correlate with e-library acceptance. Moreover, the study suggests that all eight factors jointly pulled 69% prediction of the users' acceptance of e-library; and that, all the constructs are good predictors of e-library acceptance.

This study recommends among other that users of e-library users in the university should increase their computer and internet self-efficacy as this is expected to further enhance significantly their use of the e-library system. The university was as well call upon to assist in this matter by organizing computer training for the students. If this is done, it assumed that it will help the students to develop internet browsing skills. This study constitutes one of the pioneer studies predicting acceptance of e-library from technology acceptance model point of view. The study extended and modified technology acceptance model thereby contributing to literature in this area.

Enterprise Resource Planning (ERP) has become the core of successful information management and is also the foundation of corporate information systems for treating with everything related to corporate processes. The ERP implementation has been considered a complicated process because introducing process is involved with different potential conditions and factors so that they may affects the ultimate performance of ERP systems. The study presented by Hsin-Ju Wei and Chia-Liang Wei is to analyze success factors of introducing SAP system for ERP implementation in small and midsized firms. To achieve the aim, they firstly found out past critical factors affecting the ERP implementation by means of literature review in order to understand the results of past studies. Next, they widely collected the critical success factors from previous studies and sifted out representative factors to make up the questionnaire in according with the purpose of the research. Through the pilot study and questionnaire revision, they identified the content of the questionnaire and started interviewing job. When interviewing activities were finished, they began to study and analyze these data. Finally, they generated results. Their survey results indicate that three of the most important factors affecting ERP implementation are "top management support and commitment," "project manager's competence" and "communication and coordination effectiveness."

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