

11th International Conference on Document Analysis and Recognition (ICDAR 2011)

Beijing Friendship Hotel, China
September 18-21, 2011

Program Guide

Sponsored by

TC10 (Graphics Recognition) and TC11 (Reading Systems) of the International
Association for Pattern Recognition (IAPR)

Organized by

China Association of Automation
Tsinghua University
Institute of Automation of Chinese Academy of Sciences

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Program at a Glance

September 18 (Sunday)

8:30-9:00	Tutorial Registration Friendship Palace				
	Room #1 of Friendship Palace	Room #3 of Friendship Palace	Room #4 of Friendship Palace	Room #6 of Friendship Palace	
9:00-10:40	T1: Build Your Own Handwriting Recognizer	T2: Performance Evaluation in Document Image Analysis	T4: Key Topics in Administrative Document Analysis	T5: Discriminative Markovian Models for Sequence Recognition	
10:40-11:00	Coffee Break				
11:00-12:40	T1: Build Your Own Handwriting Recognizer	T2: Performance Evaluation in Document Image Analysis	T4: Key Topics in Administrative Document Analysis	T5: Discriminative Markovian Models for Sequence Recognition	
12:40-13:40	Lunch				
13:40-15:20	T1: Build Your Own Handwriting Recognizer	T3: Ancient Document Analysis and Recognition Systems	T4: Key Topics in Administrative Document Analysis	T6: Ebooks: Challenges and opportunities for Document Analysis Research	Doctoral Consortium 13:40-17:40 Room #2 of Bld. 8 Registration from 13:20 at the meeting room
15:20-15:40	Coffee Break				
15:40-17:20	T1: Build Your Own Handwriting Recognizer	T3: Ancient Document Analysis and Recognition Systems	T4: Key Topics in Administrative Document Analysis	T6: Ebooks: Challenges and opportunities for Document Analysis Research	
9:00- 18:30	ICDAR Registration Friendship Palace				
18:30-20:00	ICDAR Welcome Reception Juheyuan Restaurant of Friendship Palace				

September 19 (Monday)

8:30- 9:00	Registration		
9:00- 9:20	Opening Ceremony Ballroom of Friendship Palace		
9:20- 10:20	Award Speech Sargur Srihari. <i>Probabilistic Graphical Models in Machine Learning</i> Ballroom of Friendship Palace Chair: Jean-Marc Ogier		
10:20-10:40	Coffee Break		
10:40-12:40	<u>Document Image Processing</u> Ballroom of Friendship Palace Chair: Koichi Kise	<u>Datasets and Performance Evaluation</u> Room #1 of Bld. 7 Chair: B.B. Chaudhuri	<u>Document Retrieval (1)</u> Room #2 of Bld. 7 Chair: R. Manmatha
12:40-13:40	Lunch		
13:40-15:20	<u>Poster Session 1</u> Ballroom of Friendship Palace		
15:20-15:40	Coffee Break		
15:40-16:40	Keynote Speech 1 Henry S. Baird. <i>Document Recognition without Strong Models</i> Ballroom of Friendship Palace Chair: Chew Lim Tan		
16:50-18:10	<u>Text Extraction (1)</u> Ballroom of Friendship Palace Chair: Basilis Gatos	<u>Mathematics Recognition</u> Room #1 of Bld. 7 Chair: Jin Hyung Kim	<u>Applications (1)</u> Room #2 of Bld. 7 Chair: Eric Anquetil
18:10-19:10	Joint TC10/TC11 Meeting Ballroom of Friendship Palace		

September 20 (Tuesday)

8:30- 9:00	Registration		
9:00- 10:40	<u>Layout Analysis</u> Ballroom of Friendship Palace Chair: David Doermann	<u>Handwritten Text Recognition</u> Room #1 of Bld. 7 Chair: Venu Govindaraju	<u>Character Recognition (1)</u> Room #2 of Bld. 7 Chair: Seiichi Uchida
10:40-11:00	Coffee Break		
11:00-12:40	<u>Document Segmentation</u> Ballroom of Friendship Palace Chair: Marcus Liwicki	<u>Online Handwriting Recognition</u> Room #1 of Bld. 7 Chair: Masaki Nakagawa	<u>Forensic Document Analysis</u> Room #2 of Bld. 7 Chair: Rolf Ingold
12:40-13:40	Lunch		
13:40-15:20	<u>Poster Session 2</u> Ballroom of Friendship Palace		
15:20-15:40	Coffee Break		
15:40-16:40	Keynote Speech 2 Wen Xing. <i>Chinese Calligraphy and Pattern Recognition: Styles and Scripts in Excavated Ancient Chinese Documents</i> Ballroom of Friendship Palace Chair: Daniel Lopresti		
16:50-18:10	<u>Applications (2)</u> Ballroom of Friendship Palace Chair: Louisa Lam	<u>Graphics Recognition</u> Room #1 of Bld. 7 Chair: Josep Lladós	<u>Character Recognition (2)</u> Room #2 of Bld. 7 Chair: Fu Chang
19:00-22:00	Banquet Ballroom of Friendship Palace		

September 21 (Wednesday)

8:30- 9:00	Registration		
9:00- 10:00	<p align="center">Keynote Speech 3 Marc Wilhelm Küster. <i>The Four and a Half Challenges of Humanities Data</i> Ballroom of Friendship Palace Chair: Thomas Breuel</p>		
10:00-10:20	Coffee Break		
10:20-12:20	<p><u>Text Extraction (2)</u> Ballroom of Friendship Palace Chair: P. Shivakumara</p>	<p><u>Document Retrieval (2)</u> Room #1 of Bld. 7 Chair: Apostolos Antonacopoulos</p>	<p><u>Character Recognition (3)</u> Room #2 of Bld. 7 Chair: Michael Blumenstein</p>
12:20-13:20	Lunch		
13:20-14:40	<p align="center"><u>Poster Session 3</u> Ballroom of Friendship Palace</p>		
14:40-16:00	<p align="center">Panel Discussion C. Y. Suen, N. Dumont, M. Dyson, Y.-C. Tai, X. Lu. <i>Evaluation of Fonts for Digital Publication and Display</i> Ballroom of Friendship Palace Chair: Ching Y. Suen</p>		
16:00-16:20	Coffee Break		
16:20-17:40	<p><u>Competition Session 1</u> Ballroom of Friendship Palace Chair: Haikal El Abed</p>	<p><u>Competition Session 2</u> Room #1 of Bld. 7 Chair: Liu Wenyin</p>	<p><u>Competition Session 3</u> Room #2 of Bld. 7 Chair: Jun Sun</p>
17:40-18:10	<p align="center">Awards Presentation and Closing Ballroom of Friendship Palace</p>		

Welcome from the General Chairs

On behalf of the ICDAR2011 organizing committee, we are honored and delighted to welcome you to Beijing for the Eleventh International Conference on Document Analysis and Recognition (ICDAR 2011). As an ancient capital city of one of the world's oldest civilizations, Beijing is steeped in rich history and culture. At the same time, it is the vibrant center of education, science and technology of modern China. As such, Beijing is a perfect venue for this conference. We invite you to take advantage of the excellent technical programs while at the same time experience all that this great city has to offer.

As one of the flagship conferences of the International Association for Pattern Recognition (IAPR), ICDAR continues to reflect the vitality and impact of the worldwide document analysis research community. This year the conference received 422 submissions – a close match to the record 430 received in ICDAR2009. Out of these about 21% were accepted as oral presentations and an additional 45% as poster presentations. The conference further offers a record number of five co-located workshops and seven tutorials, providing focused forums on an array of topics of increasing importance. Finally, for the first time, we are offering a Doctoral Consortium, thanks to the strong leadership of IAPR TC-10 (Graphics Recognition) and TC-11 (Reading Systems). This consortium will provide an opportunity for Ph.D. students, who represent the future of our field, to test their research ideas and receive valuable feedback and career guidance from the community at large.

We would like to extend our warmest congratulations to Prof. Sargur Srihari, who received this year's IAPR/ICDAR Outstanding Achievement Award for his outstanding and continued contributions to research and education in handwriting recognition and document analysis, and services to the community; and to D. Masakazu Iwamura who received the IAPR/ICDAR Young Investigator Award for his outstanding contributions to camera-based document analysis and document image retrieval. Along with the past winners, these are the people who make our community thrive, and we owe them all a deep debt of gratitude.

A large conference like this cannot happen without the dedicated effort from the many volunteer organizers. We would like to thank the three Program Chairs, Prof. Chew Lim Tan, Prof. Daniel Lopresti and Prof. Thomas Breuel, for their diligent work and impeccable judgment in putting together a top notch technical program, and all the committee chairs for contributing to an exceptionally well-rounded conference program. We would like to thank our generous sponsors for their continued support of our research community. Special thanks go to the Executive Chairs, Prof. Cheng-Lin Liu and Prof. Changsong Liu, who have been the true driving force behind every step of the preparations leading to the conference. Finally, we would like to express our heart felt thanks to the team of local organizers at the

Center for Intelligent Image and Document Information Processing (CIDIP) of Tsinghua University, the Institute of Automation of Chinese Academy of Sciences (CASIA), the China Association of Automation (CAA) and the Center for International Scientific Exchanges of CAS, who devoted countless hours and effort to ensure that no important detail is left unattended to.

We wish you all an exciting and fruitful stay in Beijing!

Xiaoqing Ding, Hiromichi Fujisaw, Jianying Hu

General Chairs, ICDAR2011

Welcome from the Program Chairs

The technical program is, of course, the foundation of any conference, and ICDAR 2011 is no exception. As the Program Chairs, we take primary responsibility for deciding the program, but its content and quality derive from the vision and hard work of a large number of people. We begin by thanking the local organizing committee, the Executive Chairs, and the General Chairs for providing such an attractive venue for ICDAR 2011. Beijing is the perfect city for ICDAR, and we have no doubt that this in part explains the large number of submissions we received for the conference. We also wish to thank the authors who chose ICDAR as the event where they want to present the results of their research. There are other opportunities for publishing work in our field, but none, we believe, matches ICDAR for its breadth, depth, impact, and quality. Finally, the Program Committee and the Reviewers deserve tremendous thanks for the critical job they did in helping to select the papers for this year's conference. Their names are listed on the pages that follow as a small measure of our deep appreciation.

As the General Chairs have noted, we received a total of 422 submissions to the conference. We were joined by 79 distinguished members of the international research community from 21 different countries who served as the Program Committee. Reviews were assigned to Program Committee members through a bidding process based on technical expertise and interests, with each member receiving an average of 15 papers. Between the Program Committee and outside Reviewers, a total of 1,269 reviews were collected, with the vast majority of submissions receiving three reviews. These formed the basis for our acceptance decisions.

The final program is organized into three parallel tracks incorporating 18 oral sessions, three poster sessions, three keynote talks, one panel session, and the results of the ICDAR competitions spread over three days. A total of 33 different countries are represented in the technical program. China and the United States are nearly tied for the largest number of authors, followed by Japan, France, India and Germany.

While in one sense our job as the Program Chairs is done after the papers have been selected and the program set, we eagerly look forward to seeing all of the members of our community in Beijing, and we hope that you find ICDAR 2011 an enjoyable and valuable experience.

Chew Lim Tan, Daniel Lopresti, Thomas Breuel

Program Chairs, ICDAR 2011

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Yuanping Zhu

Presentation Instructions

Oral Presentation

The organizing committee will provide a computer and video projector for display in the meeting room. The presenting author is recommended to arrive at the room 10min before the start of session, and copy the presentation material (PPT or PDF) into the computer provided by the organizing committee. Each oral paper has 20min, including 15min for presentation and 5min for questions and discussions.

Note that the competition papers have different time lengths for presentation because three parallel competition sessions have different numbers of papers. The presentation of each competition paper includes technical report and presenting certificates to competition winners.

Poster Presentation

The poster boards will be attached sequential numbers #1, #2, #3, ... The presenting author should have the poster attached on the board of assigned number before the start of the poster session and explain the technical contents to the attendees during the session. If the authors would like to show demonstrations, they should use their own laptop with battery. The organizer will not provide desks and electricity for poster presentations.

The poster board will be 240cm high and 95cm wide. The author is recommended to prepare a poster of A0 size (120cm high and 84cm wide) or smaller in portrait orientation.

Technical Program

September 19 (Monday)

9:00-9:20 Opening

Location: Ballroom of Friendship Palace

9:20-10:20 Award Speech

Location: Ballroom of Friendship Palace

Chair: Jean-Marc Ogier

Sargur Srihari. *Probabilistic Graphical Models in Machine Learning*

10:40-12:40 Oral Session 1: Document Image Processing

Location: Ballroom of Friendship Palace

Chair: Koichi Kise

10:40-11:00 Sokratis Vavilis and Ergina Kavallieratou. *A Tool for Tuning Binarization Techniques*

11:00-11:20 Nicholas Howe. *A Laplacian Energy for Document Binarization*

11:20-11:40 Anand Mishra, Karteek Alahari and C. V. Jawahar. *An MRF Model for Binarization of Natural Scene Text*

11:40-12:00 Mudit Agrawal and David Doermann. *Stroke-like Pattern Noise Removal in Binary Document Images*

12:00-12:20 Su Bolan, Shijian Lu and Chew Lim Tan. *Combination of Document Image Binarization Techniques*

12:20-12:40 Boris Epshtein. *Determining Document Skew Using Inter-Line Spaces*

10:40-12:40 Oral Session 2: Datasets and Performance Evaluation

Location: Room #1 of Bld. 7

Chair: B.B. Chaudhuri

10:40-11:00 Daniel Lopresti and George Nagy. *When is a Problem Solved?*

11:00-11:20 Cheng-Lin Liu, Fei Yin, Da-Han Wang and Qiu-Feng Wang. *CASIA Online and Offline Chinese Handwriting Databases*

11:20-11:40 Bart Lamiroy and Daniel Lopresti. *An Open Architecture for End-to-End Document Analysis Benchmarking*

11:40-12:00 Christian Clausner, Stefan Pletschacher and Apostolos Antonacopoulos. *Aletheia - an advanced document layout and text ground-truthing system for production environments*

12:00-12:20 Andreas Fischer, Emanuel Indermühle, Volkmar Frinken and Horst Bunke. *HMM-Based Alignment of Inaccurate Transcriptions for Historical*

Documents

12:20-12:40 Xiang-Dong Zhou, Fei Yin, Da-Han Wang, Qiu-Feng Wang, Masaki Nakagawa and Cheng-Lin Liu. *Transcript Mapping for Handwritten Text Lines Using Conditional Random Fields*

10:40-12:40 Oral Session 3: Document Retrieval (1)

Location: Room #2 of Bld. 7

Chair: R. Manmatha

10:40-11:00 Marçal Rusiñol, David Aldavert, Ricardo Toledo and Josep Lladós. *Browsing Heterogeneous Document Collections by a Segmentation-free Word Spotting Method*

11:00-11:20 Raid Saabni, Alex Bronstein and Dana Ron. *Fast Key-Word Searching via Embedding and Active-DTW*

11:20-11:40 Emanuel Indermühle, Volkmar Frinken, Andreas Fischer and Horst Bunke. *Keyword Spotting in Online Handwritten Documents Containing Text and Non-Text using BLSTM Neural Networks*

11:40-12:00 Liang Huang, Fei Yin, Qing-Hu Chen and Cheng-Lin Liu. *Keyword Spotting in Offline Chinese Handwritten Documents Using a Statistical Model*

12:00-12:20 Raman Jain, Volkmar Frinken, C. V. Jawahar and R. Manmatha. *BLSTM Neural Network based Word Retrieval for Hindi Documents*

12:20-12:40 Hongxi Wei, Guanglai Gao and Yulai Bao. *A Method for Removing Inflectional Suffixes in Word Spotting of Mongolian Kanjur*

13:40-15:20 Poster Session 1

Location: Ballroom of Friendship Palace

#1 Yonghong Song, Guilin Xiao, Yuanlin Zhang and Lei Yang. *A Handwritten Character Extraction Algorithm for Multi-Language Document Image*

#2 Li Liu, Yue Lu and Ching Suen. *Retrieval of Envelope Images Using Graph Matching*

#3 Martin Stommel and Gideon Frieder. *Automatic Estimation of the Legibility of Binarised Historic Documents for Unsupervised Parameter Tuning*

#4 Jayant Kumar, Le Kang, David Doermann and Wael Abd-Almageed. *Segmentation of Handwritten Textlines in Presence of Touching Components*

#5 T. Hoang Ngan Le, Tien Dai Bui and Ching Y Suen. *Ternary Entropy-based Binarization of Degraded Document Images Using Morphological Operators*

#6 Nemanja Spasojevic and Guillaume Poncin. *Large Scale Page-Based Book Similarity Clustering*

#7 Palaiahnakote Shivakumara, Souvik Bhowmick, Su Bolan, Chew Lim Tan and Umпада Pal. *A New Gradient based Character Segmentation Method for Video Text Recognition*

- #8 Palaiahnakote Shivakumara, Trung Quy Phan, Shijian Lu and Chew Lim Tan. *Video Character Recognition Through Hierarchical Classification*
- #9 Xu-Cheng Yin, Hong-Wei Hao, Jun Sun and Satoshi Naoi. *Robust Vanishing Point Detection for MobileCam-Based Documents*
- #10 Shamita Ghosh and Bidyut B. Chaudhuri. *Composite Script Identification and Orientation Detection for Indian Text Images*
- #11 Daqing Wang, Bilan Zhu and Masaki Nakagawa. *A Digital Ink Recognition Server for Handwritten Japanese Text*
- #12 Xiufei Wang, Lei Huang and Changping Liu. *A Novel Method for Embedded Text Segmentation Based on Stroke and Color*
- #13 Mickaël Coustaty, Alain Bouju, Karell Bertet and Georges Louis. *Using ontologies to reduce the semantic gap between historians and image processing algorithms*
- #14 Mehmet Celik and Berrin Yanikoglu. *Probabilistic Mathematical Formula Recognition Using a 2D Context-Free Graph Grammar*
- #15 Asma Ouji, Yann Leydier and Frank Lebourgeois. *Chromatic / achromatic separation in noisy document images*
- #16 Rachid Hedjam and Mohamed Cheriet. *Novel data representation for text extraction from multispectral historical document images*
- #17 Chucai Yi and Yingli Tian. *Text Detection in Natural Scene Images by Stroke Gabor Words*
- #18 Makoto Hasegawa and Salvatore Tabbone. *A Shape Descriptor combining Logarithmic-scale Histogram of Radon Transform and Phase-only Correlation Function*
- #19 Su Yang and Yuanyuan Wang. *Segmentation of Graphical Objects as Maximally Stable Salient Regions*
- #20 Yousri Kessentini, Thierry Paquet and Ahmed Guermazi. *An Optimized multi-stream decoding algorithm for handwritten word recognition*
- #21 Sebastian Peña Saldarriaga and Mohamed Cheriet. *Indexing On-Line Handwritten Texts Using Word Confusion Networks*
- #22 Xin Zhang and Fuchun Sun. *Circle Text Expansion as Low-rank Textures*
- #23 Long-long Ma, Hui-dan Liu and Jian Wu. *MRG-OHTC Database for Online Handwritten Tibetan Character Recognition*
- #24 Ricardo Barboza, Rafael Lins and Victor Matheus Pereira. *Using Readers' Highlighting on Monochromatic Documents for Automatic Text Transcription and Summarization*
- #25 Misako Suwa. *Color-Mixing Correction of Overlapped Colors in Scanner Images*
- #26 Yaakov Navon, Vladimir Kluzner and Boaz Ophir. *Enhanced Active Contour Method for Locating Text*
- #27 Donato Impedovo and Giuseppe Pirlo. *Updating Knowledge in*

Feedback-based Multi-Classifer Systems

- #28 Xue Gao, Wenhuan Wen and Lianwen Jin. *A New Feature Optimization Method Based on Two-directional 2DLDA For Handwritten Chinese Character Recognition*
- #29 Junichi Hirayama, Hiroshi Shinjo, Toshikazu Takahashi and Takeshi Nagasaki. *Development of Template-free Form Recognition System*
- #30 George Nagy, Sharad Seth, David Embley, Mukkai Krishnamoorthy, Dongpu Jin and Spencer Machado. *Data Extraction from Web Tables: the Devil is in the Details*
- #31 Yanhui Liang and Yizhou Wang. *A Method of Evaluating Table Segmentation Results Based on A Table Image Ground Truther*
- #32 Guillaume Lazzara, Roland Levillain, Thierry Géraud, Yann Jacquelet, Julien Marquegnies and Arthur Crépin-Leblond. *The SCRIBO Module of the Olena Platform: A Free Software Framework for Document Image Analysis*
- #33 Szilard Vajda, Akmal Junaidi and Gernot A. Fink. *A Semi-Supervised Ensemble Learning Approach for Character Labeling with Minimal Human Effort*
- #34 K.C. Santosh. *Character Recognition based on DTW-Radon*
- #35 Vincent Malleron and Véronique Eglin. *A mixed approach for handwritten documents structural analysis*
- #36 Toru Wakahara and Kohei Kita. *Binarization of Color Character Strings in Scene Images Using K-means Clustering and Support Vector Machines*
- #37 Anastasios Kesidis and Basilis Gatos. *Efficient Cut-off Threshold Estimation for Word Spotting Applications*
- #38 Lobna Haddad, Tarek M. Hamdani, Monji Kherallah and Adel M. Alimi. *Improvement of On-line Recognition Systems using a RBF-Neural Network based Writer Adaptation Module*
- #39 Joost Van Beusekom and Faisal Shafait. *Distortion Measurement for Automatic Document Verification*
- #40 Alireza Alaei, P. Nagabhushan and Umapada Pal. *A benchmark Kannada handwritten document dataset and its segmentation*
- #41 Alireza Alaei, Umapada Pal, Panduranga Nagabhushan and Fumitaka Kimura. *A Painting Based Technique for Skew Estimation of Scanned Documents*
- #42 Alireza Alaei, Panduranga Nagabhushan and Umapada Pal. *A New Text-line Alignment Approach Based on Piece-wise Painting Algorithm for Handwritten Documents*
- #43 Jérôme Louradour and Christopher Kermorvant. *Sample-dependent feature selection for faster document image categorization*
- #44 Volkmar Frinken, Andreas Fischer, Alicia Fornes and Horst Bunke. *Co-Training for Handwritten Word Recognition*

- #45 Wenting Lu, Lei Li, Tao Li, Honggang Zhang and Jun Guo. *Web Multimedia Object Clustering via Information Fusion*
- #46 R. Jayadevan, S. R. Kolhe, P. M. Patil and Umapada Pal. *Database Development and Recognition of Handwritten Devanagari Legal Amount Words*
- #47 Pradeep Natarajan, David Belanger, Rohit Prasad, Matin Kamali, Krishna Subramanian and Prem Natarajan. *Baseline Dependent Percentile Features for Offline Arabic Handwriting Recognition*
- #48 Richard Zanibbi, Amit Pillay, Harold Mouchere, Christian Viard-Gaudin and Dorothea Blostein. *Stroke-Based Performance Metrics for Handwritten Mathematical Expressions*
- #49 Vu Nguyen and Michael Blumenstein. *An Application of the 2D Gaussian Filter for Enhancing Feature Extraction in Off-line Signature Verification*
- #50 Eli Packer, Asaf Tzadok and Vladimir Kluzner. *Alpha-Shape Based Classification with Applications to Optical Character Recognition*
- #51 Thi Thuong Huyen Nguyen, Jean-Marc Ogier and Mickael Coustaty. *Bags of Strokes Based Approach for Classification and Indexing of Drop Caps*
- #52 Hiroshi Tanaka, Hiroaki Takebe and Yoshinobu Hotta. *Robust Cell Extraction Method for Form Documents based on Intersection Searching and Global Optimization*
- #53 Takafumi Yamazoe, Minoru Etoh, Tkaeshi Yoshimura and Kousuke Tsujino. *Hypothesis Preservation Approach to Scene Text Recognition with Weighted Finite-State Transducer*
- #54 Nibal Nayef and Thomas M. Breuel. *Statistical Grouping For Segmenting Symbols Parts From Line Drawings, With Application To Symbol Spotting*
- #55 Yanming Zou, Yingfei Liu, Ying Liu and Kongqiao Wang. *Overlapped handwriting input on mobile phones*
- #56 Yan Zhao, Tong Lu and Wujun Liao. *A Robust Color-independent Text Detection Method from Complex Videos*
- #57 Sofiane Medjkoune, Harold Mouchère, Simon Petitrenaud and Christian Viard-Gaudin. *Handwritten and Audio Information Fusion for Mathematical Symbol Recognition*
- #58 Alexandros Papandreou and Basilis Gatos. *A Novel Skew Detection Technique Based on Vertical Projections*
- #59 Mickaël Coustaty and Jean-Marc Ogier. *Discrimination of old document images using their style*
- #60 Roberto Beretta and Luigi Laura. *Performance Evaluation of Algorithms for Newspaper Article Identification*
- #61 Jin Chen and Daniel Lopresti. *Table Detection in Noisy Off-line Handwritten Documents*
- #62 Jin Chen and Daniel Lopresti. *A Model-based Ruling Line Detection Algorithm for Noisy Handwritten Documents*

- #63 Hesham Eraqi and Sherif Abdelazeem. *An On-Line Arabic Handwriting Recognition System Based on a new Graphemes Segmentation Technique*

15:40-16:40 Keynote Speech 1

Location: Ballroom of Friendship Palace

Chair: Chew Lim Tan

Henry S. Baird. *Document Recognition Without Strong Models*

16:50-18:10 Oral Session 4: Text Extraction (1)

Location: Ballroom of Friendship Palace

Chair: Basilis Gatos

- 16:50-17:10 Sivan Gleichman, Boaz Ophir, Amir Geva, Mattias Marder, Ella Barkan and Eli Packer. *Detection and Segmentation of Antialiased Text in Screen Images*
- 17:10-17:30 Jung-Jin Lee, Pyoung-Hean Lee, Christof Koch and Alan Yuille. *AdaBoost for Text Detection in Natural Scene*
- 17:30-17:50 Yuning Du, Haizhou Ai and Shihong Lao. *Dot Text Detection Based on FAST Points*
- 17:50-18:10 Adam Coates, Blake Carpenter, Carl Case, Sanjeev Satheesh, Bipin Suresh, Tao Wang and Andrew Ng. *Text Detection and Character Recognition in Scene Images with Unsupervised Feature Learning*

16:50-18:10 Oral Session 5: Mathematics Recognition

Location: Room #1 of Bld. 7

Chair: Jin Hyung Kim

- 16:50-17:10 Richard Zanibbi and Li Yu. *Math Spotting: Retrieving Math in Technical Documents Using Handwritten Query Images*
- 17:10-17:30 Solen Quiniou, Harold Mouchere, Sebastian Pena Saldarriaga, Christian Viard-Gaudin, Emmanuel Morin, Simon Petitrenaud and Sofiane Medjkoune. *HAMEX – a Handwritten and Audio Dataset of Mathematical Expressions*
- 17:30-17:50 Lei Hu and Richard Zanibbi. *HMM-Based Recognition of Online Handwritten Mathematical Symbols Using Segmental K-means Initialization and A Modified Pen-up/down Feature*
- 17:50-18:10 Josef Baker, Alan Sexton, Volker Sorge and Masakazu Suzuki. *Comparing Approaches to Mathematical Document Analysis from PDF*

16:50-18:10 Oral Session 6: Applications (1)

Location: Room #1 of Bld. 7

Chair: Eric Anquetil

- 16:50-17:10 Liang Du and Haibin Ling. *Preservative License Plate De-identification for Privacy Protection*
- 17:10-17:30 Elisa H. Barney Smith, Shatakshi Goyal, Robbie Scott and Daniel Lopresti. *Evaluation of Voting with Form Dropout Techniques for Ballot Vote Counting*
- 17:30-17:50 Simone Marinai, Emanuele Marino and Giovanni Soda. *Conversion of PDF books in ePub format*
- 17:50-18:10 Umapada Pal, Ramit Kumar Roy and Fumitaka Kimura. *Handwritten Street Name Recognition for Indian Postal Automation*

September 20 (Tuesday)

9:00-10:40 Oral Session 7: Layout Analysis

Location: Ballroom of Friendship Palace

Chair: David Doermann

- 9:00-9:20 Florian Deckert, Benjamin Seidler, Markus Ebbecke and Michael Gillmann. *Table Content Understanding in smartFIX*
- 9:20-9:40 David Hebert, Thierry Paquet and Stephane Nicolas. *Continuous CRF with multi-scale quantization feature functions Application to structure extraction in old newspaper*
- 9:40-10:00 Xiao-Rong Lin, Chien-Yang Guo and Fu Chang. *Classifying Textual Components of Bilingual Documents with Decision-Tree Support Vector Machines*
- 10:00-10:20 Joseph Chazalon, Aurélie Lemaitre and Bertrand Couasnon. *Iterative Analysis of Pages in Document Collections for Efficient User Interaction*
- 10:20-10:40 Angelika Garz, Robert Sablatnig and Markus Diem. *Layout Analysis for Historic Manuscripts Using SIFT Features*

9:00-10:40 Oral Session 8: Handwritten Text Recognition

Location: Room #1 of Bld. 7

Chair: Venu Govindaraju

- 9:00-9:20 Antoine Vinel, Trinh Minh Tri Do and Thierry Artieres. *Joint Optimization of Hidden Conditional Random Fields and Non Linear Feature Extraction*
- 9:20-9:40 Qiu-Feng Wang, Cheng-Lin Liu and Fei Yin. *Improving Handwritten Chinese Text Recognition by Confidence Transformation*
- 9:40-10:00 Tomoyuki Hamamura, Bunpei Irie, Takuya Nishimoto, Nobutaka Ono and Shigeki Sagayama. *Concurrent Optimization of Context Clustering and GMM for Offline Handwritten Word Recognition Using HMM*
- 10:00-10:20 Thomas Burger, Yousri Kessentini and Thierry Paquet. *Dempster-Shafer based rejection strategy for handwritten word recognition*
- 10:20-10:40 Verónica Romero, Joan Andreu Sánchez, Nicolás Serrano and Enrique Vidal. *Handwritten Text Recognition for Marriage Register Books*

9:00-10:40 Oral Session 9: Character Recognition (1)

Location: Room #2 of Bld. 7

Chair: Seichi Uchida

- 9:00-9:20 Ray Smith. *Limits on the Application of Frequency-based Language Models to OCR*
- 9:20-9:40 Akihiro Kokawa, Lazaro S.P. Busagala, Wataru Ohyama, Tetsushi Wakabayashi and Fumitaka Kimura. *An Impact of OCR Errors on Automated*

Classification of OCR Japanese Texts With Parts-of-Speech Analysis

- 9:40-10:00 Pan Pan, Yuanping Zhu, Jun Sun and Satoshi Naoi. *Recognizing Characters with Severe Perspective Distortion Using Hash Tables and Perspective Invariants*
- 10:00-10:20 Gabriel Silva and Rafael Lins. *An Automatic Method for Enhancing Character Recognition in Degraded Historical Documents*
- 10:20-10:40 Adrià Giménez Pastor, Jesús Andrés Ferrer, Alfons Juan Císcar and Nicolás Serrano Martínez-Santos. *Discriminative Bernoulli mixture models for handwritten digit recognition*

11:00-12:40 Oral Session 10: Document Segmentation

Location: Ballroom of Friendship Palace

Chair: Marcus Liwicki

- 11:00-11:20 Raid Saabni and Jihad El-Sana. *Language-Independent Text Lines Extraction Using Seam Carving*
- 11:20-11:40 Le Kang and David Doermann. *Template based Segmentation of Touching Components in Handwritten Text Lines*
- 11:40-12:00 Vasant Manohar, Shiv Vitaladevuni, Huaigu Cao, Rohit Prasad and Prem Natarajan. *Graph Clustering-based Ensemble Method for Handwritten Text Line Segmentation*
- 12:00-12:20 Syed Saqib Bukhari, Faisal Shafait and Thomas M. Breuel. *Text-Line Extraction using a Convolution of Isotropic Gaussian Filter with a Set of Line Filters*
- 12:20-12:40 Jayant Kumar and David Doermann. *Fast Rule-line Removal using Integral Image and Support Vector Machines*

11:00-12:40 Oral Session 11: Online Handwriting Recognition

Location: Room #1 of Bld. 7

Chair: Masaki Nakagawa

- 11:00-11:20 Seiichi Uchida, Toru Sasaki and Yaokai Feng. *A Generative Model for Handwritings Based on Enhanced Feature Desynchronization*
- 11:20-11:40 Bilan Zhu, Jinfeng Gao and Masaki Nakagawa. *Objective Function Design for MCE-based Combination of On-line and Off-line Character Recognizers for On-line Handwritten Japanese Text Recognition*
- 11:40-12:00 Suhan Chowdhury, Utpal Garain and Tanushyam Chattopadhyay. *A Weighted Finite-State Transducer (WFST)-based Language Model for Online Indic Script Handwriting Recognition*
- 12:00-12:20 Bilan Zhu and Masaki Nakagawa. *On-line Handwritten Japanese Characters Recognition Using A MRF Model with Parameter Optimization by CRF*
- 12:20-12:40 Jinpeng Li, Harold Mouchere and Christian Viard-Gaudin. *Symbol Knowledge Extraction from a Simple Graphical Language*

11:00-12:40 Oral Session 12: Forensic Document Analysis

Location: Room #2 of Bld. 7

Chair: Rolf Ingold

- 11:00-11:20 Tara Gilliam, Richard C. Wilson and John Clark. *Segmentation and Normalisation in Grapheme Codebooks*
- 11:20-11:40 Sargur Srihari. *Evaluating the Rarity of Handwriting Formations*
- 11:40-12:00 Aymen Chaabouni, Houcine Boubaker, Monji Kherallah, Haikal El Abed and Adel M. Alimi. *Multi-Fractal Modeling for On-line Text-Independent Writer Identification*
- 12:00-12:20 Vlad Atanasiu, Laurence Likforman-Sulem and Nicole Vincent. *Writer Retrieval—Exploration of a Novel Biometric Scenario Using Perceptual Features Derived from Script Orientation*
- 12:20-12:40 Javier Galbally, Julian Fierrez, Marcos Martinez-Diaz and Réjean Plamondon. *Quality Analysis of Dynamic Signature Based on the Sigma-Lognormal Model*

13:40-15:20 Poster Session 2

Location: Ballroom of Friendship Palace

- #1 Lu Xu, Xiaoqing Ding, Liangrui Peng and Xin Li. *An Improved Method Based on Weighted Grid Micro-structure Feature for Text-independent Writer Recognition*
- #2 Yangdong Gao, Xiaoqing Ding and Changsong Liu. *A Multi-scale Text Line Segmentation Method in Freestyle Handwritten Documents*
- #3 Nicola Nobile, Chun Lei He, Malik Waqas Sagheer, Louisa Lam and Ching Y. Suen. *Digit/Symbol Pruning and Verification for Arabic Handwritten Digit/Symbol Spotting*
- #4 Yunxue Shao, Chunheng Wang, Baihua Xiao, Rongguo Zhang and Linbo Zhang. *Modified Two-class LDA Based Compound Distance for Similar Handwritten Chinese Characters Discrimination*
- #5 William B. Lund and Eric K. Ringger. *Error Correction with In-Domain Training across Multiple OCR System Outputs*
- #6 William B. Lund, Daniel D. Walker and Eric K. Ringger. *Progressive Alignment and Discriminative Error Correction for Multiple OCR Engines*
- #7 Zhiwei Jiang, Xiaoqing Ding, Changsong Liu and Yanwei Wang. *A Novel Short Merged Off-Line Handwritten Chinese Character String Segmentation Algorithm Using Hidden Markov Model*
- #8 Konstantinos Ntirogiannis, Basilis Gatos and Ioannis Pratikakis. *Binarization of Textual Content in Video Frames*
- #9 Partha Roy, Jean-Yves Ramel and Nicolas Ragot. *Word Retrieval in Historical Document using Character-Primitives*

- #10 Pasithideth Luangvilay, Bilan Zhu and Masaki Nakagawa. *An On-line Handwritten Text Search Method based on Directional Feature Matching*
- #11 Lukas Neumann and Jiri Matas. *Text Localization in Real-world Images using Efficiently Pruned Exhaustive Search*
- #12 Guanglai Gao, Xiangdong Su, Hongxi Wei and Yeyun Gong. *Classical Mongolian Words Recognition in Historical Document*
- #13 Jie Liu, Heping Li, Shuwu Zhang and Wei Liang. *A Novel Italic Detection and Rectification Method for Chinese Advertising Images*
- #14 Karim Hadjar and Rolf Ingold. *Minimizing user annotations in the generation of layout ground-truthed data*
- #15 Hongwei Zhang, Changsong Liu, Cheng Yang and Xiaoqing Ding. *An improved scene text extraction method using Conditional Random Field and Optical Character Recognition*
- #16 Sukalpa Chanda, Katrin Franke and Umapada Pal. *Identification of Indic scripts on Torn-Documents*
- #17 The Anh Pham, Mathieu Delalandre and Sabine Barrat. *A contour-based method for logo detection*
- #18 Stefano Ferilli, Teresa M.A. Basile, Floriana Esposito and Marenglen Biba. *A Contour-based Progressive Technique for Shape Recognition*
- #19 Ali Abedi and Karim Faez. *Localization of Digit Strings in Farsi/ Arabic Document Images Using Structural Features and Syntactical Analysis*
- #20 Liang Xu, Fei Yin, Qiu-Feng Wang and Cheng-Lin Liu. *Touching Character Separation in Chinese Handwriting Using Visibility-Based Foreground Analysis*
- #21 Huaigu Cao, Rohit Prasad and Premkumar Natarajan. *OCR-Driven Writer Identification and Adaptation in an HMM Handwriting Recognition System*
- #22 Huaigu Cao, Rohit Prasad and Premkumar Natarajan. *Handwritten and Typewritten Text Identification and Recognition using Hidden Markov Models*
- #23 Liangcai Gao, Yuan Zhong, Xiaofan Lin and Yingmin Tang. *Metadata extraction system for Chinese books*
- #24 Ismet Yalniz and R. Manmatha. *A Fast Alignment Scheme for Automatic OCR Evaluation of Books*
- #25 Yi-Feng Pan, Yuanping Zhu, Jun Sun and Satoshi Naoi. *Improving Scene Text Detection by Scale-adaptive Segmentation and Weighted CRF Verification*
- #26 Bin Chen, Bilan Zhu and Masaki Nakagawa. *Effects of Generating a Large Amount of Artificial Patterns for On-line Handwritten Japanese Character Recognition*
- #27 Rajiv Jain and David Doermann. *Offline Writer Identification using K-Adjacent Segments*
- #28 Dong Liu and Youbin Chen. *Binarizing the Courtesy Amount Field on Color*

Chinese Bank Check Images

- #29 Jing Fang, Liangcai Gao, Zhi Tang and Xin Tao. *A Table Detection Method for Multipage PDF Documents via Visual Separators and Tabular Structures*
- #30 Jun Du, Qiang Huo, Lei Sun and Jian Sun. *Snap and Translate Using Windows Phone*
- #31 Yong Xia and Kuanquan Wang. *Chinese Keyword Spotting Using Knowledge-based Clustering*
- #32 Jian Fan. *Text Segmentation of Consumer Magazines in PDF Format*
- #33 Xiang Wan, Changsong Liu and Yanming Zou. *On-line Chinese Character Recognition System for Overlapping Samples*
- #34 Kaiyue Wang, Yunhong Wang and Zhaoxiang Zhang. *On-line Signature Verification Using Segment-to-segment Graph Matching*
- #35 Song Wang, Seiichi Uchida and Marcus Liwicki. *Look Inside the World of Parts of Handwritten Characters*
- #36 Song Wang, Seiichi Uchida and Marcus Liwicki. *Comparative Study of Part-Based Handwritten Character Recognition Methods*
- #37 Seiichi Uchida, Yuki Shigeyoshi, Yasuhiro Kunishige and Yaokai Feng. *A Keypoint-Based Approach Toward Scenery Character Detection*
- #38 Ryo Narita, Wataru Ohyama, Tetsushi Wakabayashi and Fumitaka Kimura. *Three Dimensional Rotation-Free Recognition of Characters*
- #39 Amani Boumaiza and Salvatore Tabbone. *A Novel Approach for Graphics Recognition based on Galois lattice and Bag of Words representation*
- #40 Truyen Van Phan, Jingfeng Gao, Bilan Zhu and Masaki Nakagawa. *Effects of Line Densities on Nonlinear Normalization for Online Handwritten Japanese Character Recognition*
- #41 Thibault Lelore and Frédéric Bouchara. *Super-resolved binarization of text based on FAIR algorithm.*
- #42 Quang Anh Bui, Muriel Visani, Sophea Prum and Jean-Marc Ogier. *Writer Identification using TF-IDF for Cursive Handwritten Word Recognition*
- #43 Tanushyam Chattopadhyay, Soumik Sengupta, Aniruddha Sinha and Nisha Rampuria. *Creation and Analysis of a Corpus of Text Rich Indian TV Videos*
- #44 Markus Diem, Florian Kleber and Robert Sablatnig. *Text Classification and Document Layout Analysis of Paper Fragments*
- #45 Sheraz Ahmed, Markus Weber, Marcus Liwicki and Andreas Dengel. *Text/Graphics Segmentation in Architectural Floor Plans*
- #46 Sheraz Ahmed, Marcus Liwicki, Markus Weber and Andreas Dengel. *Improved Automatic Analysis of Architectural Floor Plans*
- #47 Muhammad Muzzamil Luqman, Jean-Yves Ramel, Josep Lladós and Thierry Brouard. *Subgraph Spotting through Explicit Graph Embedding: An Application to Content Spotting in Graphic Document Images*
- #48 Laurent Guichard, Joseph Chazalon and Bertrand Couasnon. *Exploiting*

Collection Level For Improving Assisted Handwritten Word Transcription Of Historical Documents

- #49 Shinpei Yamazaki, Fumihiko Furukori, Qinzhenq Zhao, Keiichiro Shirai and Masayuki Okamoto. *Embedding a Mathematical OCR Module into OCRopus*
- #50 Yan Gao, Lianwen Jin, Cong He and Guibin Zhou. *Handwriting Character Recognition as a Service: A New Handwriting Recognition System based on Cloud Computing*
- #51 Vladimir Kluzner and Asaf Tzadok. *Page Curling Correction for Scanned Books Using Local Distortion Information*
- #52 Zhixin Shi, Srirangaraj Setlur and Venu Govindaraju. *Image Enhancement for Degraded Binary Document images*
- #53 Vladimir Kluzner, Asaf Tzadok, Dan Chevion and Eugene Walach. *Hybrid Approach to Adaptive OCR for Historical Books*
- #54 Maryam Rahneemoonfar and Apostolos Antonacopoulos. *Restoration of Arbitrarily Warped Historical Document Images Using Flow Lines*
- #55 P Pavan Kumar, Chakravarthy Bhagvati, Atul Negi, Arun Agarwal and B.L. Deekshatulu. *Towards Improving the Accuracy of Telugu OCR System*
- #56 Ednardo Mariano, Rafael Lins, Gabriel Silva, Jian Fan, Peter Majewicz and Marcelo Thielo. *Correcting Specular Noise in Multiple Images of Photographed Documents*
- #57 Xi Luo, Wataru Ohyama, Tetsushi Wakabayashi and Fumitaka Kimura. *A Study on Automatic Chinese Text Classification*
- #58 Javad Sadri, Younes Akbari, Mohammad Javad Jalili, Ahmad Farahi and Maliheh Habibi. *A New System for Recognition of Handwritten Persian Bank Checks*
- #59 Da-Han Wang and Cheng-Lin Liu. *Dynamic Text Line Segmentation for Real-Time Recognition of Chinese Handwritten Sentences*
- #60 Iuliu Konya, Stefan Eickeler and Christoph Seibert. *Character enhancement for historical newspapers printed using hot metal typesetting*
- #61 M. Sudha Praveen, K. Pramod Sankar and C.V. Jawahar. *Character n-Gram Spotting in Document Images*
- #62 Emilie Philippot, Yolande Belaïd and Abdel Belaïd. *Use of semantic and physical constraints in Bayesian Networks for Form Recognition*

15:40-16:40 Keynote Speech 2

Location: Ballroom of Friendship Palace

Chair: Daniel Lopresti

Wen Xing. *Chinese Calligraphy and Pattern Recognition: Styles and Scripts in Excavated Ancient Chinese Documents*

16:50-18:10 Oral Session 13: Applications (2)

Location: Ballroom of Friendship Palace

Chair: Louisa Lam

- 16:50-17:10 Markus Weber, Marcus Liwicki, Yannik T. H. Schelske, Christopher Schölzel, Florian Strauß and Andreas Dengel. *MCS for Online Mode Detection: Evaluation on Pen-Enabled Multi-Touch Interfaces*
- 17:10-17:30 Bing Zhang, Ying Li, Ching Y. Suen and Xuemin Zhang. *Discovering Legible Chinese Typefaces for Reading Digital Documents*
- 17:30-17:50 Daekeun You, Sameer Antani, Dina Demner-Fushman, Venu Govindaraju and George Thoma. *Detecting Figure-panel Labels in Medical Journal Articles using MRF*
- 17:50-18:10 Chao Ren, Dong Liu and Youbin Chen. *A New Method on the Segmentation and Recognition of Chinese Characters for Automatic Chinese Seal Imprint Retrieval*

16:50-18:10 Oral Session 14: Graphics Recognition

Location: Room #1 of Bld. 7

Chair: Josep Lladós

- 16:50-17:10 George Nagy and Xiafen Zhang. *CalliGUI: Interactive Labeling of Calligraphic Character Images*
- 17:10-17:30 Anjan Dutta, Josep Lladós and Umapada Pal. *Symbol Spotting in Line Drawings Through Graph Paths Hashing*
- 17:30-17:50 Jon Almazán, Alicia Fornés and Ernest Valveny. *A non-rigid feature extraction method for shape recognition*
- 17:50-18:10 Yuji Kato, Daisuke Deguchi, Tomokazu Takahashi, Ichiro Ide and Hiroshi Murase. *Low resolution QR-code recognition by applying super-resolution using the property of QR-codes*

16:50-18:10 Oral Session 15: Character Recognition (2)

Location: Room #2 of Bld. 7

Chair: Fu Chang

- 16:50-17:10 Sebastiano Impedovo, Giuseppe Pirlo, Raffaele Modugno and Giuseppe Facchini. *Tuning between Exponential Functions and Zones for Membership Functions Selection in Voronoi-based Zoning for Handwritten Character Recognition*
- 17:10-17:30 Yunxue Shao, Chunheng Wang, Baihua Xiao, Rongguo Zhang and Yang Zhang. *Multiple Instance Learning Based Method for Similar Handwritten Chinese Characters Discrimination*
- 17:30-17:50 Tong-Hua Su, Cheng-Lin Liu and Xu-Yao Zhang. *Perceptron Learning of Modified Quadratic Discriminant Function*

17:50-18:10 Dapeng Tao, Lingyu Liang, Lianwen Jin and Yan Gao. *Similar Handwritten Chinese Character Recognition using Discriminative Locality Alignment Manifold Learning*

September 21 (Wednesday)

9:00-10:00 Keynote Speech 3

Location: Ballroom of Friendship Palace

Chair: Thomas Breuel

Marc Wilhelm Küster. *The Four and a Half Challenges of Humanities Data*

10:20-12:20 Oral Session 16: Text Extraction (2)

Location: Ballroom of Friendship Palace

Chair: P. Shivakumara

10:20-10:40 Trung Quy Phan, Palaiahnakote Shivakumara, Bolan Su and Chew Lim Tan. *A Gradient Vector Flow-Based Method for Video Character Segmentation*

10:40-11:00 Xujun Peng, Huaigu Cao, Rohit Prasad and Premkumar Natarajan. *Text Extraction from Video Using Conditional Random Fields*

11:00-11:20 Min Su Cho, Jae-Hyun Seok, Seonghun Lee and Jin Hyung Kim. *Scene Text Extraction by Superpixel CRFs Combining Multiple Character Features*

11:20-11:40 Asif Shahab, Faisal Shafait and Andreas Dengel. *Bayesian Approach to Photo Time-Stamp Recognition*

11:40-12:00 Jie Liu, Shuwu Zhang, Heping Li and Wei Liang. *A Chinese Character Localization Method based on Intergrating Structure and CC-Clustering for Advertising Images*

12:00-12:20 Yasuhiro Kunishige, Yaokai Feng and Seiichi Uchida. *Scenery Character Detection with Environmental Context*

10:20-12:20 Oral Session 17: Document Retrieval (2)

Location: Room #1 of Bld. 7

Chair: Apostolos Antonacopoulos

10:20-10:40 Kazutaka Takeda, Koichi Kise and Masakazu Iwamura. *Real-Time Document Image Retrieval for a 10 Million Pages Database with a Memory Efficient and Stability Improved LLAH*

10:40-11:00 Jayant Kumar, Jaishankar Pillai and David Doermann. *Document Image Classification and Labeling using Multiple Instance Learning*

11:00-11:20 Heng Zhang and Cheng-Lin Liu. *A Lattice-Based Method for Keyword Spotting in Online Chinese Handwriting*

11:20-11:40 Eric Saund. *A Graph Lattice Approach to Maintaining Dense Collections of Subgraphs as Image Features*

11:40-12:00 Weihan Sun and Koichi Kise. *Similar Manga Retrieval Using Visual Vocabulary Based on Regions of Interest*

12:00-12:20 Irina Rabaev, Ofer Biller, Jihad El-Sana, Klara Kedem and Itshak Dinstein.

Case Study in Hebrew Character Searching

10:20-12:20 Oral Session 18: Character Recognition (3)

Location: Room #2 of Bld. 7

Chair: Michael Blumenstein

- 10:20-10:40 Andrew Newell and Lewis Griffin. *Multiscale Histogram of Oriented Gradient Descriptors for Robust Character Recognition*
- 10:40-11:00 Bilan Zhu and Masaki Nakagawa. *A Coarse Classifier Construction Method from a large number of basic recognizers for On-line Recognition of Handwritten Japanese Characters*
- 11:00-11:20 Toru Wakahara and Yukihiko Yamashita. *Affine-invariant Recognition of Handwritten Characters via Accelerated KL Divergence Minimization*
- 11:20-11:40 Yanwei Wang, Xiaoqing Ding and Changsong Liu. *MQDF Discriminative Learning Based Offline Handwritten Chinese Character Recognition*
- 11:40-12:00 Amit Arora and Anoop Namboodiri. *A Semi-supervised SVM framework for Character Recognition*
- 12:00-12:20 Sebastian Colutto and Basilis Gatos. *Efficient Word Recognition Using A Pixel-Based Dissimilarity Measure*

13:20-14:40 Poster Session 3

Location: Ballroom of Friendship Palace

- #1 Kamal Gupta, Manish Bansal and Santanu Chaudhury. *A Compression Scheme for Handwritten Patterns Based on Curve Fitting*
- #2 Akhtar Jamil, Ahsen Raza, Imran Siddiqi and Fahim Arif. *Edge-based Features for Localization of Artificial Urdu Text in Video Images*
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- #47 Ali Abidi, Imran Siddiqi and Khurram Khurshid. *Towards Searchable Digital Urdu Libraries – A Word Spotting Based Retrieval Approach*
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- #56 Rituraj Kunwar and Ramakrishnan Angarai Ganesan. *Online handwriting recognition of Tamil script using Fractal geometry*
- #57 Samuel Pinson and William Barrett. *Connected Component Level Discrimination of Handwritten and Machine-Printed Text Using Eigenfaces*
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- #59 Christian Clausner, Stefan Pletschacher and Apostolos Antonacopoulos. *Scenario Driven In-Depth Performance Evaluation of Document Layout Analysis Methods*
- #60 Masakazu Iwamura, Takuya Kobayashi and Koichi Kise. *Recognition of Multiple Characters in a Scene Image Using Arrangement of Local Features*
- #61 Hiroyuki Hase. *Quality Evaluation of Character Image Database and Its Application*
- #62 Xiaoyan Lin, Liangcai Gao, Zhi Tang and Xiaofan Lin. *Mathematical Formula Identification in PDF Documents*

14:40-16:00 Panel Discussion

Location: Ballroom of Friendship Palace

Chair: Ching Y. Suen

C. Y. Suen, N. Dumont, M. Dyson, Y.-C. Tai, X. Lu. *Evaluation of Fonts for*

16:20-17:40 Competition Session 1

Location: Ballroom of Friendship Palace

Chair: Haikal El Abed

- 16:20-16:35 Haikal El Abed, Liu Wenyin and Volker Märgner. *International Conference on Document Analysis and Recognition (ICDAR 2011) - Competitions Overview*
- 16:35-16:48 Volker Märgner and Haikal El Abed. *ICDAR 2011 - Arabic Handwriting Recognition Competition*
- 16:48-17:01 Fouad Slimane, Slim Kanoun, Haikal El Abed, Adel M. Alimi, Rolf Ingold and Jean Hennebert. *ICDAR 2011 - Arabic Recognition Competition: Multi-font Multi-size Digitally Represented Text*
- 17:01-17:14 Monji Kherallah, Adel M. Alimi, Haikal El Abed and Volker Märgner. *Online Arabic Handwriting Recognition Competition*
- 17:14-17:27 Emmanuèle Grosicki and Haikal El Abed. *ICDAR 2011 - French Handwriting Recognition Competition*
- 17:27-17:40 Cheng-Lin Liu, Fei Yin, Qiu-Feng Wang and Da-Han Wang. *ICDAR 2011 Chinese Handwriting Recognition Competition*

16:20-17:40 Competition Session 2

Location: Room #1 of Bld. 7

Chair: Liu Wenyin

- 16:20-16:22 Introduction
- 16:22-16:35 Abdelâali Hassaïne, Somaya Al-Ma'adeed, Jihad Mohamad Alja'am, Ali Mohamed Jaoua and Ahmed Bouridane. *The ICDAR2011 Arabic Writer Identification Contest*
- 16:35-16:48 Georgios Louloudis, Nikolaos Stamatopoulos and Basilis Gatos. *ICDAR 2011 Writer Identification Contest*
- 16:48-17:01 Marcus Liwicki, Muhammad Imran Malik, Elisa van den Heuvel, Xiaohong Chen, Charles Berger, Reinoud Stoel, Michael Blumenstein and Bryan Found. *Signature Verification Competition for On- and Offline Skilled Forgeries (SigComp2011)*
- 17:01-17:14 Alicia Fornés, Anjan Dutta, Albert Gordo and Josep Lladós. *The ICDAR 2011 Music Scores Competition: Staff Removal and Writer Identification*
- 17:14-17:27 D. Karatzas, S. Robles Mestre, J. Mas, F. Nourbakhsh and P. Pratim Roy. *ICDAR 2011 Robust Reading Competition - Challenge 1: Reading Text in Born-Digital Images (Web and Email)*
- 17:27-17:40 Asif Shahab, Faisal Shafait and Andreas Dengel. *ICDAR 2011 Robust Reading Competition Challenge 2: Reading Text in Scene Images*

16:20-17:40 Competition Session 3

Location: Room #2 of Bld. 7

Chair: Jun Sun

16:20-16:25 Introduction

16:25-16:40 Harold Mouchère, Christian Viard-Gaudin, Dae Hwan Kim, Jin Hyung Kim and Utpal Garain. *CROHME 2011: Competition on Recognition of Online Handwritten Mathematical Expressions*

16:40-16:55 Antoine Doucet, Gabriella Kazai and Jean-Luc Meunier. *ICDAR 2011 Book Structure Extraction Competition*

16:55-17:10 Ioannis Pratikakis, Basilis Gatos and Konstantinos Ntirogiannis. *ICDAR 2011 Document Image Binarization Contest (DIBCO 2011)*

17:10-17:25 Apostolos Antonacopoulos, Stefan Pletschacher, Christian Clausner and Christos Papadopoulos. *Historical Document Layout Analysis Competition*

17:25-17:40 Bart Lamiroy, Tao Sun and Daniel Lopresti. *Document Analysis Algorithm Contributions in End-to-End Applications*

17:40-18:10 Awards Presentation and Closing

Location: Ballroom of Friendship Palace

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Venue

● Location

Beijing Friendship Hotel (北京友谊宾馆) is in No. 1 South St. of ZhongGuanCun in Haidian District. It is adjacent to Chinese People's University, Beijing Institute of Technology, Shuang An Market and Modern Plaza department store. The hotel can be easily reached by several public bus lines and the Beijing No.4 Subway line.



● Access

Access by Air

The Beijing Capital International Airport is located in the northeast of Beijing and is 25.35km from the Forbidden City, the center of Beijing. It has air flight connections with many major cities in the world as well as in China.

Access by Train

There are four major railway stations in Beijing: Beijing Railway Station, Beijing West Station, Beijing South Station and Beijing North Station. The stations have train lines connecting most cities in China.

International trains, including lines to cities in Russia and North Korea (DPRK), all run through Beijing. Direct trains to Kowloon, Hong Kong SAR, also depart from Beijing.

From Beijing Capital International Airport to Beijing Friendship Hotel

The Beijing Capital International Airport is to the northeast of the city, about 35km to the Beijing Friendship Hotel. Taxis are always available at the airport whenever flights arrive. The cost of a taxi from the airport to the hotel is about 100CNY (15USD), including expressway fair.

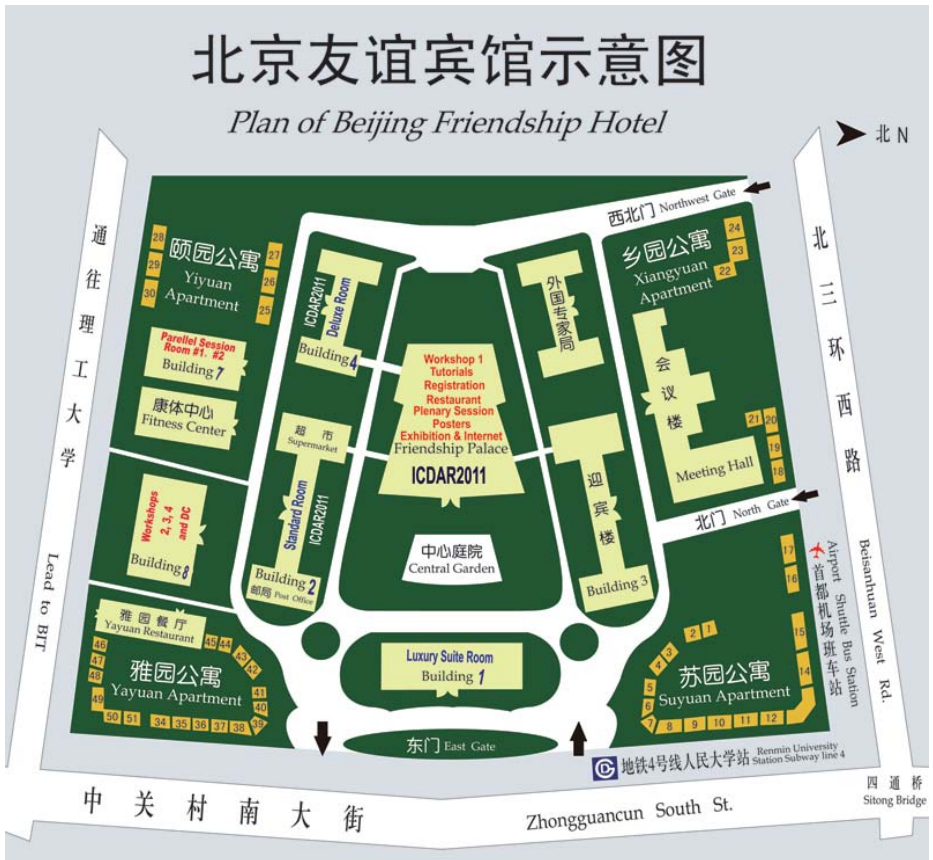
Shuttle buses are available in the airport. There is one stop near the north gate of the Beijing Friendship Hotel on the way from the airport to Gongzhufen (公主坟). It is fast and cheap (a one-way ticket costs about 2.5USD). Departures are roughly every 30 minutes. Buses run from 6AM to 11PM.

People can also take subway from the Airport to Beijing Friendship Hotel, by transferring at Sanyuanqiao (三元桥) or Dongzhimen (东直门) station. The estimated cost for one way is about USD \$4.

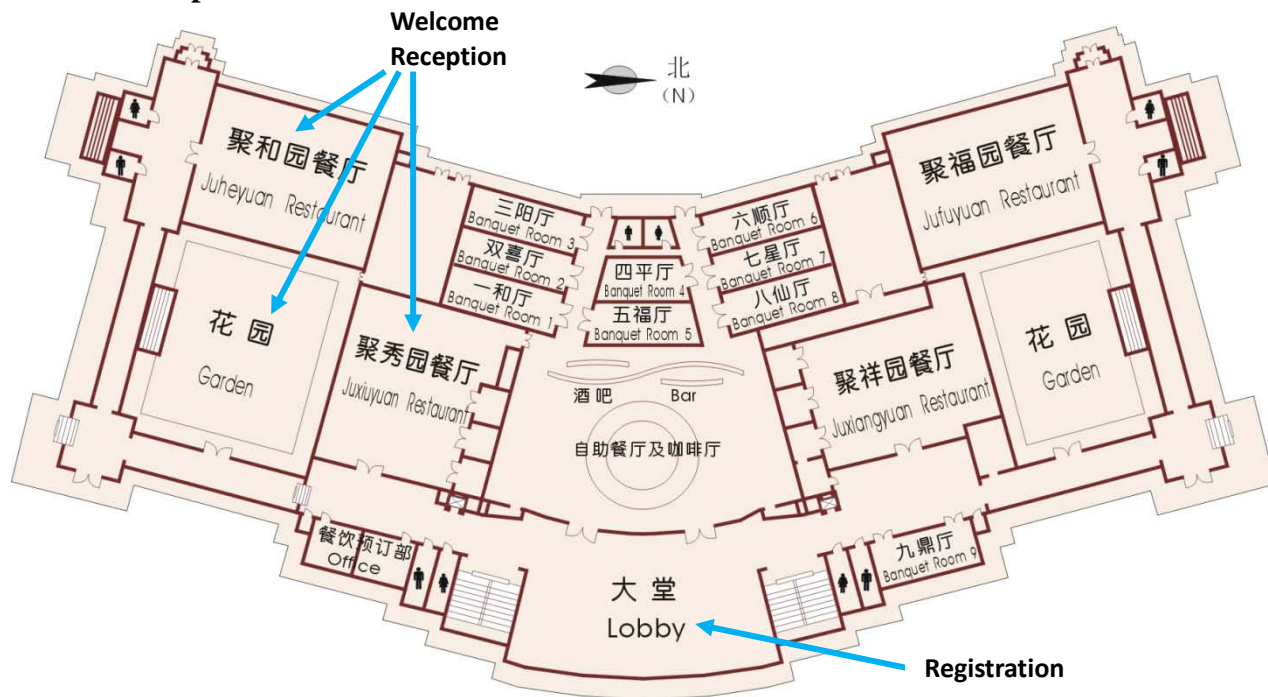
● Land Map

Beijing Friendship Hotel has everything (conference rooms, hotels of different ranks, restaurants) in a big yard of over 200,000m². In the yard, the Buildings No.1, No.2 and No.4 are hotels, the Friendship Palace and the Meeting Hall have big conference rooms, and the Buildings No.7 and No.8 have mid-size meeting rooms.

The main conference of ICDAR 2011 is held in the Friendship Palace as well as in the Building 7.

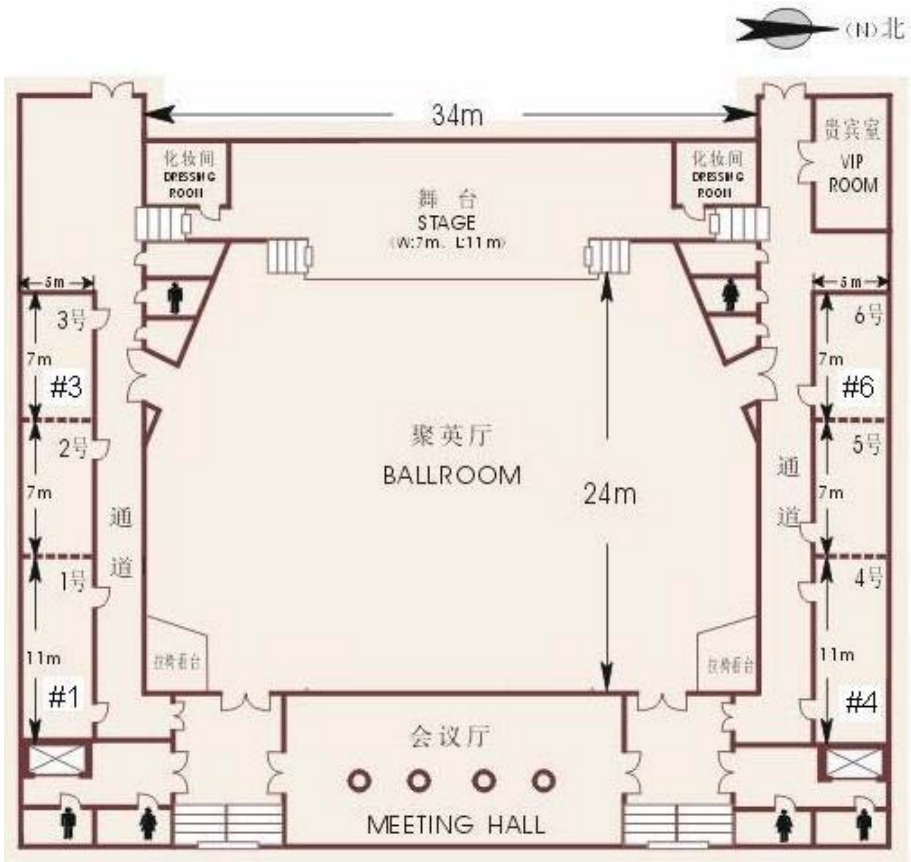


● Floor Maps



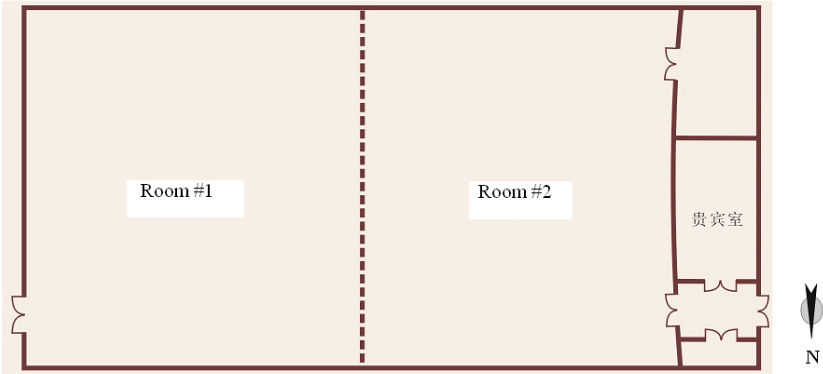
First Floor of Friendship Palace.

The Ballroom for the main conference is on the second floor of Friendship Palace.
 The tutorials are held in the rooms #1, #3, #4 and #6.



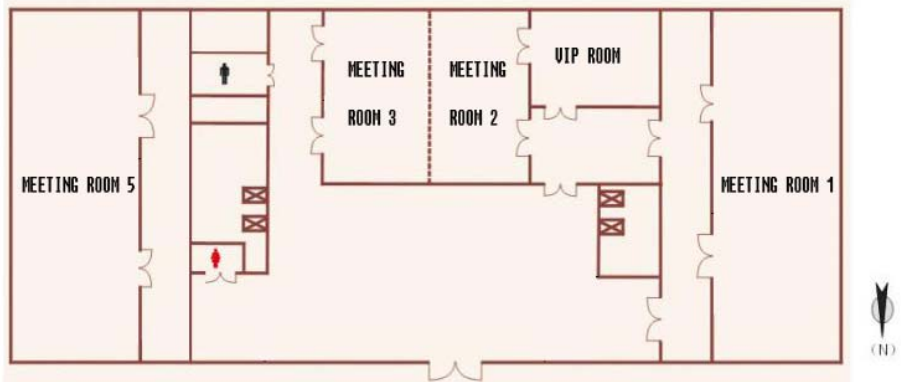
Second Floor of Friendship Palace.

Two parallel oral sessions are held in the Room #1 and Room #2 on the second floor of Building 7.



Second Floor of Building 7.

The Doctoral Consortium is held in the Room #2 on the first floor of Building 8.



First Floor of Building 8.

Sponsors

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