

# CTSEST-2018



**International Conference on Communication Technology,  
System Engineering and Soft Technology**

**The Howard Plaza Hotel Taipei, Taiwan**

**February 05-06, 2018**



**ESRDB**

# ***CONFERENCE BOOK OF ABSTRACT PROCEEDINGS***

***ESRDB***

Engineering Science Research & Development Board



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# **Book of Abstracts Proceedings**

**International conference on Communication Technology, System Engineering and  
Software Technology (CTEST)**

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Proceedings of the International conference on Communication Technology, System Engineering and Software Technology(CTSEST)

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*International conference on Communication Technology,  
System Engineering and Software Technology  
(CTSEST-2018)*

**Venue: The Howard Plaza Hotel Taipei, Taiwan**

**Conference Theme:** : To provide an international forum where researchers, practitioners, and professionals interested in the advances in, and applications of Information technology and engineering can exchange the latest research, results, and ideas in these areas through presentation and discussion.



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## CONFERENCE TRACKS

- Basic Science
- ICT
- Electrical Engineering
- Mechanical & Industrial Engineering
- Civil Engineering
- Business and Management Studies
- Electric Drives and Control
- Electrical Machines
- Instrumentation Engineering
- Power Generation, Transmission and Distribution
- Power System Engineering



## CONFERENCE CHAIR MESSAGE

**Ms. Mei Shu Lai**

“International Conference of Engineering Science Research and Development Board” is a platform that thrives to support the worldwide scholarly community to analyze the role played by the multidisciplinary innovations for the betterment of human societies. It also encourages academicians, practitioners, scientists, and scholars from various disciplines to come together and share their ideas about how they can make all the disciplines interact in an innovative way and to sort out the way to minimize the effect of challenges faced by the society. All the research work presented in this conference is truly exceptional, promising, and effective. These researches are designed to target the challenges that are faced by various sub-domains of the social sciences and applied sciences.

I would like to thank our honorable scientific and review committee for giving their precious time to the review process covering the papers presented in this conference. I am also highly obliged to the participants for being a part of our efforts to promote knowledge sharing and learning. We as scholars make an integral part of the leading educated class of the society that is responsible for benefitting the society with their knowledge. Let’s get over all sorts of discrimination and take a look at the wider picture. Let’s work together for the welfare of humanity for making the world a harmonious place to live and making it flourish in every aspect. Stay blessed.

Thank you.

Ms. Mei Shu Lai

Conference Chair

Email: [contact@esrdb.com](mailto:contact@esrdb.com)



## CONFERENCE SECHDULE

**ESRDB-2018**

**Venue: The Howard Plaza Hotel, Taipei, Taiwan**

**Time: Registration & Kit Distribution (09:00 am - 09:30 am)**

**Day:Monday**

**Date: February 05, 2018**

**Venue: Room 1**

09:30 am 09:40 am	Introduction of Participants
09:40 am 09:50 am	Inauguration and Opening address
09:50 am 10:00 am	Grand Networking Session



**DAY 01 (February 05, 2018)**

**Presentation Session (10:00 am 11:00 am)**

**Venue: Room 1**

**Track A: Communication Technology, System Engineering and Software  
Technology**

<b>Presenter Name</b>	<b>Manuscript Title</b>	<b>Paper ID</b>
Wai Yin Mok	On the Business Workflow Modeling Power with respect to Petri Nets and UML Activity Diagrams	CTSEST-FEB-TW101
Lin Po Hung	A Collaborative Filtering Location Recommendation System Based on GPS Trajectory Similarity	CTSEST-FEB-TW102
Yi-Lung Wu	An Object Tracking Algorithm for Computing Tibia Horizontal Displacement	CTSEST-FEB-TW103

**Tea Break: (11:00 to 12:00 pm)**



**Conference Day 02 (February 06, 2018)**

Second day of conference will be specified for touristy. Relevant expenses are borne by Individual him/herself.

***TRACK A***

***Communication Technology, System Engineering and Software  
Technology***



## On the Business Workflow Modeling Power with Respect to Petri Nets and UML Activity Diagrams

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**Keywords:** Decidability, Modeling, Restrictions.

Petri nets with inhibitor arcs have been proven to have complete modeling power—being able to model Turing machines. In this paper, we first show that The Unified Modeling Language (UML) activity diagrams are able to model, or mimic, every step of any Turing machine or any Petri net with or without inhibitor arcs. However, because of the trade off between modeling power and decidability, as the modeling power increases, the decidability of many properties will decrease. This trade off also applies to UML activity diagrams. Secondly, we propose two restrictions on UML activity diagrams, which will increase the number of decidable properties thereof and measure up to the decidability of Petri nets (without inhibitor arcs). These restrictions are that (1) the number of times each activity can be repeated is bounded, and (2) every activity has a finite amount of execution time.

## A Collaborative Filtering Location Recommendation System Based on GPS Trajectory Similarity

<sup>1\*</sup> Mr. Lin Po Hung,<sup>2</sup> Chiu Ching Tuan

<sup>1,2</sup> National Taipei University of Technology

Corresponding Email: tom2002120@hotmail.com

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**Keywords:** Location-Based Service, Collaborative Filtering, Trajectory Mining, Users, Similarity, Recommendation System

This study proposed a Collaborative Filtering Location Recommendation System Based on GPS Trajectory Similarity (CFLRS) methods. Our system used CF technique to predict the user interested location from others historical trajectory information. First, filter out the Stay Point (SP) from historical trajectory according to speed limit and stop time thresholds. The SP then can be converted to semantic trajectories. We calculate the user similarity by semantic trajectories, and predict the semantic category which the user may be interested. Finally, the recommended value is calculated by the current position of user and interest of points. It may make the recommendation more suitable for the users' interests and needs.

## An Object Tracking Algorithm for Computing Tibia Horizontal Displacement

<sup>1\*</sup>Yi-Lung Wu,<sup>2</sup>Chiu-Ching Tuan

<sup>3</sup>Yi-Lung Wu Chi-Heng Lu

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**Keywords:** Swinging, Symptom, Webcam, Tuberosity

The knee-joint is an important joint to support the body weight in human structure and is indispensable in lower limb moving. The anterior cruciate ligament (ACL), posterior cruciate ligament (PCL), medial collateral ligament, and lateral collateral ligament can keep knee swinging stable. The knee injuries are commonly caused by the external forces variation in ACL. Most patients of the serious ACL injure choose operation. If the symptom is slight, patient may consider the inflammation of tendon or muscle. Hence, delay the treatment time to cause other diseases. In clinical examination, doctor can not quantify the level of ACL injure for further diagnosis. This study aimed to assess the situation of ACL injuries, and present the quantitative results. This research provided the basis for the patients to make a decision whether to do ACL reconstruction surgery. Apply a webcam to track marked objects., The webcam is combined with the homemade module and fixed above the femur to measure the shift. Subjects are thus examined by pivot shift test to tracking the changes of markers coordinates on the tibial tuberosity point for computing tibia horizontal displacement. The results could be for doctors as a diagnostic reference. In medical research, the amount of displacement is often measured in millimeters. Our system was verified by measurements and confirmed that the error value is less than 1 mm, it thus could effectively measure the data for reference by doctors.

## ***UP COMING EVENTS***

You can find the details regarding our upcoming events by following below:

<http://esrdb.com/irestm/>

<http://http://esrdb.com/citas/>

<http://http://esrdb.com/aecit/>

<http://http://esrdb.com/icta/>

<http://http://esrdb.com/iaets-2018/>

<http://http://esrdb.com/ctsest-2018/>

<http://http://esrdb.com/ictkea-2018/>

<http://http://esrdb.com/conferences/dRICT-2018/>

<http://anissh.com/conferences/turkey-conferences/>

<http://http://esrdb.com/conferences/csndm-2018/>

<http://http://esrdb.com/conferences/etase-2018/>

<http://http://esrdb.com/conferences/cetas-2018/>

## Vision

Invests in creation of 21st century engineers and discovery of technologies through transformational center-based research, research in education and inclusion, and research opportunities for students and teachers.

## Mission

To increase the diversity of the scientific and engineering workforce by including all members of society, regardless of race, ethnicity, or gender, in all aspects of the centers' activities. Because ESRDBs play critical roles in academe by integrating research, education, diversity, outreach, and industrial collaboration.



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