Reliable Software Engineering
High Performance Computing
Computer Networks
Computer Architecture
Machine Learning
Computer Vision
Information Retrieval
E-Government
Information Management
Digital Library
E-Business
Distance Learning
Information Management
Digital Library
High Performance Computing
Computer Networks
Computer Architecture
Machine Learning
Computer Vision
Information Retrieval
E-Government
Information Management
Digital Library
E-Business
Distance Learning
The establishment of the Faculty of Computer Science (FASILKOM UI) stemmed from the founding of Universitas Indonesia’s Computing Centre (PUSILKOM UI) in 1972. This institution was established with the aim of developing the area of computer science in Indonesia.

The centralization of computer science related equipment and trained personnel in PUSILKOM UI over the next few years, along with the increased demand for graduates in the field meant that it was time for UI to create a program of study specifically in this field. 1986 saw the commencement of the undergraduate level program in Computer Science, with a masters program following suit in 1988. 1993 saw the formation of The Faculty of Computer Science; all of UI’s existing programs of study in computer science were then organized under this faculty.

PUSILKOM UI became the academic business unit of the faculty in 2005. This unit business is the facility for the staffs of Fasilkom UI for their public service dedicated for the society.

**RESEARCH LABORATORIES**

1. Digital Library and Distance Learning
2. E-Government & E-Business
3. Reliable Software Engineering
5. Machine Learning and Computer Vision
6. Information Retrieval
7. Information Management

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**THE HISTORY**

The establishment of the Faculty of Computer Science (FASILKOM UI) stemmed from the founding of Universitas Indonesia’s Computing Centre (PUSILKOM UI) in 1972. This institution was established with the aim of developing the area of computer science in Indonesia.

The centralization of computer science related equipment and trained personnel in PUSILKOM UI over the next few years, along with the increased demand for graduates in the field meant that it was time for UI to create a program of study specifically in this field. 1986 saw the commencement of the undergraduate level program in Computer Science, with a masters program following suit in 1988. 1993 saw the formation of The Faculty of Computer Science; all of UI’s existing programs of study in computer science were then organized under this faculty.

PUSILKOM UI became the academic business unit of the faculty in 2005. This unit business is the facility for the staffs of Fasilkom UI for their public service dedicated for the society.

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**VISION AND MISSION**

**VISION**

Faculty of Computer Science Universitas Indonesia (FASILKOM UI) strives to maintain its position as an internationally acclaimed hub for research and education in the field of CS and IT in Indonesia. FASILKOM UI also strives to maintain its health and integrity as an organization, as well as to continue working towards Indonesia’s advancement in these fields.

**MISSION**

FASILKOM UI has the following mission statement: We strive to: (1) Produce graduates that are globally competitive. (2) Create, develop, and implement advances in information and communication technology that will be beneficial to the development of Indonesia as a nation. (3) Be morally and socially responsible in our activities, ensuring that our staff and graduates upholds FASILKOM UI’s principal values.

**ORGANIZATIONAL CULTURE**

FASILKOM UI aims to provide high-quality, intelligently designed and well-organized service to the community, adhering to the faculty motto of “Excellence in Teamwork.” The diversity of the academic programs offered illustrates FASILKOM UI’s commitment towards fulfilling the community’s needs for knowledge in CS and IT. FASILKOM UI designs academic activities that integrates education, research, and duty to the community. All our human resources are deployed to facilitate those three aspects, in line with the high demand of skilled workforce in CS and IT fields.
Universitas Indonesia (UI) as the oldest university in Indonesia has a vision to be a world class Research University. Faculty of Computer Science is one of the faculty that support the vision. To achieve its vision, Faculty of Computer Science UI try to improve both our quantity and quality publications. Faculty of Computer Science UI always encourages its researchers to improve their quality of research and publish the results. In recent 5 years, Faculty of Computer Science has more than 100 research grants and it result an International Journal and Conferences.

Since 2011, there have been a lot of researches conducted by Faculty of Computer Science Universitas Indonesia’s researchers. In 2013, Faculty of Computer Science Universitas Indonesia's total research funding more than IDR 4 Billions which is the highest total research funding until 2015. Our research funding comes not only from Universitas Indonesia but also comes from Indonesian Government and other research grants. In order to improve our funding for research activities, we plan to make more research agreements between universities around the world.
This lab is a research-oriented lab focusing on three main areas: Computer Networks, Computer Architecture, and High Performance Computing. One of the main expected outputs from this lab is having analytic skill in computer architecture and its performance as well as the ability to design simple computer systems such as robots. Recent research topics from this lab are in the field of biomedics, drugs design using GPU, and traffic information.

**RESEARCH TOPICS**

1. Indonesia Cyber Defense Framework
2. Next Generation Networking
3. Wireless Sensor Network
4. Odor Source Localization, Swarm Robot
5. Traffic Signal Control System
6. Autonomous Telecommunication Networks
7. Smart Cardio Device
8. Smart Ultrasonography for Telehealth
9. Smart Home System
10. Grid/High Performance Computing, etc

**RESEARCH GRANTS**

4. (2015-2016) Sistem Social Internet Of Things (IOT) Untuk Ruang Dan Lingkungan Cerdas (Smart Space) Berbasis Informasi Konteks Dari Crowdsourcing, etc

**LABORATORY MEMBERS**

1. Adhi Yuniarto L.Y., M.Kom.
3. Ari Wibisono, M.Kom.
4. Bayu Anggoro Jati, Ph.D.
5. Bob Hardian Syahbuddin, Ph.D.
7. Gladhi Guarddinn, M.Kom.
8. Hadaiq Rolis Sanabila, M.Kom.
9. Heru Suhartanto, Ph.D., Prof.
11. M Anwar Ma’sum, M.Kom.
12. Muhammad Hafizuddin Hilman, M.Kom.
13. Petrus Mursanto, M.Sc., Dr.
15. Widiqanto Satyo Nugroho, Ph.D.
16. Wisnu Jatmiko, Dr.Eng.
17. Yulistiyan Wardhana, M.Kom.

**WEBSITE:**

http://cnahpc.cs.ui.ac.id
Indonesia have a high mortality rate caused by heart and cardiovascular diseases. One of the major factors that caused this issue is the lack of medical check up especially for heart monitoring. It is caused by the limited number of medical instrumentation e.g. ECG in hospitals and public health centers. Another factor is the small number of cardiologist in Indonesia. There are only 365 cardiologists across the country, which is a very small number compared to the 250 million of Indonesia population. Furthermore, they are not distributed evenly in all provinces, but centered in Jakarta and other major cities. Meanwhile, Indonesia also has similar problem in health area. High number of fetal and mother mortality becomes a serious problem. One of the major factors is the lack of fetal growth monitoring. It is caused by the limited number of USG device and Obstetricians in Indonesia. Therefore, fetal growth monitoring is

**Background**

The Tele-ECG system has three main components: an ECG sensor, a smartphone, and server. ECG sensor is used to acquire heartbeat signal from patient. There are baseline wandering removal (BWR), beat segmentation, and wavelet for dimensionality reduction. Afterwards, the signal can be classified to predict the patient’s condition automatically.

Tele-USG System has 2 main components, they are the smartphone and server. In Tele-USG system, we have not developed hardware yet, due to the complexity of the USG sensor. In this system we used ultrasound image captured from conventional USG devices. Software installed in the patient’s smartphone is used to monitor fetal growth.

**Method**

The Tele-ECG system has three main components: an ECG sensor, a smartphone, and server. ECG sensor is used to acquire heartbeat signal from patient. There are baseline wandering removal (BWR), beat segmentation, and wavelet for dimensionality reduction. Afterwards, the signal can be classified to predict the patient’s condition automatically.

Tele-USG System has 2 main components, they are the smartphone and server. In Tele-USG system, we have not developed hardware yet, due to the complexity of the USG sensor. In this system we used ultrasound image captured from conventional USG devices. Software installed in the patient’s smartphone is used to monitor fetal growth.

**Results**

We have been developing classifier algorithm named ANGLVQ to classify hRRT heart beat signal. The performance of the algorithm is above 95%. Next, the signal is sent to server to be verified by cardiologists. To provide fast transmission, we first compressed the signal. For compression, we used 2D SPIHT compression. The error of the compression is relatively low, which is 3.46% for 24 compression ratio. The software can compute HC, BPD, AC, FL, and HL from head, abdomen, femur and humerus organs. For this automated computation we have been developing Hough Transform based curve approximation. Fetal head and abdomen can be approximated by ellipse curve, whereas fetal femur and humerus was approximated by line curve. The approximation algorithm has less than 10% error.
The Information Retrieval Lab at the Faculty of Computer Science, Universitas Indonesia, focuses mainly on the research areas of Information Retrieval and Computational Linguistics. Information retrieval seeks to explore the methods and techniques of organizing, representing, storing, and searching of information in textual and multimedia forms.

**RESEARCH TOPICS**

1. Data Mining
2. Computational Linguistics
3. Natural Language Processing
   - Named Entity Recognition
   - Information Extraction
   - Creative Text Reconstruction
4. Information Retrieval
   - Text
   - Multimedia
   - Peer to Peer and Social Media Analysis
5. Plagiarism Detection, etc

**RESEARCH GRANTS**

3. (2014) Analisis Trend, Overlap, Dan Plagiarisme Pada Teks Bahasa Indonesia Sebagai Upaya Peningkatan Kualitas Pengelolaan Kegiatan Hibah Penelitian, etc

**LABORATORY MEMBERS**

1. Alfan Farizki Wicaksono, M.Sc.
2. Amalia Zahra, M.Kom.
3. Aniati Murni Arymurthy, Prof.
4. Arlisa Yuliawati, M.Kom.
5. Indra Budi, M.Kom., Dr.
7. Clara Vania, M.Kom.
8. Dana Indra Sensuse, Ph.D.
9. Ito Wasito, Ph.D.
10. Meganingrum Arista Jiwanggi, M.Kom.
11. R Yugo Kartono Isal, Dr.
12. Rahmad Mahendra, M.Kom.
13. Wahyu Catur Wibowo, Ph.D.
14. Wisnu Jatmiko, Dr.Eng.
15. Zainal A Hasibuan, Ph.D., Prof.

**WEBSITE:** http://ir.cs.ui.ac.id
BUZZER DETECTION AND SENTIMENT ANALYSIS FOR PREDICTING PRESIDENTIAL ELECTION RESULTS IN A TWITTER NATION
Mochamad Ibrahim, Omar Abdillah, Alfan F. Wicaksono, Mirna Adriani

Description

We explore the possibility of easy-to-gather Twitter data to be utilized as a survey supporting tool to understand public opinion. We present our approach for predicting the results of Indonesian Presidential Election using Twitter as our main resource.

User Interface

User: Normal User, Paid User, Computer User
Sentiment: Positive Opinion, Negative Opinion

Features for Buzzer Detection

<table>
<thead>
<tr>
<th>No</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Average time period for the last 100 tweets from the user</td>
</tr>
<tr>
<td>2</td>
<td>Daily frequency of tweet produced by the user</td>
</tr>
<tr>
<td>3</td>
<td>The age of user account (from the creation date)</td>
</tr>
<tr>
<td>4</td>
<td>The number of URLs mentioned in the last 100 tweets</td>
</tr>
<tr>
<td>5</td>
<td>The number of retweets for the last 100 tweets</td>
</tr>
<tr>
<td>6</td>
<td>The number of followers</td>
</tr>
<tr>
<td>7</td>
<td>The number of following</td>
</tr>
</tbody>
</table>

Mean Average Error (MAE) 0.61

System Prediction 53.76

Time Period Analysis

<table>
<thead>
<tr>
<th>Duration</th>
<th>JOK+</th>
<th>PRA+</th>
<th>JOK+(%)</th>
<th>PRA+(%)</th>
<th>MAE(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days</td>
<td>112682</td>
<td>146881</td>
<td>41.87</td>
<td>58.13</td>
<td>12.28</td>
</tr>
<tr>
<td>10 days</td>
<td>253274</td>
<td>245763</td>
<td>50.76</td>
<td>49.24</td>
<td>2.39</td>
</tr>
<tr>
<td>15 days</td>
<td>409086</td>
<td>338268</td>
<td>54.74</td>
<td>45.26</td>
<td>1.59</td>
</tr>
<tr>
<td>20 days</td>
<td>540976</td>
<td>416521</td>
<td>56.50</td>
<td>43.50</td>
<td>3.35</td>
</tr>
<tr>
<td>25 days</td>
<td>651481</td>
<td>538020</td>
<td>55.58</td>
<td>44.42</td>
<td>2.43</td>
</tr>
<tr>
<td>30 days</td>
<td>750660</td>
<td>591465</td>
<td>54.60</td>
<td>43.60</td>
<td>1.52</td>
</tr>
<tr>
<td>35 days</td>
<td>849763</td>
<td>729079</td>
<td>55.80</td>
<td>45.20</td>
<td>0.65</td>
</tr>
<tr>
<td>40 days</td>
<td>1104850</td>
<td>868558</td>
<td>55.99</td>
<td>44.01</td>
<td>2.84</td>
</tr>
<tr>
<td>45 days</td>
<td>1296539</td>
<td>1024203</td>
<td>55.00</td>
<td>45.00</td>
<td>1.85</td>
</tr>
<tr>
<td>50 days</td>
<td>1383545</td>
<td>1189396</td>
<td>55.77</td>
<td>46.23</td>
<td>0.62</td>
</tr>
<tr>
<td>55 days</td>
<td>1465145</td>
<td>1265170</td>
<td>53.69</td>
<td>46.31</td>
<td>0.54</td>
</tr>
<tr>
<td>60 days</td>
<td>1501945</td>
<td>1291706</td>
<td>55.76</td>
<td>46.24</td>
<td>0.61</td>
</tr>
</tbody>
</table>
RSE Lab focuses on the development of quality software from many factors, including flexibility, maintainability, testability and etc. Conformity to user requirements and problems when operating a large-scale software is also other factors influenced the success of software development. This Lab is also linked to the issue of requirement gathering, deployment and the current problems in software development. Research in this lab also deepen the theories of computation that yield new innovations and to be expected to produce the right information technology in order to increase the independence and competitiveness of the nation.

**DESCRIPTION**

1. Discrete Mathematics
2. Theorem Prover
3. Program Refinement
4. Model Checker
5. Graph Mining
6. Software Quality Assurance
7. Program Verification
8. Software Correctness and Reliability
10. Computational Logic
11. Software Testing and Testbed Generator

**RESEARCH TOPICS**

1. Ade Azurat, Dr.
2. Adila A Krisnadhi, M.Sc., Dr.
3. Afffun, M.Kom.
5. Amril Syalim, M.Eng.
6. Ari Saptawijaya, M.Sc., Ph.D.
7. Belawati H Widjaja, Ph.D., Prof.
9. Heru Suhartanto, Ph.D., Prof.
10. Iis Solichah, S.Kom., M.Kom.
11. Lim Yohanes Stefanus, Ph.D.
15. T Basaruddin, Ph.D., Prof.
16. Siti Aminah, M.Kom.
17. Widiyanto Satyo Nugroho, Ph.D.

**RESEARCH GRANTS**

3. (2014) Perangkat Lunak Bantu Untuk Rekonstruksi Sr S Dari Perangkat Lunak Jadi, etc

**LABORATORY MEMBERS**

**WEBSITE:** http://rse.cs.ui.ac.id
Abstract

Modeling phase in software development holds important role to create suitable requirement to the user’s needs. However, requirement changes from the user can cause difficulty because developer must redesign the model. This issue has been anticipated by a modeling approach, called delta modeling. Requirement changes mechanism using delta modeling can increase efficiency and quality of software development. This new approach is difficult to be implemented by developers who are already used to the traditional methods. Therefore there has to be a systematic mechanism to map the design from standard and traditional approach to the new approach, which is tried to be realized by this research. One of the newest technology, which already implements delta modeling approach, is ABS (Abstract Behavioral Specification).

PRICES research is conducted through several phases. The initiation phase aims to develop translation mechanism from traditional modeling, which are UML Class Diagram, Feature Diagram, and UML Statecharts, into ABS model using ABS Profile. Besides that, this research also develops specific unit test for delta testing support. Mapping mechanism from ABS model to relational database schema is also developed in this research to adjust with popular database approach nowadays. This research also develops ABS-MVC Framework to develop web-based Software Product Line using ABS. The final phase of this research is to integrate the previous results into a software development tool which is adaptive towards requirement changes. This research uses donation report for charity organizations as the case study.

Description

ABS (Abstract Behavioral Specification) is a modeling language that was developed during the course of HATS (Highly Adaptable and Trustworthy Software using Formal Method), an Integrated Project supported by the 7th Framework Program of the EC within the FET (Future and Emerging Technologies) scheme. This project is expanded in the new project called ENVISAGE (Engineering Virtualized Services) which is focused on SLA on Cloud Services. For detail information regarding these projects, kindly visit http://www.envisage-project.eu/ and http://www.hats-project.eu/. We made a contribution to this modeling language in the form of supporting tools.

Results

1. Translation mechanism from UML Class Diagram to ABS model using refactoring by ABS Profile.
2. Tools to automatically translate UML Class Diagram, UML Statecharts, and feature diagram to ABS model.
3. ABS-MVC (Model-View-Controller) Framework to develop web-based Software Product Line using ABS.
4. Implementation of Architectural-Centric Model-Driven Web Engineering (AC-MDWE) Strategy to develop web applications using ABS.
5. Delta-relational mapping to automatically map ABS model to relational database schema.
6. Implementation of object relational mapping to develop web-based Software Product Line.
**DESCRIPTION**

In general, all activities in Digital Library and Distance Learning Lab based on state of the art of how to develop information system. Research in Digital Library and Distance Learning field focused on several aspects, such as how to develop an effective and efficient digital library, how to optimize the libraries resource sharing, contextual-retrieval related to document collection's distribution, how to optimize harvest search and federated search, etc.

**RESEARCH TOPICS**

1. Digital Library
2. Online and Distance Learning
3. Multichannel Access
4. Cloud Technology
5. OER (Open Educational Resource)
6. Semantic Web Technology
8. Interaction Design, Usability, and User Experience, etc

**RESEARCH GRANTS**


**LABORATORY MEMBERS**

1. Baginda Anggun Nan Cenka, M.Kom.
2. Bilih Prayogi, M.Kom.
3. Heri Kurniawan, M.Kom.
4. Heru Suhartanto, Ph.D., Prof.
5. Indra Budi, M.Kom., Dr.
7. Lia Sadita, M.Kom.
8. Rizal F Aji, M.Kom.
9. Siti Aminah, M.Kom.
10. Toemin Achmad Masoem, M.Sc., Dr., Prof.
11. Zainal Arifin Hasibuan, Ph.D., Prof.

**WEBSITE:** http://dl2.cs.ui.ac.id
Abstract

Around two-hundred million Indonesians live in the country’s over 17 thousand islands, leaving a big ‘homework’ for the government regarding education, particularly on how to increase the participation rate and quality of educational services. Currently, the gross participation rate is still below 30 percent. In addition, the Indonesian Human Development Index is still relatively low. Online distance education can be used to improve the quality of education and increase the number of students. The Association of College and Universities in Indonesia, which offers educational programs in computing, information systems, and technology (APTIKOM), has successfully designed a framework for Indonesia Open Educational Resources (I-OER). The framework consists of three components: Open Content (OCT), Open CourseWare (OCW), and Open Education (OED). Specifically for OCT, ontology-based learning object searching technique is applied. The present paper aims to discuss the concept of I-OER and the development of I-OER platform.

Introduction

Geographically, Indonesia is vast and consists of various religions, ethnicities, and cultures. The condition creates challenges to deliver educational services equally. For example, the capacity of existing universities in Indonesia is still limited. It is closely related to the ratio between the number of students and the number of existing faculties. Based on data from the Higher Education, the number of lecturers is currently about 270,579, comprising of 179,965 full-time and 90,614 part-time lecturers. When compared with the number of students (3,874,161), clearly, we must increase the number of educators to provide better education services. Education Statistics Center of Ministry of Education and Culture of Indonesia (Education Statistics Center, 2010) reveals the urgency to improve the qualification of lecturers in each college, in which there are only 5% educators with doctoral degree, 32% with master’s degree, and 56% with bachelor degree. Furthermore, the availability of academic programs is still limited.

The Purpose of the present study

to develop an Open Educational Resources platform by considering local contexts to apply multi-methods approach in evaluating user experience to provide recommendations for improving the platform.

APTIKOM OER (Indrajit, 2014)

Overview

Open Content (OCT) is a place where all the learning contents are stored and managed. OCT contributors are people or organizations that have learning contents in the form of presentation slides, e-books, articles, modules and others. The target of this OCT is the open learning contents that can be used by anyone as a reference and personal development. In the OCT, any person or organization that registers to the system can upload their learning contents, while maintaining its ownership. The data in the OCT can be downloaded by anyone freely and openly.

Open Courseware (OCW) service offers learning resources in group of courseware. Information about the course is provided as much as possible, so that the learner can anticipate the content before downloading the files available. The learning resources available include but are not limited to slide, lecture note, video, and audio. The self-assessment material is also included, so that the learner is able to measure the result of their learning activity. OCW also provides searching facilities based on keyword in course description or in the learning resources itself. This service can be fully accessed without any registration or any payment involved.

Open Education can be viewed as the further development of Open Courseware, which does not only offer learning resources but also education services online. This concept is also a development of e-Learning concept in terms of openness and scalability, in which Open Education focuses to open the learning opportunity to everyone without any boundaries and is also designed to support massive number of participants. Open Education service offers a complete learning environment to support learner’s learning activity. The learning environment includes learning resources, learning assistant (lecturer), and assessment activity. Furthermore, there may be other learning activities such as discussion and online live lecture that occurred synchronously or asynchronously, depending on the needs of each course.
This lab combines expertise and knowledge in IT (such as web services and applications, network architecture and security, data and information engineering, modeling of business processes, and human-computer interactions) that is related to the development and integration of e-Government and e-Business.

**RESEARCH TOPICS**

1. e-Commerce  
2. IT Government  
3. IT Plan  
4. Corporate Resource Management  
5. Supply Chain Management, etc

**RESEARCH GRANTS**

1. (2015 - 2016) Implementasi Knowledge Management Pengetahuan Tradisional Berbasis Sumber Daya Genetik Indonesia  
2. (2016) Implementasi E-Hajj Di Indonesia  
4. (2016) Model Eportfolio Untuk Sertifikasi Kompetensi Profesi Di Indonesia  
5. (2016) Implementasi Knowledge Management System Pengelola Aparatur Sipil Negara Di Indonesia, etc

**LABORATORY MEMBERS**

1. Achmad Nizar Hidayanto, Dr.  
2. Arief Ramadhan, Dr.  
3. Betty Purwandari, Ph.D.  
5. Fatimah Azzahro, M.Kom.  
6. Iik Wilarso, M.T.I., Dr.  
7. Imairi Eitiveni, M.Kom.  
8. Indra Budi, M.Kom., Dr.  
12. Satrio Baskoro Yudhoatmojo, M.T.I.  
15. Yudho Giri Sucahyo, Ph.D.

**WEBSITE:**  
http://egb.cs.ui.ac.id
Abstract

Indonesia biodiversity data and information, specially related to genetic resources and traditional knowledge were not managed optimally. Those data were managed by some of research institution, university or community. It is unstructured, unable to access and not integrated. Knowledge Management System (KMS) used to integrated all data and information and develop the system and database interoperability. Ontology support KMS development in semantic web based application, socio-technical approach is used for ontology development model by providing the necessary tools for web-based communication and collaboration among participants.

Introduction

Ontology development requires consensus in shared meaning of concepts built. Most of ontology engineering practices are ignoring the principle of methodology. And most of them also do not aware on knowledge holders in the community (social) and between the computer system (technical). In this study, socio-technical approach is used to generate the ontology. This approach focuses in human and the final objective is that ontology model would be widely accepted and used repeatedly in variety of interests.

Methodology for Ontology engineering development:

1. Literature Review
2. Focus Group Discussion
3. Web Portal Development
4. Ontology Construction
5. Brainstorming for Web Semantic Application Development
6. Data Converting to RDF file
7. Deployment online version of semantic web
8. Evaluation and Dissemination

Result

Result analysis determine Indonesian Medicinal Plants ontology will be developed include aspects of taxonomy, Pharmacology, cultivation, conservation, health services and traditional knowledge. Hence, the semantic web applications have functionality such as: selection management queries, register competency questions, RDF data display, drill-down scheme, schema concepts and ontology properties. There is a page to display a list of medicinal plants native to Indonesia which can lead to web pages linked data. It contains detailed data from a species of medicinal plants.
DESCRIPTION

This lab focuses on research related to the manipulation, analysis, and interpretation of data in the form of image or picture and also video. The methods used are very diverse, ranging from method that are processing detailed information stored at the pixel level to methods that are geometrically divide the image and the video into several regions to form a pattern of thematic/semantic to be represented.

RESEARCH TOPICS

1. e-Health (multi-lab)
2. Parallel Processing
3. Biomedic
4. Remote Sensing
5. Intelligent Multimedia Information Processing
6. Agriculture, e-Livestock
7. Precise Farming
8. Twitter Sentiment Analysis
9. Social Robotic, etc

RESEARCH GRANTS

2. (2015-2016) Learning Analytics To Investigate Learning Patterns And Develop Intervention Tool In Online Learning Environment

LABORATORY MEMBERS

1. Aniati Murni Arymurthy, M.Sc., Prof.
2. Arief Ramadhan, Dr.
3. Ary Noviyanto, M.Kom.
4. Dadan Hardianto, M.Kom.
5. Denny, Ph.D.
6. Dina Chahyati, M.Kom.
7. Hisyam Fahmi, M.Kom.
8. Ika Alfinia, M.Kom.
9. Muhammad Rahmat Widyanto, Dr.
10. Suryana Setiawan, M.Sc., Ph.D.
11. T Basaruddin, Ph.D., Prof.
12. Wisnu Jatmiko, Dr.Eng.

WEBSITE:
http://mlcv.cs.ui.ac.id
Abstract

Batik plays the meaningful role in Indonesia’s cultural heritage and gives significant contribution to global art. Batik held the harmony of colors, motif with the variety of ornamentation, and design. The similarities between batik patterns can be identified, however, there are minor differences in detail, such as the use of typical basic shapes in batik motif. Object recognition task in batik is tried to find a particular motif object in a digital image. The symmetrical property and the repeated object have become a central issue for determining the number of motif object in a batik image. Batik motif has composite object consists of shape, line, natural elements, and additional motif called isen. Based on the composition of elements, geometric pattern of batik motif can be recognized from position of the shape in vertical, horizontal, diagonal, and angle between shape.

Geometric Pattern

Batik Motif

Primitive Pattern

Methodology

Query Image

Sift Descriptor

Template In Database

Matching

Voting In Hough Space

Sift Keypoint In Hough Space

Output

Number of Object and Composition of Batik Motif

System Output
This Lab includes an interdisciplinary field that combines the skills and resources of information science, information technology, records management, archives and general management. This Lab focuses the information as a resource. Books and magazines, data stored on local or remote computers, microforms, audio-visual media and information in the minds of people is a whole that are within the scope of this Lab.

**RESEARCH TOPICS**

1. Enterprise Architecture  
2. Business/IT Alignment  
3. IS/IT Strategic Planning  
4. IS/IT Benefit Management  
5. IS/IT Governance  
6. IT Service Management  
7. IT Adoption & User Acceptance  
8. IT Project Management  
9. IT Risk/Security Management  
10. Decision Analytic & Support  
11. Knowledge Management, etc

**RESEARCH GRANTS**

2. (2016) Implementasi Knowledge Management System Pengelola Aparatur Sipil Negara Di Indonesia  
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Examining the Relationship of Payment System Characteristics and Behavioral Intention in E-Payment Adoption: A Case of Indonesia

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Abstract

This study is conducted to analyse factors that influence the behavioural intention to use e-payment system on e-commerce in Indonesia. The proposed model in this research combines behavioural theory of technology acceptance in terms of behavioural beliefs, social influences, and personal innovativeness with the characteristics of an ideal payment system. The model was tested by the structural equation modelling (SEM) using LISREL 8.8 software. The analysis result of 203 respondents showed that Indonesian customers tend to only consider the advantages they gain when adopting e-payment and ignore the risks associated with the technology. Concerning e-payment system characteristics, it was also proven that ease of use, privacy, trust, security, and convertibility influence directly and indirectly the intention to adopt e-payment.

Introduction

Despite a relatively high increase of transactions volume, public interest in Indonesia in conducting online transactions is still low. According to Mitachul (2012), online shopping transactions in Indonesia were performed by around 6% only of the total 50 million internet users in Indonesia. Most customers in Indonesia visit online shopping sites for product-browsing and/or price comparison only as revealed by a survey conducted by the Daily Social that showed in 2011, 26% of the respondents visited websites to browse products only while 25% of the respondents used e-commerce to compare prices before buying offline, and only 38% of the respondents compared prices and eventually bought products online through e-commerce (Baskoro, 2011).

From prior research, there are many factors that influence customers in conducting online shopping viz. security and privacy concern (Chen and Barnes, 2007; Choia and Geistfeld, 2004; Sahney et al., 2013; Tsiakis and Sthephanides, 2005), vendor image (Chen and Barnes, 2007; Sahney et al., 2013), costs (Kim and Kim, 2004), incentive programme (Kim and Kim, 2004), site quality (Baia et al., 2008; Kim and Kim, 2004), experience (Chen and Barnes, 2007), perceived usefulness (Chen and Barnes, 2007), etc. It was also found that the most dominant factors are those especially related to security and privacy concern.

There are also other factors that may influence the low adoption of e-payment, particularly those related to the type of e-payment provided (Meskaran et al., 2010). Most likely, the selection of e-payment types in e-commerce services is closely related to the design characteristics of the e-payment system. For an online e-payment to be successful, its design should meet the users’ need (Sahut, 2008). It can be argued that customers would expect an ideal e-payment system which is easier for them to use so that eventually they are willing to adopt the payment system. Some prior research on e-payment models focused mostly on behavioural theories of technology adoption in general or by considering individual and social factors. Therefore, we are interested to conduct a study especially to analyse e-payment system characteristics and the correlation with technology adoption behaviour.

Conceptual Model

The most dominant factor that directly affects behavioural intention to adopt e-payment is relative advantage, followed by ease of use and trust to the system. These three factors have a significantly direct impact on behavioural intention of consumers to adopt e-payment systems. Relative advantage as the positive utility has a considerable role in the adoption of e-payment system. In contrast, perceived risk as the negative utility in behavioural beliefs does not give significant effect on the intention of Indonesian consumers to use e-payment systems. As a result, we can infer that Indonesian consumers can be typically characterised by their sole consideration for the advantages they will get and subsequently rule out risks for adopting a new technology. Security, privacy, and convertibility issues were also proven to be determinants of e-payment adoption, although the effect is indirect. Social influences also have an indirect effect to e-payment adoption through relative advantages. Consequently, e-payment service providers should plan awareness programmes regarding the benefits of e-payment usage so that customers are willing to invite their friends to use e-payment.

Results
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