Welcome!

2014 Conference on Technologies and Applications of Artificial Intelligence

Taipei, Taiwan

November 21-23, 2014
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Preface

前言
Dear Friends and Colleagues,

Welcome to Taiwan! If you are reading this, it means that you have made it to the 2014 Conference on Technologies and Applications of Artificial Intelligence. Congratulations! It is our great pleasure to welcome you to TAAI 2014. The Conference on Technologies and Applications of Artificial Intelligence (TAAI) enter her 19th year as the main AI conference in Taiwan and the fifth year after her internationalization in 2010.

This year, TAAI 2014 features a very strong technical program, assembled under the expert leadership of Program Chairs Hsuan-Tien Lin, Hsing-Kuo Kenneth Pao, Hui-Huang Hsu, and Richard Tzong-Han Tsai. Together with the technical program committee members, they undertook the difficult jobs of carefully evaluating the large number of submitted papers, considering the merits of each through detailed reviews and discussions, and selecting papers of the highest caliber to ensure the quality of lecture and poster sessions. We owe a great debt to all Program Committee members. Their contribution helped the TAAI 2014 be a high-quality international conference. Moreover, we would like to express our utmost gratitude to all authors for submitting their works to TAAI 2014 and for presenting at the conference. We are grateful to the Springer for publishing the selected papers in the prestigious Lecture Notes in Artificial Intelligence. The Publication Chair, Prof. Shin-Ming Cheng, completely devoted himself to ensure that all camera-ready versions were submitted in a timely and error-free manner. It is one of the important requirements for having high-quality conference proceedings.

In addition, we are fortunate to have six excellent keynote speakers. We thank Prof. Sarit Kraus, Prof. Li-Chen Fu, Prof. Chun-Nan Hsu, Dr. Wei-Ying Ma, Prof. Mark Schmidt and Prof. Masahiko Inami for their keynote speeches in TAAI 2014. The conference will feature insightful panel discussions on the theme of Industrial Opportunities for AI people organized by Prof. Shou-De Lin, and a relaxing evening at the conference banquet where you can enjoy an entertaining performance and delicious cuisine. We hope you find these features exciting and enjoyable, and will take advantage of this wonderful opportunity to meet new friends and re-connect with old friends. We believe the excellent presentations, pleasant conversations, and warm friendships, will be remembered long after the conference is over.

We would like to thank the following leading edge organizations, government agencies and companies, whose generous support contributed to the success of TAAI 2014: National Taiwan University of Science and Technology, Taiwanese Association for Artificial Intelligence, MOST, Research Center for Information Technology Innovation, Academa Sinica, Intel-NTU CCC Center and Ministry of Education. The industrial contributions include Bridgewell Inc., Vpon and Trend Micro. Their involvement in TAAI 2014 and their support of the conference is especially appreciated and demonstrates their commitment to the future of artificial intelligence.

The local arrangement Chair, Prof. Kai-Lung Hua, the Taiwanese Association for Artificial Intelligence assistant Miss Siao-Nong Chen, Miss Ya-Ling Shao and Miss Shin-Yan Tseng, provided all the support needed for a successful conference. Needless to say, there are still many colleagues and
friends who helped us in immeasurable ways. We are also grateful to them all.

Once again, we would like to express our sincere gratitude to all of you for your valued participation to the continued success of this important annual conference that advances our field. We hope you enjoy TAAI 2014 and discover beautiful Taiwan!

Honorary Chairs of TAAI 2014
Ching-Jong Liao and Tian-Hua Liu

General Chairs of TAAI 2014
Jane Yung-Jen Hsu and Yuh-Jye Lee
Venue
場地
Conference Venue

International Building (IB)
NTUST, Taipei, Taiwan

No.43, Sec. 4, Keelung Rd., Da’an Dist., Taipei 106, Taiwan (R.O.C.)

NTUST Campus Map
Look for the following building when you are on or near the NTUST campus.
Program Overview

議程總覽
# TAAI 2014 Program Overview

## November 21, 2014 (Friday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Events</th>
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<tbody>
<tr>
<td>08:30~09:00</td>
<td>Registration at IB-101</td>
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<tr>
<td>09:00~09:15</td>
<td>Opening Ceremony at IB-101</td>
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</tbody>
</table>
| 09:15~10:15 | **Keynote Speech I at IB-101**  
- Prof. Sarit Kraus, Bar-Ilan University, Israel  
- Topic: Computer Agents that Negotiate Proficiently with People |
| 10:15~10:40 | Tea Break |
| 10:40~12:00 | IB-504: Information Retrieval  
- ITS 1: Business Intelligence |
| 12:00~13:10 | Lunch |
| 13:10~14:10 | IB-504: Personalized Service  
- ITS 3: Web Intelligence |
| 14:10~14:20 | Short Break |
| 14:20~15:20 | **Keynote Speech II at IB-101**  
- Prof. Li-Chen Fu, National Taiwan University  
- Topic: How to Make a Service Robot Socially Friendly in a Human Society? |
| 15:20~15:50 | Tea Break |
| 15:50~17:00 | IB-504: Machine Learning Meets Statistics  
- ITS 5: Artificial Intelligence Methodology  
- ITS 6: Workshop: TAAI (II)  
- DTS 5: Computer Games  
- DTS 6: Intelligent Home |
| 17:00~17:30 | Demo at IB B Area  
- Prof. Yu-Chi Lai and Prof. Chih-Yuan Yao, NTUST |
| 17:30~19:00 | Reception at IB B Area |

## November 22, 2014 (Saturday)

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<tr>
<td>08:50~09:20</td>
<td>Registration at IB-101</td>
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| 09:20~10:20 | **Keynote Speech III at IB-101**  
- Prof. Chun-Nan Hsu, University of California, San Diego, USA  
- Topic: Getting Ready for (Big) Data-Driven Science |
| 10:20~10:50 | Tea Break |
| 10:50~12:00 | IB-303: Machine Learning Algorithms  
- ITS 7: Data Mining Applications  
- ITS 8: Invited Session Statistics in AI (I)  
- DTS 7: Information Retrieval and Extraction  
- DTS 8: AI Algorithms |
| 12:00~13:00 | Lunch |
| 13:00~14:00 | Dr. Wei-Ying Ma, Microsoft Research Asia, Microsoft Corp, China  
- Topic: Towards Machine Comprehension of Text |
| 14:00~14:30 | Tea Break |
| 14:30~16:20 | **Panel Session at IB-101**  
- Prof. Shou-De Lin  
- Theme: Industrial Opportunities for AI People |
| 16:20~16:30 | Short Break |
| 16:30~17:30 | IB-303: Computer Vision  
- ITS 9: Artificial Intelligence Applications  
- ITS 10: Invited Session Statistics in AI (II)  
- DTS 9: Social Media Mining  
- DTS 10: Speech and Video |
| 17:30~18:20 | Go to Banquet |
| 18:20~21:00 | Banquet |

## November 23, 2014 (Sunday)

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<tr>
<td>08:50~09:20</td>
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| 09:20~10:20 | **Keynote Speech IV at IB-101**  
- Prof. Mark Schmidt, at the University of British Columbia, Canada  
- Topic: Fast Non-Smooth and Big Data Optimization |
| 10:20~10:50 | Tea Break |
| 10:50~12:00 | IB-303: Computer Game  
- ITS 11: DTS 11: Clustering  
- ITS 12: Data Mining  
- ITS 13: Internet of Things  
- TAAI Paper Award  
- Invited Session Taiwan R User Group |
| 12:00~13:00 | Lunch & Demo at IB B Area  
- Prof. Yu-Chi Lai and Prof. Chih-Yuan Yao, NTUST |
| 13:00~14:00 | **Keynote Speech V at IB-101**  
- Prof. Masahiko Inami, KEIO Media Design, Japan  
- Topic: Works Like Magic: Intuitive Interaction Technique in HCI/HRI |
| 14:00~14:10 | Closing Remark |
| 14:30~ | Sight Seeing Tour: Wu Lai |
International Track Session
(ITS)
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<td>09:15~10:15</td>
<td>Keynote Speech</td>
<td>IB-101</td>
<td>Computer Agents that Negotiate Proficiently with People</td>
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<td>10:15~10:40</td>
<td>Tea Break</td>
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<td>10:40</td>
<td>ITS 1: Information Retrieval</td>
<td>IB-504</td>
<td>A Frame-based Approach for Reference Metadata Extraction</td>
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<tr>
<td></td>
<td>Chun-Nan Hsu</td>
<td></td>
<td>Identifying Transformative Research in Biomedical Sciences</td>
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<td>Classifying the TRIZ Contradiction Problem of the Patents</td>
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<td>based on Engineering Parameters</td>
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<td>ITS 2: Business Intelligence</td>
<td>IB-505</td>
<td>Manipulating Information Providers Access to Information</td>
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<td>Esther David</td>
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<td>in Auctions</td>
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<td>Wonders of Seabed: Difficulty Evaluation of Management</td>
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<td>Games Using Neural Network</td>
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<td>A Pragmatic Approach to Summarize Association Rules in</td>
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<td>Business Analytics</td>
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<td>12:00~13:10</td>
<td>Lunch</td>
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<td>13:10</td>
<td>ITS 3: Personalized Service</td>
<td>IB-504</td>
<td>A Framework for Personalized Diet and Exercise Guideline</td>
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<td>Tien-Ruey Hsiang</td>
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<td>Recommendation</td>
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<td>Generating Comprehension Questions using Paraphrase</td>
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<td>14:10</td>
<td>ITS 4: Web Intelligence</td>
<td>IB-505</td>
<td>Detecting spam on Twitter via message-passing based on</td>
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<td>Cheng-Te Li</td>
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<td>retweet-relation</td>
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<td>Cross-Domain Opinion Word Identification with Query-by-</td>
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<td>Committee Active Learning</td>
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<td>14:20~15:20</td>
<td>Keynote Speech</td>
<td>IB-101</td>
<td>How to Make a Service Robot Socially Friendly in a Human</td>
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<td>Prof. Li-Chen Fu</td>
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<td>Society?</td>
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<td>15:20~15:50</td>
<td>Tea Break</td>
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<td>ITS 5: Machine Learning</td>
<td>IB-504</td>
<td>A Weight-Sharing Gaussian Process Model Using Web-Based</td>
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<td>Meets Statistics</td>
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<td>Information for Audience Rating Prediction</td>
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<td></td>
<td>Tzong-Han Tsai</td>
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<td>Bayesian Variable Selection for Multi-Response Linear</td>
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<td>Regression</td>
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<td>17:00</td>
<td>ITS 6: Artificial Intelligence Methodology</td>
<td>IB-505</td>
<td>Bio-Inspired Evolutionary Computing with Context-Awareness</td>
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<td>Chang-Shing Lee</td>
<td></td>
<td>and Collective-effect</td>
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<td>Solving PERT problems involving Type-2 Fuzzy Uncertainty:</td>
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<td>An approach</td>
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<td>17:00~17:30</td>
<td>Demo</td>
<td>IB B Area</td>
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<td>Prof. Yu-Chi Lai and Prof.</td>
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<td>Chih-Yuan Yao</td>
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<td>17:30~19:00</td>
<td>Reception</td>
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<td>Keynote Speech</td>
<td>IB-101</td>
<td>Prof. Chun-Nan Hsu: Getting Ready for (Big)-Data-Driven Science</td>
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<td>10:20~10:50</td>
<td>Tea Break</td>
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<td>10:50</td>
<td>ITS 7: Machine Learning</td>
<td>IB-303</td>
<td>A Transfer-Learning Approach to Exploit Noisy Information for Classification and Its Application on Sentiment Detection</td>
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<td>Algorithms</td>
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<td>Time Series Classification with Temporal Bag-of-Words Model</td>
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<td>12:00</td>
<td>ITS 8: Data Mining Algorithms</td>
<td>IB-304</td>
<td>Expert-Based Fusion Algorithm of an Ensemble of Anomaly Detection Algorithms</td>
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<td>12:00~13:00</td>
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<td>Keynote Speech</td>
<td>IB-101</td>
<td>Dr. Wei-Ying Ma: Towards Machine Comprehension of Text</td>
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<td>Panel Session</td>
<td>IB-101</td>
<td>Prof. Shou-De Lin: Industrial opportunities for AI people</td>
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<td>Short Break</td>
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<td>16:30</td>
<td>ITS 9: Computer Vision</td>
<td>IB-303</td>
<td>Age and Gender Estimation Using Shifting and Re-scaling of Local Regions</td>
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<td></td>
<td>Kai-Lung Hua</td>
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<td>A Robust Learning-based Detection and Tracking Algorithm</td>
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<td>17:30</td>
<td>ITS 10: Artificial Intelligence Applications</td>
<td>IB-304</td>
<td>A Robust Feature Matching Method for Robot Localization in a Dynamic Indoor Environment</td>
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<td>Wei-Chung Teng</td>
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<td>A digital stereo microscope platform for microsurgery training</td>
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<td>17:30~18:20</td>
<td>Go to Banquet</td>
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# November 23, 2014 (Sunday)

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<td>Prof. Mark Schmidt</td>
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<td>Fast Non-Smooth and Big-Data Optimization</td>
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<td>Demo</td>
<td>IB B Area</td>
<td>Lunch &amp; Demo</td>
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<td>Prof. Yu-Chi Lai and Prof. Chih-Yuan Yao</td>
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<td>Lunch &amp; Demo</td>
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<td>13:00~14:00</td>
<td>Keynote Speech</td>
<td>IB-101</td>
<td>Works Like Magic Intuitive Interaction</td>
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<td>Prof. Masahiko Inami</td>
<td>IB-101</td>
<td>Technique in HCI/HRI</td>
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<td>14:30~</td>
<td>Sight Seeing Tour : Wu Lai</td>
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Workshop
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<td>09:00~09:15</td>
<td>Opening Ceremony</td>
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<td>09:15~10:15</td>
<td>Keynote Speech Prof. Sarit Kraus</td>
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<td>Computer Agents that Negotiate Proficiently with People</td>
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<td>Workshop: TMTI</td>
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<td>10:40</td>
<td>Prof. Richard Tzong-Han Tsai</td>
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<td>An Interaction Pattern Kernel Approach for protein-protein interaction extraction from biomedical literature</td>
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<td>12:00</td>
<td>Prof. Hong-Jie Dai</td>
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<td>Section Heading Recognition in Electronic Health Records Using Conditional Random Fields</td>
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<td>13:10</td>
<td>Workshop: TAEA (I)</td>
<td>IB-602-2</td>
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<td>14:10</td>
<td>Prof. Ying-Ping Chen</td>
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<td>Tournament Selection Based Artificial Bee Colony Algorithm with Elitist Strategy</td>
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<td>14:10~14:20</td>
<td>Short Break</td>
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<td>Keynote Speech Prof. Li-Chen Fu</td>
<td>IB-101</td>
<td>How to Make a Service Robot Socially Friendly in a Human Society?</td>
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<td>15:50</td>
<td>Workshop: TAEA (II)</td>
<td>IB-602-2</td>
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<td>17:00</td>
<td>Prof. Chuan-Kang Ting</td>
<td></td>
<td>Hybridizing Infeasibility Driven and Constrained-domination Principle With MOEA/D for Constrained Multiobjective Evolutionary Optimization</td>
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<td>High-Efficiency Remote Cloud Data Center Backup with Intelligent Parameter Adaptation</td>
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<td>集中式寬頻無線網路的數量限制式服務規則最佳化</td>
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<td>半導體晶圓針測之測試條件最佳化設計</td>
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Domestic Track Session (DTS)
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<td>09:00~09:15</td>
<td>Opening Ceremony</td>
<td>IB-101</td>
<td>Opening Ceremony</td>
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<tr>
<td>09:15~10:15</td>
<td>Keynote Speech Prof. Sarit Kraus</td>
<td>IB-101</td>
<td>Computer Agents that Negotiate Proficiently with People</td>
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<tr>
<td>10:15~10:40</td>
<td>Tea Break</td>
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<tr>
<td>10:40</td>
<td>DTS 1: Computer Games 陳志昌</td>
<td>IB-508</td>
<td>運用資料探勘技術於西洋棋下棋風格分類</td>
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<td>電腦象棋程式 Shark 的設計與實作</td>
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<td>外五棋程式-OOGiveMeFive 的設計與實作</td>
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<td>12:00</td>
<td>DTS 2: Image Recognition 稱永徽</td>
<td>IB-511-2</td>
<td>結合中心對稱區域二元圖樣與區域符號方向圖樣之人臉性別辨識</td>
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<td>智能型影像景點辨識標記系統之研究</td>
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<td>遠距離之人臉與虹膜複合式生物辨識系統</td>
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<tr>
<td>12:00~12:20</td>
<td>科技部研究計畫申請說明 科技部智慧計算學門召集人 蕭寶珠教授</td>
<td>IB-301</td>
<td>科技部研究計畫申請說明</td>
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<tr>
<td>12:20~13:10</td>
<td>Lunch</td>
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<tr>
<td>13:10</td>
<td>DTS 3: Computer Games 林順喜</td>
<td>IB-303</td>
<td>六子棋程式平行化之研究</td>
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<td></td>
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<td>電腦暗棋的搜尋加強與審局函數檢驗改善</td>
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<td>14:10</td>
<td>DTS 4: Intelligent Tools 陸敬互</td>
<td>IB-602-1</td>
<td>電動車資料管理系統</td>
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<td>運用 Arduino 技術開發藍牙電子秤</td>
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<td>14:10~14:20</td>
<td>Short Break</td>
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<td>14:20~15:20</td>
<td>Keynote Speech Prof. Li-Chen Fu</td>
<td>IB-101</td>
<td>How to Make a Service Robot Socially Friendly in a Human Society?</td>
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<td>15:20~15:50</td>
<td>Tea Break</td>
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<td>15:50</td>
<td>DTS 5: Computer Games 顏士淨</td>
<td>IB-303</td>
<td>電腦暗棋程式 Observer 的設計與實作</td>
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<td>電腦暗棋對戰平台設計實作</td>
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<td>iOS 行動裝置於智慧家庭節能監控系統之應用</td>
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<td>Map-Reduce Framework for Identification of Stay Points from User Moving Trajectories</td>
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<td>基於雲端服務組合之重構式代理人在智慧家庭之應用</td>
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<tr>
<td>17:00~17:30</td>
<td>Demo Prof. Yu-Chi Lai and Prof. Chih-Yuan Yao</td>
<td>IB B Area</td>
<td>Demo</td>
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<tr>
<td>17:30~19:00</td>
<td>Reception</td>
<td>IB B Area</td>
<td>Reception</td>
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## November 22, 2014 (Saturday)

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<tr>
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<td>Registration</td>
<td>IB-101</td>
<td>Registration</td>
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<tr>
<td>09:20~10:20</td>
<td>Keynote Speech Prof. Chun-Nan Hsu</td>
<td>IB-101</td>
<td>Getting Ready for (Big)-Data-Driven Science</td>
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<td>10:20~10:50</td>
<td>Tea Break</td>
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<td>10:50</td>
<td>DTS 7: Information Retrieval and Extraction</td>
<td>IB-306</td>
<td>基於排序相關係數進行特徵向量轉換之資訊檢索排序模型學習</td>
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<td>基於頁面層級之快速網頁資料擷取與綱要驗證</td>
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<td>融入各種不同文件關聯資訊於虛擬關聯文件選取方法之研究</td>
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<tr>
<td>12:00</td>
<td>DTS 8: AI Algorithms 錢炳全</td>
<td>IB-307</td>
<td>A Chaotic Masking System Based on Twofish Encryption Algorithm</td>
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<td></td>
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<td>改良型的排序為主之人工蜂群演算法及其在限制最佳化問題的應用</td>
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<td>以分群概念建立標籤階層</td>
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<tr>
<td>12:00~13:00</td>
<td>人工智慧學會會員大會</td>
<td>IB-301</td>
<td>人工智慧學會會員大會</td>
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<tr>
<td>12:00~13:00</td>
<td>Lunch</td>
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<tr>
<td>13:00~14:00</td>
<td>Keynote Speech Dr. Wei-Ying Ma</td>
<td>IB-101</td>
<td>Towards Machine Comprehension of Text</td>
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<tr>
<td>14:00~14:30</td>
<td>Tea Break</td>
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<tr>
<td>14:30~16:20</td>
<td>Panel Session Prof. Shou-De Lin</td>
<td>IB-101</td>
<td>Industrial opportunities for AI people</td>
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<td>16:20~16:30</td>
<td>Short Break</td>
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<td>16:30</td>
<td>DTS 9: Social Media Mining 吳世弘</td>
<td>IB-306</td>
<td>微網誌之產品熱門特徵擷取</td>
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<td>識別線上社群網路之Top-k重要影響者</td>
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<td>17:00</td>
<td>DTS 10: Speech and Video 王家慶</td>
<td>IB-307</td>
<td>探究豐富文脈模型化技術於中文語音合成系統之發展</td>
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<td>基於群體智慧之視訊快速編碼</td>
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<td>17:30~18:20</td>
<td>Go to Banquet</td>
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<td>18:20~21:00</td>
<td>Banquet</td>
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<td>Time</td>
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<tr>
<td>09:20~10:20</td>
<td>Keynote Speech</td>
<td>IB-101</td>
<td>Fast Non-Smooth and Big-Data Optimization</td>
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<td>10:20~10:50</td>
<td>Tea Break</td>
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<td>10:50</td>
<td>DTS 11: Clustering</td>
<td>IB-304</td>
<td>使用拔靴法探討結合基因語意相似度之基因表現資料群聚分析</td>
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<td>12:00</td>
<td>DTS 12: Data Mining</td>
<td>IB-305</td>
<td>高效率之上架商品序列型樣探勘演算法</td>
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<td>12:00~13:00</td>
<td>Demo</td>
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<td>Lunch &amp; Demo</td>
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<tr>
<td>13:00~14:00</td>
<td>Keynote Speech</td>
<td>IB-101</td>
<td>Works Like Magic Intuitive Interaction Technique in HCI/HRI</td>
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<td>14:00~14:10</td>
<td>Closing Remark</td>
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<tr>
<td>14:30~</td>
<td>Sight Seeing Tour : Wu Lai</td>
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</table>
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Zhi-Hui Zhan, Sun Yat-sen University
Chuan-Bin Zhang, Sun Yat-sen University
Min-Ling Zhang, School of Computer Science and Engineering, Southeast University
International Workshop on
TMTI 2014

Workshop on Text Mining for Translational Informatics (TMTI)
- Workshop Chair: Prof. Richard Tzong-Han Tsai and Prof. Hong-Jie Dai
- Workshop Program:
  TMTI: (chaired by Prof. Richard Tzong-Han Tsai and Prof. Hong-Jie Dai)
  10:40-11:00  
  Yung-Chun Chang, Yu-Chen Su, Nai-Wen Chang and Wen-Lian Hsu.  
  An Interaction Pattern Kernel Approach for protein-protein interaction  
  extraction from biomedical literature  
  11:00-11:20  
  Chih-Wei Chen, Nai-Wen Chang, Yung-Chun Chang and Hong-Jie Dai.  
  Section Heading Recognition in Electronic Health Records Using Conditional  
  Random Fields  
  11:20-11:40  
  Yueh-Lin Yang, Po-Ting Lai and Richard Tzong-Han Tsai.  
  A Hybrid System for Temporal Relation Extraction from Discharge  
  Summaries  
  11:40-12:00  
  Jitendra Jonnagaddala, Siaw-Teng Liaw, Pradeep Ray, Manish Kumar and  
  Hong-Jie Dai.  
  HTNSystem: Hypertension Information Extraction System for Unstructured  
  Clinical Notes  
- Workshop Reviewers:
  Prof. Rey-Long Liu  
  Prof. Amber Stubbs  
  Prof. Glenn Gobbel  
  Dr. Junguk Hur  
  Dr. Chih-Hsuan Wei  
  Dr. Tudor Groza  
  Jitendra Jonnagaddala  
  Yung-Chun Chang  
  Po-Ting Lai  
- Workshop Session Chair: Prof. Hong-Jie Dai
International Workshop on
TAEA 2014

The Workshop Name:

Workshop on Theory and Applications of Evolutionary Algorithms

- Workshop Chair: Prof. Chuan-Kang Ting and Prof. Ying-ping Chen
- Workshop Program:

  **TAEA (I):** (chaired by Prof. Ying-Ping Chen)
  13:10-13:30
  Meng-Dan Zhang, Zhi-Hui Zhan and Jun Zhang.
  Tournament Selection Based Artificial Bee Colony Algorithm with Elitist Strategy
  13:30-13:50
  Shin-Shou Chen, Chien-Feng Huang and Tzung-Pei Hong.
  An Improved Multi-objective Genetic Model for Stock Selection with Domain Knowledge
  13:50-14:10
  Sheng-Yu Feng and Chuan-Kang Ting.
  Painting using Genetic Algorithm with Aesthetic Evaluation of Visual Quality

  **TAEA (II):** (chaired by Prof. Chuan-Kang Ting)
  15:50-16:04
  Hybridizing Infeasibility Driven and Constrained-domination Principle With MOEA/D for Constrained Multiobjective Evolutionary Optimization
  16:04-16:18
  Bao Rong Chang, Hsiu-Fen Tsai, Cin-Long Guo, Chia-Yen Chen and Chien-Feng Huang.
  High-Efficiency Remote Cloud Data Center Backup with Intelligent Parameter Adaptation
洪士程 and 陳政擁.
蟻群系統結合序優化求解隨機性零工式生產排程問題
16:32-16:46
洪士程 and 李宗典.
集中式寬頻無線網路的數量限制式服務規則最佳化
16:46-17:00
洪士程 and 何信威.
半導體晶圓針測之測試條件最佳化設計

■ Workshop Reviewers:
Chun-Hao Chen
Shih-Hsin Chen
Tsung-Che Chiang
Shih-Cheng Horng
Chien-Feng Huang
Xin-Lan Liao

■ Workshop Session Chair: Chuan-Kang Ting and Ying-Ping Chen
Keynote Speeches
專題演講
November 21, 2014 (Friday): 09:15~10:15
Lecture Room: IB-101

Chair: Prof. Jane Yung-Jen Hsu, Department of Computer Science and Information Engineering, National Taiwan University, Taiwan

Speaker: Prof. Sarit Kraus, Computer Science, Bar-Ilan University, Israel

Title: Computer Agents that Negotiate Proficiently with People

Abstract: Negotiation and persuasion are tools for social influence that are endemic to human interaction, from personal relationships and business partnerships to political debate. The inclusion of people presents novel problems for the design of automated agents’ negotiation and persuasion strategies. People do not adhere to the optimal, monolithic strategies that can be derived analytically. Their negotiation behavior is affected by a multitude of social and psychological factors. In this talk I will show how combining machine learning techniques for opponent modeling with human behavioral models, formal decision-making and game theory approaches enable agents to interact well with people. Applications include intelligent agents that help drivers reduce energy consumption, agents that support rehabilitation, employer-employee negotiation and agents for three-player market settings.

Bio.
Sarit Kraus (Ph.D. Computer Science, Hebrew University, 1989) an Adjunct Professor of Computer Science Institute for Advanced Computer Studies, University of Maryland, College Park and is a Professor of Computer Science at Bar-Ilan University. Her research is focused on intelligent agents and multi-agent systems (including people). Kraus was awarded the IJCAI Computers and Thought Award, ACM SIGART Agents Research award, the EMET prize and her paper with Prof. Barbara Grosz was a winner of the IFAAMAS influential paper award (joint winner). She is AAAI and ECCAI fellow and a recipient of the advanced ERC grant.
November 21, 2014 (Friday): 14:20~15:20
Lecture Room: IB-101

Chair: Prof. Hui-Huang Hsu, Department of Computer Science and Information Engineering, Tamkang University

Speaker: Prof. Li-Chen Fu, Department of Electrical Engineering and Department of Computer Science and Information Engineering, National Taiwan University

Title: How to Make a Service Robot Socially Friendly in a Human Society?

Abstract: To enable intelligent service robots to join our human society, they should be able to autonomously generate social competence such that their behaviors can accommodate smooth social interaction with the human. These smart agents are referred to as “social robots”, which can be further divided into two categories: social interactive robot (SIR) as well as social assistive robot (SAR). We will first introduce the difference between the two research areas and address some challenges and emerging needs for these two kinds of social robots. Next, various state-of-the-art technologies will be presented in this talk. These technologies demonstrate that social robots naturally interact with human or friendly assist human through social interaction. Finally, the shortcomings or future developments will be briefly touched upon, which reveals that the social competence actually involves more cognitive/intelligent capabilities and a framework is crucially needed to integrate all sorts of robot's abilities.

Bio.
Li-Chen Fu (F’04) received B.S. degree from National Taiwan University, Taiwan, R.O.C., in 1981, and M.S. and Ph.D. degrees from University of California, Berkeley, U.S.A. in 1985 and 1987, respectively. Since 1987, he has been a member of the faculty, and is currently a full professor in the Department of Electrical Engineering and Department of Computer Science and Information Engineering, National Taiwan University, Taiwan, R.O.C. He was awarded Lifetime Distinguished Professorship from his university in 2007. He has received numerous academic recognitions, such as Distinguished Research Awards from National Science Council, Taiwan, R.O.C., the Irving T. Ho Chair Professorship, Macronix Chair Professorship, and IEEE Fellow in 2004. He currently serves as Editor-in-Chief of the Asian Journal of Control, President of Asian Control Association, and Distinguished Lecturer of the IEEE Control Systems Society during 2013~2015. His research interests include robotics, smart home, visual detection and tracking, intelligent vehicle, production scheduling, virtual reality, and control theory & applications.
November 22, 2014 (Saturday): 09:20~10:20
Lecture Room: IB-101

Chair: Prof. Richard Tzong-Han Tsai, Department of
Computer Science and Information Engineering,
National Central University, Taiwan

Speaker: Prof. Chun-Nan Hsu, University of California, San Diego, USA

Title: Getting Ready for (Big)-Data-Driven Science

Abstract:
It has been envisioned that science will shift from “hunting" culture, where
great scientists target hypothetic theories and strive to prove them, to
“agriculture" one, where scientists “grow" (big)-data and “harvest" knowledge
in a more stable and less risky manner. Yet the shift will not be a smooth one
because the two cultures are drastically different. For example, a good
“hunter" may not be a good “farmer" and conflicts of values led to chaos in
human history. In this talk, I will try to argue with examples that the shift is
inevitable and challenges current academic research system, which has been
under siege from various crises to survive and stay relevant. Instead of
providing answers, the talk will try to ask questions and stir discussion of what
changes must be made in the academic world to get ready for the shift. The
talk will introduce attempts by EU with the e-science initiative and BD2K by NIH
recently.

Bio.
Prof. Chun-Nan Hsu was born in Taipei, Taiwan. He earned his Ph.D. in
computer science from the University of Southern California, Los Angeles, CA,
USA. He was Assistant Professor in computer science and engineering, Arizona
State University, Tempe, AZ, USA before he joined Institute of Information
Science, Academia Sinica, Taiwan, where he served as the project leader of the
informatics group in the Advanced Bioinformatics Core, a core facility
supported by the National Research Program of Genomics Medicine funded by
the National Science Council, Taiwan, from 2005 to 2011. He joined the
Information Sciences Institute, University of Southern California from 2009 to
2013 and moved to his current position at the Division of Biomedical
Informatics, Department of Medicine, University of California, San Diego, La
Jolla, CA, in November 2013. He has published nearly 100 peer-reviewed
research articles in the fields of machine learning, data mining, and biomedical
informatics. His team developed widely used software tools for biomedical
sciences. Prof. Hsu is a Senior Member of the Association of Computing
Machinery and a professional member of the International Society of
Computational Biology. He was elected as the President of the Taiwanese
Association for Artificial Intelligence from 2009 to 2011. He won the IBM
Faculty Award for his distinguished contributions to biomedical text mining in
2012.
November 22, 2014 (Saturday): 13:00~14:00
Lecture Room: IB-101

Chair: Prof. Hsing-Kuo Kenneth Pao, Department of
Computer Science and Information Engineering,
National Taiwan University of Science and Technology,
Taiwan

Speaker: Dr. Wei-Ying Ma, Microsoft Research Asia, Microsoft Corp, China

Title:
Towards Machine Comprehension of Text

Abstract:
In recent years, we have seen dramatic improvements in deep learning, knowledge (entity) mining, and computing infrastructure that are providing powerful capabilities to process and understand text data at an unprecedented scale. We now have the ability to learn big statistical models from large amounts of data and build comprehensive symbolic knowledge graphs from the Web. We have technologies to learn different types of representations for text, including continuous vector space models based on semantic embedding, graph representations based on entity and relationship extraction, and discrete representations using information retrieval based approaches. We have distributed graph engines capable of serving a large-scale knowledge graph on which natural language understanding and generation can be performed in real time. In the industry, the rise of intelligent software such as Microsoft Cortana gives us opportunities to close the human feedback loop and create never-ending knowledge mining and machine learning to monotonically improve the precision and coverage of the various text representations. By building a scalable system and algorithms to leverage and integrate all these capabilities, we could unify many fundamental building blocks in natural language understanding, such as semantic parsing and linking of text string onto knowledge graph and reasoning and inference with common sense to decipher its meaning. In this talk, I will introduce some of our work in this area, including knowledge powered word embedding, automatic construction of a knowledge graph, and real time graph search and knowledge-based question answering.

Bio.
Dr. Wei-Ying Ma is an Assistant Managing Director at Microsoft Research Asia where he oversees multiple research groups including Web Search and Mining, Natural Language Computing, Data Management and Analytics, and Internet Economics and Computational Advertising. He and his team of researchers have developed many key technologies that have been transferred to Microsoft’s Online Services Division including Bing Search Engine and Microsoft Advertising. He has published more than 250 papers at international conferences and journals. He is a Fellow of the IEEE and a Distinguished
Scientist of the ACM. He currently serves on the editorial boards of ACM Transactions on Information System (TOIS) and ACM/Springer Multimedia Systems Journal. He is a member of International World Wide Web (WWW) Conferences Steering Committee. In recent years, he served as program co-chair of WWW 2008, program co-chair of Pacific Rim Conference on Multimedia (PCM) 2007, general co-chair of Asia Information Retrieval Symposium (AIRS) 2008, and the general co-chair of ACM SIGIR 2011. More information about him can be found at http://research.microsoft.com/en-us/people/wyma/
November 23, 2014 (Sunday): 09:20~10:20
Lecture Room: IB-101

Chair: Prof. Hsuan-Tien Lin, Department of Computer Science and Information Engineering, National University, Taiwan

Speaker: Prof. Mark Schmidt, Department of Computer Science at the University of British Columbia, Canada

Title: Fast Non-Smooth and Big-Data Optimization

Abstract:
In nearly all fields of science and engineering, the amount of data we collect is growing at unprecedented rates. Natural language, computer vision, bioinformatics, social network, and internet applications (among a myriad of others) no longer produce data sizes from megabytes to gigabytes, but rather from terabytes to petabytes (and beyond). At the same time, we are developing richer statistical methods that are able to use this deluge of data to model increasingly-complex phenomena. Fitting these models can typically be cast as a continuous (and often convex) optimization problem, but traditional ‘black-box’ optimization techniques can have difficulty coping with modern data sizes and model complexities. My work looks at ‘opening up the optimization black box’ by developing methods that use the structures present in machine learning models. This simple idea can lead to enormous reductions in computation; in extreme cases we achieve linear convergence in a context where all black-box algorithms provably only have sublinear convergence. These developments not only make it practical to analyze significantly larger data sets, but also expand the set of tractable problems so that we can propose richer classes of efficiently-trainable statistical models. In this talk, I will focus on three examples: (i) incorporating prior knowledge through structured or sparsity-inducing regularizers and how inexact proximal-gradient methods allow us to efficiently fit these methods, (ii) learning conditional and higher-order dependency structures between variables and how we can efficiently optimize the resulting costly high-dimensional constrained objective functions, and (iii) fitting statistical models with an enormous number of samples and the development of the first linearly-convergent stochastic gradient method. These types of advances have proven useful for a wide variety of applications in machine learning, but the work has broader implications since these same problem structures tend to arise in most data-driven science and engineering fields.
Bio.
Mark Schmidt is an assistant professor working in the field of machine learning and large-scale optimization in the Department of Computer Science at the University of British Columbia. He previously worked in the Natural Language Laboratory at Simon Fraser University, and from 2011 through 2013 worked at the École normale supérieure in Paris on inexact and stochastic convex optimization methods. He finished his M.Sc. in 2005 at the University of Alberta working as part of the Brain Tumor Analysis Project, and his Ph.D. in 2010 at the University of British Columbia working on graphical model structure learning with L1-regularization. He has also worked at Siemens Medical Solutions on heart motion abnormality detection, and with Michael Friedlander in the Scientific Computing Laboratory at the University of British Columbia on semi-stochastic optimization methods.
November 23, 2014 (Sunday): 13:00~14:00
Lecture Room: IB-101
Chair: Prof. Wei-Chung Teng, Department of Computer Science and Information Engineering, National Taiwan University of Science and Technology, Taiwan

Speaker: Prof. Masahiko Inami, KEIO Media Design, Japan
Title: Works Like Magic Intuitive Interaction Technique in HCI/HRI

Abstract:
What are the challenges in creating interfaces that allow a user to intuitively control robots? A general remote controlled robot is manipulated by a joystick and a game-pad. However, these methods are difficult for inexperienced users because the mapping between the user input and resulting robot motion is not always intuitive.
This talk will present prototype systems such as home appliance control methods using augmented reality, a paper-based method for instructing mobile robots, and various I/O devices to enhance physical interaction with robotic systems.
They include CRISTAL, RobotPHONE, Magic Card and Active Marionette

Bio.
Masahiko Inami is a professor in the School of Media Design at the Keio University (KMD), Japan. His research interest is in human I/O enhancement technologies including bioengineering, HCI and robotics. He received BE and MS degrees in bioengineering from the Tokyo Institute of Technology and PhD in 1999 from the University of Tokyo.
His scientific achievements include the Retro-reflective Projection Technology (RPT) known as “Optical Camouflage," which was chosen as one of the coolest inventions of 2003 by /TIME/ magazine. His research has appeared at the Siggraph Emerging Technologies via 37 installations from 1997 through 2014. His installations have appeared at Ars Electronica Center. He was one of members of Device Art Project. http://www.deviceart.org/
Panel Discussion

專題座談
November 22, 2014 (Saturday) : 14:30 - 16:20

Lecture Room: IB-101

Theme: Industrial Opportunities for AI People

Chair:
- Prof. Shou-De Lin, National Taiwan University, Taiwan

Panelists:
- Prof. Shou-De Lin, Associate Professor, Department of Computer Science and Information Engineering, National Taiwan University
- Prof. Wei-Ying Ma from MSRA
- Prof. Edward Chang from HTC
- Prof. Peter Wu from ASUSCloud
- Prof. Chih-Han Yu from Appier
- Prof. Chih-Jen Lin, Distinguished Professor, Department of Computer Science and Information Engineering, National Taiwan University
Invited Session
專題演講
Invited Session: Statistics in AI (I)

November 22, 2014 (Saturday): 10:50 ~ 12:00

Lecture Room: IB-305

Session Chair: Dr. Grace S. Shieh

Speaker: Dr. Shin-Sheng Yuan
Institute of Statistical Science, Academia Sinica
syuan@stat.sinica.edu.tw

Title: A fast and simple scoring procedure for haplotype phasing

Abstract:
Haplotype phasing is one of the most important problems in population genetics. Haplotypes can be used to understand hereditary model of called variants. A simple scoring procedure was developed to solve the haplotypes by using identical by decent (IBD) information among related individuals. This procedure is fast and flexible and applicable for various family types. In our quest for finding lung cancer related risk mutations, we apply our procedure on a family with high lung cancer incidence rates. A novel mutation was discovered. The pros and cons of our procedure will also be discussed.

Speaker: Dr. I-Ping Tu
Institute of Statistical Science, Academia Sinica
iping@stat.sinica.edu.tw

Title: Statistical analysis for cryo-electron microscopy images of asymmetric particles

Abstract:
Cryo-electron microscopy (cryo-EM) has recently emerged as a powerful tool for obtaining three-dimensional (3D) structures of biological macromolecules in native states. A minimum cryo-EM image data set for deriving a meaningful reconstruction is comprised of at least thousands of randomly orientated projections of identical particles contaminated with high noise. The computation of 3D structure from 2D projections requires image clustering, which aims to enhance the signal to noise ratio in each view by grouping similarly oriented images. Nevertheless, the prevailing clustering techniques are often compromised by three characteristics of cryo-EM data: high noise content, high dimensionality and large number of clusters. In this talk, a dimension reduction method for image data set and a clustering algorithm γ-SUP robust to outliers will be introduced and their application on a ribosome data set will be presented.
Invited Session: Statistics in AI (I)

November 22, 2014 (Saturday): 10:50 ~ 12:00

Lecture Room: IB-305

Speaker: Dr. Grace S. Shieh
Institute of Statistical Science, Academia Sinica

Title: Machine Learning used in prediction of transcriptional regulatory interactions

Abstract:
Both transcription factors (TFs) and microRNAs (miRNAs) regulate gene expression. TFs activate or suppress the initiation of the transcription process and miRNAs regulate mRNAs post-transcriptionally, thus forming a temporally ordered regulatory event. Abnormal expression of key transcriptional regulators and/or miRNAs was shown to be involved in various tumors, hence it is of interest. We introduced a two-stage learning fuzzy method to model TF-miRNA coregulation. In Stage 1, a learning fuzzy inference system (ANFIS) combines two DNA sequence alignment features, by learning from verified TF-target pairs, into a sequence matching score. Next, a non-learning FIS incorporates a sequence alignment score and a correlation score from paired TF-target gene expression to output a Stage 1 fuzzy score to infer whether a TF-target regulation exists. For significant TF-target pairs, in Stage 2, similarly we first infer whether a miRNA regulates each common target by an ANFIS, which incorporates their sequences and known miRNA-target relationships, to output a sequence score. Next, an FIS incorporates the Stage 1 fuzzy score, Stage 2 sequence score and gene expression correlation score of a miRNA-target pair to determine whether a TF-miRNA coregulation exists.

This fuzzy algorithm was applied to predict 54 (8) TF-miRNA coregulation triples in ER-positive (ER-negative) human breast cancer cell lines, and resulted in true-positive rates of 0.55 (0.74) and 0.57 (0.75) using 3-fold and n-fold cross validations (CVs), respectively. False-positive rate bound was 0.07 (0.13) for ER-positive (ER-negative) breast cancer using both 3-fold and n-fold CVs. The proposed algorithm performed well in identification of TF-miRNA coregulation in human breast cancer, and it can be applied to uncover novel coregulation in other cancers as well.
Invited Session: Statistics in AI (II)

November 22, 2014 (Saturday): 16:30 ~ 17:30

Lecture Room: IB-305

Session Chair: Prof. Henry Horng-Shing Lu

Speaker: Dr. Ting-Li Chen
Institute of Statistical Science, Academia Sinica
tlchen@stat.sinica.edu.tw

Title: Iterative estimation by self-updating process
Abstract:
In traditional statistical methods, iterative estimation is always based on the original data. In this talk, we propose an iterative process which first performs local estimation and then moves the data based on the estimation. The local estimation can reduce the effect from outliers so that the method is more robust. To move of data based on the current estimation can improve the overall efficiency. We will show examples from clustering and regression that our proposed method outperforms the standard approach.

Speaker: Prof. Henry Horng-Shing Lu
Institute of Statistics, National Chiao Tung University, Taiwan
hslu@stat.nctu.edu.tw

Title: Integration of Boolean and Bayesian Networks
Abstract:
Gene regulation pathway or gene regulation network is referred to as one great challenge in biological research. For decades, Bayesian and Boolean networks have been studied to provide reasonable network structure to this problem. However, reconstructing network is a difficult problem. In this study, we propose a new method to integrate the approaches of Boolean and Bayesian networks, termed as the Boolean-Bayesian network, to suggest a reasonable network structure. Boolean-Bayesian network first suggests a set of relations from s-p-score associated with networks (SPAN) method, and identify the proper network by maximizing the posterior. Then, the relevant conditional probabilities can be computed for each relation in the network. Simulated result and empirical study have been used to illustrate the network learning by this method. This study shows that Boolean-Bayesian network can speed up the process in finding the network structure, and provide statistical inference as Bayesian network.
Invited Session: Taiwan R User Group

November 23, 2014 (Sunday): 10:50 ~ 12:00

Lecture Room: IB-308

Session Chair: Chia-Yi Yen

Speaker: 陳嘉葳
Taiwan R User Group

Title: 基於社群網路關係的意見挖掘系統
Abstract: 意見挖掘是自然語言處理領域中受關注的應用，主要是對用戶發表的主觀性文章進行分類，例如商品評論或電影評論等等。而近年隨著社交與購物網站迅速發展，促進社群網路快速形成。社群網路主要表現出人與人之間的關係，例如在論壇上推文或噓文，用戶透過這些文章或評論便有一定的聯繫。因此我們提出一套有效並能快速建立的意見挖掘系統，利用開放原始碼的全文搜尋工具，自然語言處理與機器學習套件，透過二分圖對使用者的社群網路關係與評論文章建立模型，並透過標籤傳遞演算法對未標注的文章進行情感極性分類，最後將結果建立索引後讓使用者進行搜尋，讓使用者能快速去探索與追蹤用戶關係網路與主觀評論之間的變化。

Speaker: Mr. Chia-Chi Chang
Taiwan R User Group
c3h3.tw@gmail.com

Title: Classification Versus Clustering: Semi-Supervised Learning in Real Application
Abstract: In this talk, we will use news recommendation system, e-commerce product matching system, and stock pattern analysis system as our real application examples. We will discuss about the merits and demerits of classification methods and clustering methods. Classification methods are accurate but with very expensive human labeling cost; on the other hand, clustering methods are not so accurate but without cost in human labeling. Therefore, how to build a system which could use the minimal cost of human labeling and get the highest accuracy is the most important problem in lots of real application area. In this talk, we would use metric learning methods along with DBCAN clustering method to build a semi-supervised learning system for solving real application problems.
Reception

歡迎茶會

Location: Building IB 1F (Area B)

November 21, 2014 (Friday): 17:30 ~ 19:00
Banquet

晚宴

Location: SHANGHAI KITCHEN, (B1 Floor)

November 22, 2014 (Saturday): 18:20 ~ 21:00
## Entertainment in Banquet

**Singer Name:**
Terry, Kevin, Eleven, Ben, David, Alan, Tank, Tim, James

<table>
<thead>
<tr>
<th>Song</th>
<th>Singer</th>
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</thead>
<tbody>
<tr>
<td>向前走 - 林強</td>
<td>Alan, Kevin, Tank, Tim</td>
</tr>
<tr>
<td>我問天 - 翁立友</td>
<td>Alan, Kevin, David</td>
</tr>
<tr>
<td>To Be With You - Mr.Big</td>
<td>Terry, Ben, Eleven</td>
</tr>
<tr>
<td>自然醒 - 林宥嘉</td>
<td>Kevin, David, Tank, Tim</td>
</tr>
<tr>
<td>所以我停下来- 那我懂你意思了</td>
<td>Tank, Kevin, Tim</td>
</tr>
<tr>
<td>我是一隻小小鳥- 李宗盛</td>
<td>Terry, Tank, Tim</td>
</tr>
<tr>
<td>love someone - Jason Mraz</td>
<td>Terry</td>
</tr>
<tr>
<td>快樂出航 - 蔡幸娟</td>
<td>Alan, Tank</td>
</tr>
<tr>
<td>Rolling In The Deep-- Adele</td>
<td>David, James, Tank</td>
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<tr>
<td>再出发 - 任賢齊</td>
<td>Alan, Kevin, Tank, David</td>
</tr>
<tr>
<td>晚安台湾 - 灭火器</td>
<td>Terry, Eleven, Ben (Ending song)</td>
</tr>
</tbody>
</table>
TAAI Dissertation & Thesis Awards  TAAI 博碩士論文獎

Location: IB-307

November 23, 2014 (Sunday): 10:50 ~ 12:00
中華民國人工智慧學會 103 年度博碩士論文獎得獎名單

103 年度 TAAI 論文獎共有超過四十三篇論文申請，經過初審以及決審兩個階段（每篇論文皆至少由兩位評審評閱），最後選出如下得獎作品：
（註：此屆因參賽博士論文不論數量及質量均在水準之上，故增列一篇博士論文獎，以鼓勵優秀博士生從事人工智慧之研究。）

<table>
<thead>
<tr>
<th>得獎獎項</th>
<th>得獎論文</th>
<th>得獎人</th>
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<tr>
<td>博士論文獎</td>
<td>邁向實際的線上學習 國立台灣大學資訊工程學系 蔣兆凱先生／指導教授:林軒田教授及呂及人研究員</td>
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<tr>
<td>博士論文獎</td>
<td>利用全基因組整合方法分析癌症生物標誌與細胞分化之遺傳變異 國立成功大學資訊工程學系暨研究所 程俊培先生／指導教授:曾新穆教授</td>
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<td>博士論文佳作獎</td>
<td>基於使用者生成多媒體內容之巨量資料分析 國立台灣大學資訊工程學系 陳殷盈小姐／指導教授: 徐宏民教授及廖弘源教授</td>
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<tr>
<td>博士論文佳作獎</td>
<td>應用資料融合策略於語音視覺情緒辨識之研究 國立成功大學資訊工程學系暨研究所 林仁俊先生／指導教授: 吳宗憲教授</td>
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<tr>
<td>碩士論文獎</td>
<td>在共享記憶體系統的快速平行隨機梯度下降法矩陣分解 國立台灣大學資訊工程學系 阮毓欽先生／指導教授: 林智仁教授</td>
<td></td>
</tr>
<tr>
<td>碩士論文獎</td>
<td>貝式非負矩陣分解於單通道音訊分離之研究 國立交通大學電信工程研究所 楊博凱先生／指導教授:簡仁宗教授</td>
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<tr>
<td>碩士論文獎</td>
<td>大規模羅吉斯回歸與支持向量機在 Spark 上之應用 國立台灣大學資訊網路與多媒體研究所 林玠言先生／指導教授:林智仁教授</td>
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中華民國人工智慧學會
理事長 許永真
秘書長 林軒田

103 年度碩博士論文獎
主席 陳孟彰
代表敬賀
Program

詳細議程
November 21, 2014 (Friday): 10:40 - 12:00

International Track Session (ITS)

**ITS 1: Information Retrieval**

Chair: Prof. Chun-Nan Hsu
Lecture Room: IB-504

“A Frame-based Approach for Reference Metadata Extraction”
Yu-Lun Hsieh, Shih-Hung Liu, Ting-Hao Yang, Yu-Hsuan Chen, Yung-Chun, Chang, Gladys Hsieh, Cheng-Wei Shih, Chun-Hung Lu†, and Wen-Lian Hsu
Institute of Information Science, Academia Sinica, Taipei, Taiwan
†Innovative Digitech-Enabled Applications & Services Institute, III, Taiwan

“Identifying Transformative Research in Biomedical Sciences”
Yi-Hung Huang¹,², Ming-Tat Ko², and Chun-Nan Hsu³
¹Department of Computer Science, National Taiwan University, Taipei, Taiwan
²Institute of Information Science, Academia Sinica, Taipei, Taiwan
³Division of Biomedical Informatics, Department of Medicine, UC San Diego, La Jolla, CA

“Classifying the TRIZ Contradiction Problem of the Patents based on Engineering Parameters”
Chung-Kai Tseng, Chih-Heng Chung, and Bi-Ru Dai
National Taiwan University of Science and Technology, Taipei, Taiwan, R.O.C

**ITS 2: Business Intelligence**

Chair: Prof. Esther David
Lecture Room: IB-505

“Manipulating Information Providers Access to Information in Auctions”
Shani Alkobyᵃ, David Sarneᵇ, and Esther Davidᵇ
ᵃDepartment of Computer Science, Bar-Ilan University, Ramat-Gan, Israel
ᵇDepartment of Computer Science, Ashkelon Academic College, Ashkelon, Israel

“Wonders of Seabed: Difficulty Evaluation of Management Games Using Neural Network”
Cheng-Yi Huang, Yi-Cheng Lee, Chia-An Yu, Yi-Zheng Lee, and Sai-Keung Wong*
National Chiao Tung University, Taiwan (R.O.C.)

“A Pragmatic Approach to Summarize Association Rules in Business Analytics”
Swee Chuan Tan, and Boon Hong Sim
SIM University, School of Business, Singapore
November 21, 2014 (Friday): 10:40 - 12:00

Workshop: TMTI

Chair: Prof. Richard Tzong-Han Tsai and Prof. Hong-Jie Dai
Lecture Room: IB-602-2

“An Interaction Pattern Kernel Approach for protein-protein interaction extraction from biomedical literature”
Yung-Chun Chang\textsuperscript{1,2}, Yu-Chen Su\textsuperscript{2}, Nai-Wen Chang\textsuperscript{1,3}, and Wen-Lian Hsu\textsuperscript{1}
\textsuperscript{1}Institute of Information Science, Academia Sinica, Taipei, Taiwan (R.O.C)
\textsuperscript{2}Department of Information Management, National Taiwan University, Taipei, Taiwan (R.O.C)
\textsuperscript{3}Graduate Institute of Biomedical Electronics and Bioinformatics, Taipei, Taiwan (R.O.C)

“Section Heading Recognition in Electronic Health Records Using Conditional Random Fields”
Chih-Wei Chen\textsuperscript{1}, Nai-Wen Chang\textsuperscript{2,3}, Yung-Chun Chang\textsuperscript{4}, and Hong-Jie Dai\textsuperscript{1*}
\textsuperscript{1}Graduate Institute of Biomedical Informatics, College of Medical Science and Technology, Taipei Medical University, Taiwan
\textsuperscript{2}Institution of Information Science, Academia Sinica, Taiwan
\textsuperscript{3}Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taiwan
\textsuperscript{4}Institute of Information Science, Academia Sinica, Taiwan

“A Hybrid System for Temporal Relation Extraction from Discharge Summaries”
Yueh-Lin Yang\textsuperscript{1}, Po-Ting Lai\textsuperscript{2}, and Richard Tzong-Han Tsai\textsuperscript{3*}
\textsuperscript{1}Department of Computer Science and Engineering, Yuan Ze University, Taoyuan, Taiwan
\textsuperscript{2}Department of Computer Science, National Tsing-Hua University, HsinChu, Taiwan
\textsuperscript{3}Department of Computer Science and Information Engineering, National Central University, Taoyuan, Taiwan

“HTNSystem: Hypertension Information Extraction System for Unstructured Clinical Notes”
Jitendra Jonnagaddala\textsuperscript{1,2,3}, Siaw-Teng Liaw\textsuperscript{2,*}, Pradeep Ray\textsuperscript{3}, Manish Kumar\textsuperscript{1}, and Hong-Jie Dai\textsuperscript{4,*}
\textsuperscript{1}Translational Cancer Research Network, UNSW Australia
\textsuperscript{2}School of Public Health and Community Medicine, UNSW Australia
\textsuperscript{3}Asia-Pacific Ubiquitous Healthcare Research Centre, UNSW Australia
\textsuperscript{4}Graduate Institute of Biomedical Informatics, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan, R.O.C
November 21, 2014 (Friday): 10:40 - 12:00

Domestic Track Session (DTS)

DTS 1: Computer Games

Chair: 陳志昌博士
Lecture Room: IB-508

“運用資料探勘技術於西洋棋下棋風格分類”
楊元翰¹，戴志華²，陳正佳¹
¹政治大學
²台北大學

“電腦象棋程式 Shark 的設計與實作”
劉孟謙，林順喜
國立臺灣師範大學資訊工程系

“外五棋程式-OOGiveMeFive 的設計與實作”
陳志宏，林順喜
國立臺灣師範大學資訊工程學系

DTS 2: Image Recognition

Chair: 栗永徽博士
Lecture Room: IB-511-2

“結合中心對稱區域二元圖樣與區域符號方向圖樣之人臉性別辨識”
賴智銘¹，潘欣泰²，黃彥鈞¹
¹國立高雄大學電機工程學系
²國立高雄大學資訊工程學系

“智慧型影像景點辨識標記系統之研製”
施華桐，傅章賢，錢炳全，陳榮銘
國立台南大學資訊工程學系

“遠距離之人臉與虹膜複合式生物辨識系統”
栗永徽，鄭博仁
國立中央大學資訊工程學系
November 21, 2014 (Friday): 13:10 - 14:10

International Track Session (ITS)

ITS 3: Personalized Service

Chair: Prof. Tien-Ruey Hsiang
Lecture Room: IB-504

“A Framework for Personalized Diet and Exercise Guideline Recommendation”
Yu-Feng Lin\(^1\), Cheng-Hao Chu\(^1\), Bo-Hau Lin\(^1\), Yi-Ching Yang\(^2\), Vincent S. Tseng\(^{1,*}\), Miin-Luen Day\(^3\), Shyh-Chyi Wang\(^3\), and Kuen-Rong Lo\(^3\)
\(^1\)Department of Computer Science and Information Engineering, National Cheng Kung University
\(^2\)Department of Family Medicine, National Cheng Kung University Hospital
\(^3\)Telecommunication Laboratories, Chunghwa Telecom Co., Ltd

“Generating Comprehension Questions using Paraphrase”
Ya-Min Tseng\(^1\), Yi-Ting Huang\(^2\), Meng Chang Chen\(^1\), Yeali S. Sun\(^2\)
\(^1\)Institute of Information Science, Academia Sinica, Taipei, Taiwan
\(^2\)Department of Information Management, National Taiwan University, Taipei, Taiwan

ITS 4: Web Intelligence

Chair: Prof. Cheng-Te Li
Lecture Room: IB-505

“Detecting spam on Twitter via message-passing based on retweet-relation”
Pei-Chi Chen\(^1\), Hahn-Ming Lee\(^{12}\), Hsiao-Rong Tyan\(^3\), Jain-Shing Wu\(^{14}\), and Te-En Wei\(^1\)
\(^1\)Dept. Computer Science and Information Engineering, National Taiwan University of Science and Technology, Taiwan
\(^2\)Dept. of Information Science, Academia Sinica, Taiwan
\(^3\)Dept. of Information and Computer Engineering, Chung Yuan Christian University, Taiwan
\(^4\)CyberTrust Technology Institute, Institute for Information Industry, Taiwan

“Cross-Domain Opinion Word Identification with Query-by-Committee Active Learning”
Yi-Lin Tsai\(^1\), Richard Tzong-Han Tsai\(^2\), Chuang-Hua Chueh\(^3\), and Sen-Chia Chang\(^3\)
\(^1\)Department of ISA, National Tsinghua University, Hsinchu, Taiwan
\(^2\)Department of CSIE, National Central University, Chungli, Taiwan
\(^3\)Industrial Technology Research Institute, Hsinchu, Taiwan
November 21, 2014 (Friday): 13:10 - 14:10

Workshop: TAEA (I)

Chair: Prof. Ying-Ping Chen
Lecture Room: IB-602-2

“Tournament Selection Based Artificial Bee Colony Algorithm with Elitist Strategy”
Meng-Dan Zhang, Zhi-Hui Zhan*, Jing-Jing Li†, and Jun Zhang
Department of Computer Science, Sun Yat-sen university, China
Key Lab. Machine Intelligence and Advanced Computing, Ministry of Education, China
Engineering Research Center of Supercomputing Engineering Software, MOE, China
Key Lab. Software Technology, Education Department of Guangdong Province, China
*School of Computer Science, South China Normal University, China

“An Improved Multi-objective Genetic Model for Stock Selection with Domain Knowledge”
Shin-Shou Chen1, Chien-Feng Huang2, and Tzung-Pei Hong1,2
1Department of Computer Science and Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan
2Department of Computer Science and Information Engineering, National University of Kaohsiung, Kaohsiung, Taiwan

“Painting using Genetic Algorithm with Aesthetic Evaluation of Visual Quality”
Sheng-Yu Feng and Chuan-Kang Ting
Department of Computer Science and Information Engineering, National Chung Cheng University, Taiwan

DTS 3: Computer Games

Chair: 林順喜博士
Lecture Room: IB-303

“六子棋程式平行化之研究”
張傑閔，吳毅成，魏廷翰，蔣秉璁
國立交通大學資訊工程研究所

“電腦暗棋的搜尋加強與審局函數檢驗改良”
程冠倫1，賴偉介2，陳柏年3，范端芳1
1國立澎湖科技大學資訊工程系
2國立暨南大學資訊工程所
3財團法人資訊工業策進會
November 21, 2014 (Friday): 13:10 - 14:10

DTS 4: Intelligent Tools

Chair: 陸敬互博士
Lecture Room: IB-602-1

“電動車資料管理系統”
黃稚游¹，李雪汾²，劉宇雯²，林宏昱²，蘇庭昱²，陳翰申²，呂亦書²，
黃俊龍²
¹工行動技術研究院機械與系統研究所
²國立交通大學資訊工程學系

“運用 Arduino 技術開發藍芽電子台秤”
陳榮靜¹，楊偉彬²，陳堃霖²，張鎮仕²，戴彬³
¹朝陽科技大學資訊管理系
²朝陽科技大學資訊與通訊系
³廈門理工學院計算機與資訊工程學院
November 21, 2014 (Friday): 15:50 - 17:00

International Track Session (ITS)

ITS 5: Machine Learning Meets Statistics
Chair: Prof. Tzong-Han Tsai
Lecture Room: IB-504

“A Weight-Sharing Gaussian Process Model Using Web-Based Information for Audience Rating Prediction”
Yu-Yang Huang¹, Yu-An Yen¹, Ting-Wei Ku¹, Shou-De Lin¹, Wen-Tai Hsieh², and Tsun Ku²
¹Dept. of Computer Science and Information Engineering, National Taiwan University, Taipei, Taiwan
²Institute for Information Industry, Taipei, Taiwan

“Bayesian Variable Selection for Multi-Response Linear Regression”
Wan-Ping Chen¹, Ying Nian Wu¹, and Ray-Bin Chen²
¹Department of Statistics, University of California, Los Angeles, CA, USA
²Department of Statistics, National Cheng Kung University, Tainan, Taiwan, ROC

“Semi-Supervised Dimension Reduction with Kernel Sliced Inverse Regression”
Chiao-Ching Huang¹ and Kuan-Ying Su²
¹Department of Computer Science and Information Engineering, National Taiwan University, Taipei, Taiwan
²Department of Computer Science and Information Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan

ITS 6: Artificial Intelligence Methodology
Chair: Prof. Chang-Shing Lee
Lecture Room: IB-505

“Bio-Inspired Evolutionary Computing with Context-Awareness and Collective-effect”
Yi-Ting Chen, Jeng-Shyang Pan, Shu-Chuan Chu*, and Mong-Fong Horng
Department of Electronics Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan
*Department of Computer Sciences, Flinders University, Australia

“Solving PERT problems involving Type-2 Fuzzy Uncertainty: An approach”
Juan Carlos Figueroa-García, Iván Darío Jiménez-Medina, and Rausses Danilo Rojas-Olaya
Universidad Distrital Francisco José de Caldas, Bogotá - Colombia
November 21, 2014 (Friday): 15:50 - 17:00

Workshop: TAEA (II)

Chair: Prof. Chuan-Kang Ting
Lecture Room: IB-602-2

“Hybridizing Infeasibility Driven and Constrained-domination Principle With MOEA/D for Constrained Multiobjective Evolutionary Optimization”
Huibiao Lin\textsuperscript{1}, Zhun Fan\textsuperscript{1*}, Xinye Cai\textsuperscript{2}, Wenji Li\textsuperscript{1}, Sheng Wang\textsuperscript{1}, Jian Li\textsuperscript{3}, and Chengdian Zhang\textsuperscript{1}
\textsuperscript{1}School of Engineering, Shantou University, Guangdong, 515063 P. R. China
\textsuperscript{2}College of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, P. R. China
\textsuperscript{3} College of Science, Shantou University, Guangdong, P. R. China
\textsuperscript{4}Guangdong Provincial Key Laboratory of Digital Signal and Image Processing Techniques, Shantou University, Guangdong, P. R. China

“High-Efficiency Remote Cloud Data Center Backup with Intelligent Parameter Adaptation”
Bao Rong Chang\textsuperscript{1,2*}, Hsiu-Fen Tsai\textsuperscript{2}, Cin-Long Guo\textsuperscript{1}, Chia-Yen Chen\textsuperscript{1}, and ChienFeng Huang\textsuperscript{1}
\textsuperscript{1}Department of Computer Science and Information Engineering, National University of Kaohsiung, Taiwan
\textsuperscript{2}Department of Marketing Management, Shu Te University, Kaohsiung, Taiwan

“蟻群系統結合序優化求解隨機性零工式生產排程問題”
洪士程，陳政擁
朝陽科技大學資訊工程系

“集中式寬頻無線網路的數量限制式服務規則最佳化”
洪士程，李宗典
朝陽科技大學資訊工程系

“半導體晶圓針測之測試條件最佳化設計”
洪士程，何信威
朝陽科技大學資訊工程系
November 21, 2014 (Friday): 15:50 - 17:00

Domestic Track Session (DTS)

DTS 5: Computer Games

Chair: 顏士淨博士
Lecture Room: IB-303

“電腦暗棋程式 Observer 的設計與實作”
徐大開，林順喜
國立臺灣師範大學資訊工程系

“電腦暗棋對戰平臺設計實作”
賴王斌¹，賴偉介²，陳柏年³，范端芳¹
¹國立澎湖科技大學資訊工程系
²國立暨南科技大學資訊工程所
³資訊工業策進會

DTS 6: Intelligent Home

Chair: 許輝煌博士
Lecture Room: IB-602-1

“iOS 行動裝置於智慧家庭節能監控系統之應用”
江育民，雷智丞，錢韋宏
義守大學工業管理學系

“Map-Reduce Framework for Identification of Stay Points from User Moving Trajectories”
Yen-Kuan Lee¹, Bo-Heng Chen¹, Kun-Ta Chuang¹, Seth Chen², Jonathan Tsai², and Yung-Chung Ku²
¹Dept. of Computer Science and Information Engineering, National Cheng Kung University, Tainan, Taiwan, R.O.C
²Innovative DigiTech-Enabled Applications & Services Institute, IDEAS, Institute for Information Industry, Taipei, Taiwan, R.O.C

“基於雲端服務組合之重構式代理人在智慧家庭之應用”
范姜松成¹，王挺宇¹，林延祐²，陸敬互²，黃依賢¹²
¹元智大學資訊工程學系
²元智大學資訊傳播學系
November 22, 2014 (Saturday): 10:50 - 12:00
International Track Session (ITS)

ITS 7: Machine Learning Algorithms
Chair: Prof. Yi-Ren Yeh
Lecture Room: IB-303

“A Transfer-Learning Approach to Exploit Noisy Information for Classification and Its Application on Sentiment Detection”
Wei-Shih Lin*, Tsung-Ting Kuo†, Yu-Yang Huang†, Wan-Chen Lu†, and Shou-De Lin†
†Department of Computer Science & Information Engineering, National Taiwan University
*Telecommunication Laboratories, Chunghwa Telecom Co., Ltd

“Time Series Classification with Temporal Bag-of-Words Model”
Zi-Wen Gui1 and Yi-Ren Yeh2
1Department of Computer Science and Information Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan
2Department of Applied Mathematics, Chinese Culture University, Taipei, Taiwan

“Expert-Based Fusion Algorithm of an Ensemble of Anomaly Detection Algorithms”
Esther David1, Guy Leshem1, Michal Chalamish1, Alvin Chiang2, and Dana Shapira3
1Department of Computer Science, Ashkelon Academic College Ashkelon, Israel
2Department of Computer Science and Information Engineering, National Taiwan University of Science and Technology
3Department of Computer Science, Ariel University

ITS 8: Data Mining Algorithms
Chair: Prof. Mars Y. W. Huang
Lecture Room: IB-304

“LAW: Link-Aware source selection for virtually integrating Linked Data”
Xuejin Li1, Zhendong Niu1, Chunxia Zhang2, and Xiaoyang Wang1
1School of Computer Science, Beijing Institute of Technology
2School of Software, Beijing Institute of Technology

“Adaptive Affinity Propagation Clustering in MapReduce Environment”
Wei-Chih Hung1, Yuan-Cheng Liu1, Yi-Leh Wu1†, Cheng-Yuan Tang2, and Maw-Kae Hor3
1Department of Computer Science and Information Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan
2Department of Information Management, Huafan University, New Taipei City, Taiwan
3Kainan University, Taoyuan, Taiwan

“Mining Frequent Patterns with Multiple Item Support Thresholds in Tourism Information Databases”
Yi-Chun Chen, Grace Lin, Ya-Hui Chan and Meng-Jung Shih*
Advanced Research Institute, Institute for Information Industry, Taipei, Taiwan, R.O. C
November 22, 2014 (Saturday): 10:50 - 12:00

Invited Session: Statistics in AI (I)

Chair: Prof. Grace S. Shieh
Lecture Room: IB-305

“A fast and simple scoring procedure for haplotype phasing”
Dr. Shin-Sheng Yuan
Institute of Statistical Science, Academia Sinica

“Statistical analysis for cryo-electron microscopy images of asymmetric particles”
Dr. I-Ping Tu
Institute of Statistical Science, Academia Sinica

“Machine Learning used in prediction of transcriptional regulatory interactions”
Dr. Grace S. Shieh
Institute of Statistical Science, Academia Sinica

Domestic Track Session (DTS)

DTS 7: Information Retrieval and Extraction

Chair: 陳宜欣博士
Lecture Room: IB-306

“基於排序相關係數進行特徵向量轉換之資訊檢索排序模型學習”
葉鎮源¹，楊維邦²
¹國立自然科學博物館營運典藏與資訊組
²國立東華大學資訊管理學系

“基於頁面層級之快速網頁資料擷取與綱要驗證”
陳天盛，陳明權，張嘉惠
國立中央大學

“融入各種不同文件關聯資訊於虛擬關聯文件選取方法之研究”
陳俊諭，洪孝宗，陳柏琳
國立臺灣師範大學資訊工程學系
November 22, 2014 (Saturday): 10:50 - 12:00

Domestic Track Session (DTS)

DTS 8: AI Algorithms

Chair: 錢炳全博士
Lecture Room: IB-307

“A Chaotic Masking System Based on Twofish Encryption Algorithm”
Feng-Hsiag Hsiao and Kai-Ping Hsieh
Department of Electrical Engineering, National University of Tainan, Tainan, Taiwan, R.O.C

“改良型的排序為主之人工蜂群演算法及其在限制最佳化問題的應用”
劉振隆
義守大學資訊管理學系

“以分群概念建立標籤階層”
李奇翰，吳宜鴻
中原大學資訊工程學系
November 22, 2014 (Saturday): 16:30 - 17:30

International Track Session (ITS)

ITS 9: Computer Vision

Chair: Prof. Kai-Lung Hua
Lecture Room: IB-303

“Age and Gender Estimation Using Shifting and Re-scaling of Local Regions”  
Nawwar Ali, Chi-Fu Lin, Yuh-Shen Hsiung, Yun-Che Tsai, and Chiou-Shann Fuh  
Department of Computer Science and Information Engineering, National Taiwan University, Taipei, Taiwan (R.O.C)

“A Robust Learning-based Detection and Tracking Algorithm”  
Dini Nuzulia Rahmah, Wen-Huang Cheng, Yung-Yao Chen, and Kai-Lung Hua  
National Taiwan University of Science and Technology, Taipei, Taiwan

ITS 10: Artificial Intelligence Applications

Chair: Prof. Wei-Chung Teng
Lecture Room: IB-304

“A Robust Feature Matching Method for Robot Localization in a Dynamic Indoor Environment”  
Tsung-Yen Tsou, and Shih-Hung Wu*  
Department of Computer Science and Information Engineering, Chaoyang University of Technology, Taichung, Taiwan (R.O.C)

“A digital stereo microscope platform for microsurgery training”  
James K Rappel¹, Amitabha Lahiri² and Teo Chee Leong¹  
¹Department of Mechanical Engineering, National University of Singapore, Singapore  
²Department of Hand and Reconstructive Microsurgery, National University Health System, Singapore

Invited Session: Statistics in AI (II)

Chair: Prof. Henry Horng-Shing Lu
Lecture Room: IB-305

“Iterative estimation by self-updating process”  
Dr. Ting-Li Chen  
Institute of Statistical Science, Academia Sinica

“Integration of Boolean and Bayesian Networks”  
Prof. Henry Horng-Shing Lu  
Institute of Statistics, National Chiao Tung University, Taiwan
November 22, 2014 (Saturday): 16:30 - 17:30

Domestic Track Session (DTS)

DTS 9: Social Media Mining

Chair: 吳世弘博士
Lecture Room: IB-306

“微網誌之產品熱門特徵擷取”
黃詩婷，高宏宇
國立成功大學資訊工程學系

“識別線上社群網路之 Top-k 重要影響者”
沈家譽 1, 馬豪尚 1, 簡志佳 1, 辛韋呈 1, 吳永斌 1, 黃仁晞 1, 葉信延 2
1 國立成功大學
2 資策會資安所

DTS 10: Speech and Video

Chair: 王家慶博士
Lecture Room: IB-307

“探究豐富文脈模型化技術於中文語音合成系統之發展”
陳黃威, 洪孝宗, 陳柏琳
國立臺灣師範大學資訊工程學系

“基於群體智慧之視訊快速編碼”
俞果, 周餘嶧, 朱恒逸, 宋育寰, 王家慶
中央大學資訊工程系
November 23, 2014 (Sunday): 10:50 - 12:00
International Track Session (ITS)
ITS 11: Computer Game
Chair: Prof. I-Chen Wu
Lecture Room: IB-303

“Multi-Stage Temporal Difference Learning for 2048”
I-Chen Wu, Kun-Hao Yeh, Chao-Chin Liang, Chia-Chuan Chang, and Han Chiang
Department of Computer Science, National Chiao Tung University, Hsinchu, Taiwan

“Monte-Carlo Tree Reductions for stochastic games”
Nicolas Jouandeau¹ and Tristan Cazenave²
¹LIASD, Université de Paris 8, France
²LAMSADE, Université Paris-Dauphine, France

Invited Session: Taiwan R User Group
Chair: Prof. Chia-Yi Yen
Lecture Room: IB-308

“基於社群網路關係的意見挖掘系統”
陳嘉葳
Taiwan R User Group

“Classification Versus Clustering: Semi-Supervised Learning in Real Application”
Mr. Chia-Chi Chang
Taiwan R User Group

Domestic Track Session (DTS)
DTS 11: Clustering
Chair: 許國偉博士
Lecture Room: IB-304

“使用拔靴法探討結合基因語意相似度之基因表現資料群聚分析”
陳立杰 ¹, 陳榮銘 ¹*, 錢炳全 ¹, 胡若梅 ²*, 蔡進發 ²
¹國立台南大學資訊工程學系
²亞洲大學生物與醫學資訊學系

“以區域搜尋為基礎的多目標基因 k-均數分群演算法應用於妊娠期糖尿病病例分析”
劉振隆 ¹, 李中志 ², 陳建良 ¹
¹義守大學資訊管理學系
²伊利諾州立大學資訊技術學院

“基於改良式濾集演算法設計誘發突變引子”
鄭煜輝
稻江科技暨管理學院行動科技學系
November 23, 2014 (Sunday): 10:50 - 12:00
Domestic Track Session (DTS)
DTS 12: Data Mining
Chair: 黃仁暐博士
Lecture Room: IB-305

“高效率之上架倉商品序列型樣探勘演算法”
英家慶¹，林映君¹，曾新穆¹，蔡煥文²，林順傑²
¹國立成功大學資訊工程所
²工研院南分院雲端服務中心

“探勘封閉高效益移動序列型樣”
顏秀珍，李御里，洪偉庭
銘傳大學

“巨量船舶移動軌跡資料中探勘移動行為與航路”
雷伯瑞¹，溫郁婷²
¹海軍官校電機工程系
²國立交通大學資工系

DTS 13: Internet of Things
Chair: 賴槿峰博士
Lecture Room: IB-306

“利用多重訊號來源及機器學習做跌倒偵測”
盧政廷¹，葉庭江¹，王靖汶¹，梁詠涵¹，游均程¹，薛元智¹，駱宏毅²
¹實踐大學
²鴻海科技集團

TAII Paper Award
Chair: 陳孟彰博士
Lecture Room: IB-307

“基於使用者生成多媒體內容之巨量資料分析”
陳殷盈小姐／指導教授:徐宏民教授及廖弘源教授
國立臺灣大學資訊工程學系

“在共享記憶體系統的快速平行隨機梯度下降法矩陣分解”
阮毓欽先生／指導教授:林智仁教授
國立臺灣大學資訊工程學系

“貝式非負矩陣分解於單通道音訊分離之研究”
楊博凱先生／指導教授：簡仁宗教授
國立交通大學電信工程研究所

“大規模羅吉斯回歸與支持向量機在 Spark 上之應用”
林玠言先生／指導教授: 林智仁教授
國立台灣大學資訊網路與多媒體研究所

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System Demonstrations

Location: IB B Area

November 21, 2014 (Friday): 17:00 ~ 17:30
November 23, 2014 (Sunday): 12:00 ~ 13:00
Affiliation:

- Computer Science and Technology
- Taiwan Tech Center for Humanities and Arts, Digital Interactive Art

Members:

- Yu-Chi Lai
- Chih-Yuan Yao

Live Demo

- Interactive ocean cinema

This interactive museum uses multiple interactive sensors in the large field for capturing the motion of users for them to interact with the fish in the cinema. We have two cooperators: ASUS co. and Lanyang Museum. We expect to build an interactive ocean cinema in the Lanyang Museum and this interactive cinema would be unique in Taiwan. From the scene design to interaction design, we will invite professionals from different field to complete each key point.
Motion-sensing One Hundred Stallions I

One Hundred Stallions is drawn by Giuseppe Castiglione (Lang Shihning) for expressing the horse on the plain. This work intends to put interaction into exhibition for the audience to gain vivid impression about the painting. This program allows the user to take a picture of him/herself and then he/she can use motion to determine how much amount of painting to reveal.

Motion-sensing One Hundred Stallions II

Since horses are the main characters of the painting. We develop a simple games to let users run through the low scroll of the painting. We intend to let users do a little exercise and get more sense about the painting.
Dancing in Han

Digital art becomes more and more popular and interactive applications are acceptable by the general publics. This work aims at combining both aspects to deliver cultural concepts in more interesting and active manners. We create the virtual world of the palace in Han Dynasty and ask players to dance in the “Han Dancing Style”. We try to deliver the imagination of palace and extend the dancing skills.

EZCam

This is an interactive camera path reviewing system to let the DP interactively instruct to have the desired camera paths. The system consists of a camera pose tracking box with five planes having designed markers, a camera-simulated handle, and a camera parameter board. When a user manipulates the handle, the attached camera captures the markers on the box to estimate the camera pose in the virtual shooting environment and a view of the scene can be rendered with the estimated pose. The DP can directly examine the result and give comments to adjust the camera path to reduce the reviewing time and possibility of mis-communications.
Low cost motion capture

Motion capture is important for movie and game industry. However, the equipment for this technique is expensive and not affordable for small companies. With the disclosure of Kinect by Microsoft, simple and cheap motion capture become available. However, their simple motion capture mechanism may contain limitation of capture orientation and artifacts. We use 4 Kinects to capture a robust motion.

Video Demo

Data-Driven NPR Illustrations of Natural Flows in Oriental Painting

Short description: Our system animates flow strokes in an existing oriental painting using a flow field computed by solving the Naiver-Stokes equations with a flow pattern extracted from an existing oriental painting.

Teaser:
Manga Vectorization and Manipulation

**Short description:** We design to transform a scanned Manga object to a vector representation for interactive manipulation and resolution independent rendering by decomposing a Manga object into borders and shading regions, composing elements into contextual components, vectorizing the components along with extracted screentone information, and procedurally shading the screentone and strokes.

**Teaser:**

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SVG-Textured Mesh

**Short description:** An efficient 3D SVG-embedded method is designed by embedding paths and features of a vector image into the mesh of a 3D object for memory efficiency and resolution independency and comparable performance with the raster-based texturing techniques.

**Teaser:**
- **Destination Selection Based on Consensus-Selected Landmarks**

  **Short description:** A destination searching method consists of map navigation and street sliding subsystems. Map navigation hierarchically arranges destination icons based on their consensus-based publicity for fast locating a street block and street sliding displays street-level building characteristics for quickly determining the destination.

  **Teaser:**

  ![Map Image]

- **Semi-automatic Region-based Line Field Design Using Harmonic Functions**

  **Short description:** We will present a semi-automatic system to generate interesting a flow field from an existing painting with a cheerful and intuitive user interface.

  **Teaser:**

  ![Red Panda Images]
Computer Game Tournament

地點：綜合研究大樓

電腦教室 RB- 504 室

November 22, 2014 (Saturday): 09:00 ~ 17:00
MOST Exhibition
科技部成果發表

Location: IB B Area

November 23, 2014 (Sunday): 09:00 ~ 12:00
Local Information@NTUST

臺灣科技大學大附近資訊
Emergency Phone Numbers

1. **Emergency: 110** (toll free on any public phones)

2. **English speaking local police stations:**
   27355761 and 23218071 (in Taipei, near NTUST)
EasyCard & Taipei MRT

Taipei MRT is crucial for visiting different parts of Taipei with ease. To take advantage of the public transportation in Taipei, EasyCard is indispensible unless you should like to manage a lot of coins on your trips. EasyCards are available at almost all convenience stores on the street and service stations within the MRT stations. For most short-term users of the EasyCard, an EasyCard costs NT$100.00, and you have to add more money for trips.

A trip on a bus may cost either NT$15.00 or NT$30.00, depending on the distance. The costs for MRT rides also depend on the travel distances.

We are not sure how much you will use the public transportation in Taipei, so cannot recommend an amount of deposit that you should keep on your EasyCard. You may add value to your EasyCard at any place where EasyCards are sold.
Campus Map

1. The side gate is located between E2 and IB.

2. Bus stops are on the street marked “Sec 4, Keelung Rd.”

3. The venue for TAAI 2014 is building IB.

4. Find this location on an online map service by “National Taiwan University of Science and Technology, Taiwan”
Wi-Fi and Electricity

Wi-Fi

1. International airports in Taiwan offer free Wi-Fi services.
2. Participants with domestic mobile numbers may access the free citywide Wi-Fi services offered by “Taipei Free” or “iTaiwan”. The account registration and activation is relatively simple.
3. Free Wi-Fi service (SSID: NTUST-UAM) is available around the conference venue. Participants may login with the ID and password distributed with the conference package after seeing the following login window.

Electricity

1. Many MRT stations and airports provide free charging stations.
2. Power sockets: Type A/B.

**Going to NTUST from an MRT Station**

The closest MRT station to the venue is MRT Gongguan Station which is a 10 minute walk away. (Just a little further away from JustSleep.)

There is also a bus stop outside the venue. Buses 1, 207, 673, 907, 1032, and 1551 all stop at MRT Gongguan Station.

You may want to use the "Useful Chinese Sentences" on page 88 in the Conference Handbook to ask directions.

[Click here for more complete information ...]
NTU JustSleep is only 750 meters from the NTUST main gate. You may find a good walking path on Google map, which is printed below. In this map, A and B are, respectively, the locations of the NTU JustSleep and the NTUST main gate. (Click here for the online Google map which is reproduced below. In that map, A is the JustSleep and B is the NTUST main gate.)
Howard Civil Service
International House

Howard International House is located at the intersection between Xinhai Road and Xingsheng S. Road, right next to NTU University’s main campus. To get from NTUST to Howard International House, take the 907 bus from its stop at NTUST to NTU Sports Center. The International House is right after the overpass.
From the Venue to the Banquet

We will go to the Restaurant for the Banquet by bus. We will gather in front of the conference venue, Building IB, as shown in the following map. Buses will leave the NTUST campus at 17:50PM. Please follow the guidance of the conference staff, and watch the final announcements of the conference closely.
Banquet Location

SHANGHAI KITCHEN, B1 Floor
Useful Chinese Sentences

We list some useful English and Chinese sentence pairs which you may show people when necessary.

1. Please tell me where I can find buses to the Taipei Main Station.
   請告訴我哪裡可以搭上去台北火車站的巴士。謝謝。

2. How do I go to the closest MRT station?
   請告訴我如何去最近的捷運站。謝謝。

3. Please tell me where I can find buses for going to the National Taiwan University of Science and Technology.
   請告訴我哪裡有可以到臺灣科技大學的公車？謝謝。

4. Does this bus go to the National Taiwan University of Science and Technology?
   請問這一輛公車去臺灣科技大學嗎？(show this to the bus drivers)

5. Can you tell me which bus goes to the National Taiwan University of Science and Technology?
   麻煩您告訴我，那一輛公車可以到臺灣科技大學？

6. Please tell me to get off when we arrive at the National Taiwan University of Science and Technology.
   公車到臺灣科技大學的時候，請告訴我要下車。謝謝。

7. Thank you!
   謝謝您！(xiè xie nǐ)

8. Sorry!
   對不起！(duì bù qǐ)
9. Where can I buy an EasyCard?
   請問哪裡可以買悠遊卡?

10. How much is it?
    請問這多少錢?

11. Good morning!
    早安！(zǎo ān)

12. Good afternoon!
    午安！(wǔ ān)

13. Good night!
    晚安！(wǎn ān)

14. Good bye!
    再見！(zài jiàn)

15. Hello!
    你好！(nǐ hǎo)

Let us know if you want to know more simple expressions...
More Local Information

Please be advised to consult the conference website for more local information at the following URL.

http://taai2014.ntust.edu.tw/

In the modern days, linked webpages with multimedia material are more informative than traditional printed matter.

Getting to Taipei: http://taai2014.ntust.edu.tw/information-service/tourism/
Getting to Campus: http://taai2014.ntust.edu.tw/information-service/venue/
Other Useful Information:

If the travel instructions provided on the conference website are unclear or incomplete, please do not hesitate to ask us for clarification. We will do our best to offer relevant information before you leave for Taiwan. However, please understand that we cannot serve as your travel agents.
See You in TAAI 2015!

Thank you
TAAI 2014
第19屆人工智慧技術與應用研討會
2014 Conference on Technologies and Applications of Artificial Intelligence

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國立臺灣科技大學資訊工程系、中華民國人工智慧學會

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