



DAS 2014

11th IAPR INTERNATIONAL WORKSHOP ON DOCUMENT ANALYSIS SYSTEMS

April, 7th - 10th

Program Booklet

TOURS, Loire Valley, France ----->

Vinci - International Convention Centre

<http://das2014.univ-tours.fr/>

Workshop chairs

Jean-Yves Ramel (University of Tours - France)

Marcus Liwicki (DFKI Kaiserslautern - Germany; University of Fribourg - Switzerland)

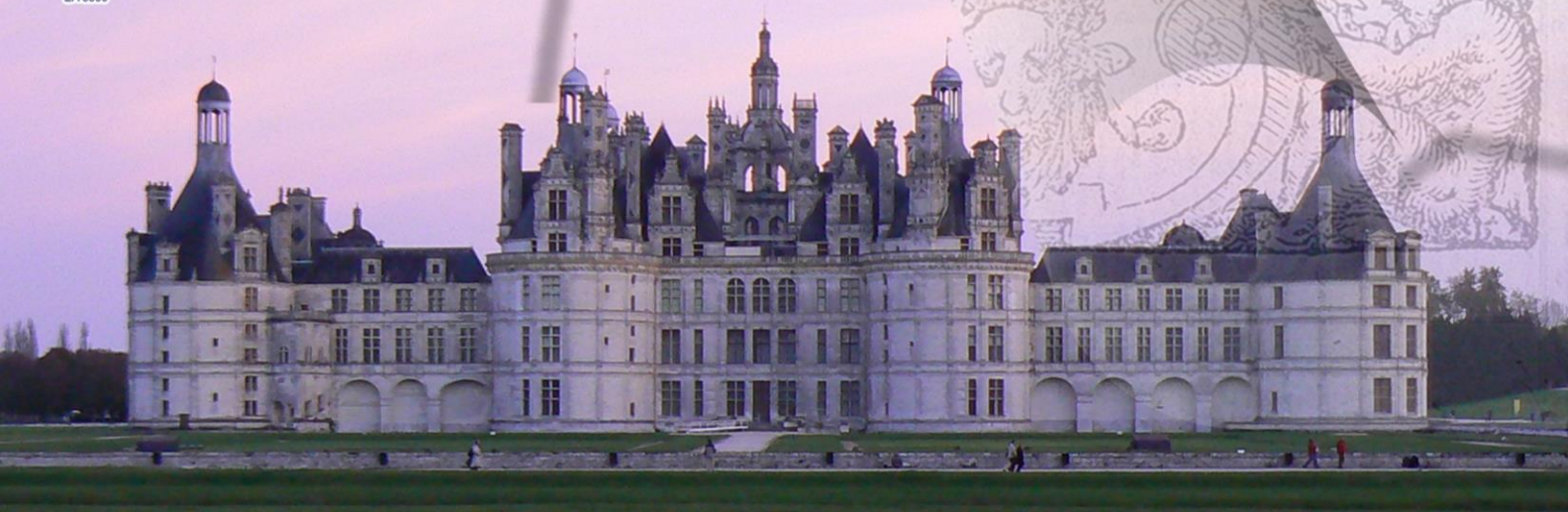
Program chairs

Jean-Marc Ogier (University of La Rochelle - France)

Koichi Kise (Osaka University - Japan)

Ray Smith (Google - USA)

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IAPR 

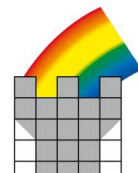
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**11th IAPR INTERNATIONAL
WORKSHOP ON
DOCUMENT ANALYSIS SYSTEMS**



**Tours – Loire Valley, France
Vinci-International Convention Centre
April 7th-10th, 2014**

<http://das2014.univ-tours.fr/>



Committees

Workshop Organizing Chairs

Jean-Yves Ramel *University of Tours – France*
Marcus Liwicki *DFKI Kaiserslautern – Germany; University of Fribourg, Switzerland*

Program Chairs

Jean-Marc Ogier *University of La Rochelle – France*
Koichi Kise *Osaka Prefecture University – Japan*
Ray Smith *Google – USA*

Sponsor Chairs

Rafael Dueire Lins *University of Pernambuco – Brazil*
Cheng Lin Liu *NLPR Beijing – China*

Tutorial Chairs

Josep Lladós *CVC – Spain*
Vincent Poulain D'Andecy *ITESOFT – France*

Publicity Chairs

Venu Govindaraju *Buffalo University – USA*
Umapada Pal *Indian Statistical Institute – India*

Organizing Committee

Alireza Alaei *University of Tours – France*
Sabine Barrat *University of Tours – France*
Thierry Brouard *University of Tours – France*
Mathieu Delalandre *University of Tours – France*
Nathalie Girard *University of Tours – France*
Christelle Grange *University of Tours – France*
Muhammad Muzzamil Luqman *University of La Rochelle – France*
Beatrice Pawlik *University of Tours – France*
Nicolas Ragot *University of Tours – France*
Romain Raveaux *University of Tours – France*
Nicolas Sidere *University of Tours – France*
Arundhati Tarafdar *University of Tours – France*

Program Committee

Academic members

A. Antonacopoulos	<i>University of Salford - UK</i>
E. Barney Smith	<i>Boise State University - USA</i>
A. Belaid	<i>Université de Lorraine - France</i>
M. Blumenstein	<i>Griffith University - Australia</i>
A. Dengel	<i>DFKI - Germany</i>
D. Doermann	<i>University of Maryland - USA</i>
A. Fischer	<i>Concordia University - Canada</i>
B. Gatos	<i>IIT Demokritos - Greece</i>
V. Govindaraju	<i>University at Buffalo - USA</i>
R. Ingold	<i>University of Fribourg - Switzerland</i>
M. Iwamura	<i>Osaka Prefecture University - Japan</i>
D. Karatzas	<i>CVC - Spain</i>
F. Kimura	<i>Mie University - Japan</i>
K. Kise	<i>Osaka Prefecture University - Japan</i>
L. Likforman-Sulem	<i>Telecom-ParisTech - France</i>
C.L. Liu	<i>NLPR - China</i>
M. Liwicki	<i>DFKI - Germany</i>
J. Lladós	<i>CVC-UAB - Spain</i>
D. Lopresti	<i>Lehigh University - USA</i>
S. Marinai	<i>University of Florence - Italy</i>
J.M. Ogier	<i>University of La Rochelle - France</i>
I.S. Oh	<i>Chonbuk National University - Korea</i>
S. Omachi	<i>Tohoku University - Japan</i>
U. Pal	<i>Indian Statistical Institute - India</i>
J.Y. Ramel	<i>University of Tours - France</i>
M. Rusiñol	<i>CVC - Spain</i>
F. Shafait	<i>University of Western Australia - Australia</i>
P. Shivakumara	<i>University of Malaya - Malaysia</i>
C.L. Tan	<i>National University of Singapore - Singapore</i>
K. Tombre	<i>Université de Lorraine - France</i>
S. Uchida	<i>Kyushu University – Japan</i>

Industrial members

D. Bloomberg	<i>Google - USA</i>
M. Gillmann	<i>Insiders Technologies GmbH - Germany</i>
Y. Hotta	<i>Fujitsu Laboratories Ltd - Japan</i>
J. Hu	<i>IBM - USA</i>
C. Kermorvant	<i>A2iA - France</i>
F. Mamalet	<i>Orange Labs R&D - France</i>
S. Naoi	<i>Fujitsu R&D Center Co Ltd - China</i>
V. Poulain d'Andecy	<i>ITESOFT - France</i>
K. Pramod Sankar	<i>Xerox Research - India</i>
M.-P. Schambach	<i>Siemens AG - Germany</i>
R. Smith	<i>Google - USA</i>
V. Subramaniam	<i>IBM - India</i>
J. Sun	<i>Fujitsu R&D Center Co Ltd - China</i>
R. Unnikrishnan	<i>Google - USA</i>

Message from the General Chairs and Program Chairs

Our heartiest welcome to DAS 2014, the 11th IAPR International Workshop on Document Analysis Systems taking place in Tours - Loire Valley, France. With this eleventh edition, the workshop is held for the first time in France after successful workshops in Kaiserslautern, Germany (1994); Malvern, PA, USA (1996); Nagano, Japan (1998); Rio de Janeiro, Brazil (2000); Princeton, NJ, USA (2002); Florence, Italy (2004); Nelson, New Zealand (2006); Nara, Japan (2008); Boston, USA (2010) and Gold Coast, Australia (2012).

DAS 2014 continues well established standards and introduces novel ideas. It is a single-track peer-reviewed, 100% participation conference and it attempts to bring together industrialists and academics, as well as practitioners and theoreticians from numerous related disciplines involved in document analysis systems research and to provide opportunities for interactions between them. For the first time, an Industrial Program Committee takes part to the Workshop, which is composed of researchers coming from companies, who are very active in the field and frequently participated at previous DAS Workshops. As such DAS 2014 emphasizes the systems aspect which is already in its title.

On behalf of the organizing committee, we are happy to announce that we received 138 submissions from researchers of 32 countries around the world. The Program Committee Chairs invited 45 international reviewers (including the program committee members) to review the papers. All papers have been refereed by at least three reviewers (2 academic researchers from the Program Committee and one researcher from this Industrial Program Committee). 132 papers were reviewed by three reviewers and the other 6 papers were reviewed by four reviewers. Finally, 73 long papers were accepted, of which 27 are for oral presentation and 46 are for poster presentation. As such, the acceptance rate for oral papers is 19.6%.

These accepted papers cover diverse areas of preprocessing, feature extraction, segmentation, recognition, signature verification, text classification, image retrieval techniques, video document processing, document image decoding, graphical document processing, performance evaluation, historical and handwriting documents, different systems on document analysis etc. The final program consists of seven oral sessions, two poster sessions and one discussion session.

For the first time we have invited three distinguished keynote speakers: Prof Andreas Dengel (DFKI Kaiserslautern - Germany), Vladimir Rybkin (Head of Character Recognition and Image Processing Group - ABBYY) and Vincent Poulain D'Andecy (Design and management of Document Analysis Systems - ITESOFIT) have accepted our invitation to give a keynote talk at the workshop. We thank them sincerely for accepting our invitation to deliver the keynotes.

We would also like to express our sincere thanks to Ray Smith from Google, USA; to Professor C. V. Jawahar from IIT Hyderabad, India; and to Dr. Pramod Kompalli from Xerox Research Centre, India for their very informative tutorials.

At this point we thank all the researchers who showed interest in this DAS by sending contributed papers. Thanks are also due to all chairs of various activities, program committee members, reviewers, and local organizing committee members including the Computer Science Laboratory of Tours (LI - EA6300) at the University of Tours for their strong support and active participation. The University of Tours, the city of Tours as well as the Region Centre have extended their support in organizing the workshop to a great extent. We sincerely thank all of them for their kind help.

Last but not the least; we would like to address special thanks to our valued sponsors of the workshop. We hope you will find your stay fruitful and rewarding. We trust that you will enjoy the exchange of technical and scientific ideas during the three days of DAS 2014 as well as getting a flavour of the city of Tours and the Loire Valley, which are one of the most famous and most beautiful tourist destinations in France. We extend our warmest welcome to you, and hope that your visit will be a memorable one!

Jean-Yves Ramel and Marcus Liwicki
DAS 2014 General Chairs

Jean-Marc Ogier, Koichi Kise, and Ray Smith
DAS 2014 Program Chairs

Venue & Practical Information

DAS 2014 will take place in the Vinci – The international convention centre of Tours – France.

The International Convention Centre of Tours stands in the heart of Tours-city and corresponds to an architectural feat designed by renowned Jean NOUVEL.

The attendees of DAS 2014 workshop will dispose of:

- 1000 m² area in the Agnes Sorel Hall (2nd floor)
- Free wireless connection (wifi) – High quality audio and video projection
- The keynotes, oral sessions, teasers and group discussions will be held in **the room Courteline.**
- The poster sessions (demo, short and long paper posters), the coffee breaks and lunches will be held in **the Agnes Sorel Hall.**



The tutorials (Monday 7th) will take place at Polytech'Tours engineering school



Registration desk:

Time	Location	Phone
Monday 7 th April 8h30-12h and 13h45-16h	Polytech'Tours school (Tours)	02 47 36 14 42
Monday 7 th April 18h30-19h30	Tours city House (at the Welcome Reception)	
From Tuesday 8 th to Thursday 10 th April 8h30-12h30 and 13h45-17h30	2 nd floor Vinci Congress Centre (Tours) -	02 47 70 70 70

Wifi Access:

Login: IAPR2014
Password: iwor2014

Tours city ↔ PolytechTours (by Tramway)

A Vaucanson

- Monconseil
- Marne
- Coppée
- Beffroi
- Trois Rivières
- Christ Roi
- Tranchée
- MI-Côte
- Place Choiseul
- Anatole France
- Nationale
- Jean Jaurès
- DAS2014 Venue** Gare de Tours Railway station
- Palais des Sports
- Sanitas
- Liberté
- Charcot
- Verdun
- DAS2014 Tutorials** Fac 2 Lions University PolytechTours
- L'Heure Tranquille
- Pont Volant
- République
- Joué Hôtel de Ville
- Rotière
- Rabière
- Stade Jean Bouin
- A Lycée Jean Monnet**

tram **A** direction TOURS Nord

Lundi au Vendredi - Monday to Friday																							
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	37															36	53						
	43															51							
	54																						

Un tram toutes les 6 à 8 minutes
A tram every 6 to 8 minutes

Samedi - Saturday

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47	32															22	37	43	43		
	42															38	52				
	52															53					

Un tram toutes les 7 à 10 minutes
A tram every 7 to 10 minutes

Dimanche et fêtes - Sunday & Bank Holidays (sauf 1er Mai - except May 1st)

4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
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	56		52	54	54	54	54	54	54	54	54	54	54	54	59						

Informations - Informations

arrêt : Gare de Tours <<< >>> arrêt : Fac 2 Lions
 Bus Stop : Railway station Bus Stop : University - 2 lions

TRAM A - Tours

Horaires du 12 novembre 2013 au 29 juin 2014

A Lycée J. Monnet

tram **A** direction JOUE LES TOURS

The map shows the location of PolytechTours (sciences et technologie · formations continues) relative to the Tram A Station Université. A blue arrow labeled "By walking" points from the station to the building. The station is located at the intersection of Av. Jean de Portails and Av. Edouard Michelin. Other nearby streets include Av. Marcel Mérieux, Allée Ferdinand de Lesseps, and Liberty Route. Landmarks like "Cabinet Infirmier Tours 2 Lions" and "Pizz'App" are also visible.

Two photographs of the PolytechTours building. The top photo shows the modern, multi-story building with "polytechnique" and "UNIVERSITÉ FRANCIS BACONNET TOURS" signage. The bottom photo shows a parking area with several cars, a trash bin, and a red and white striped barrier.

General Map



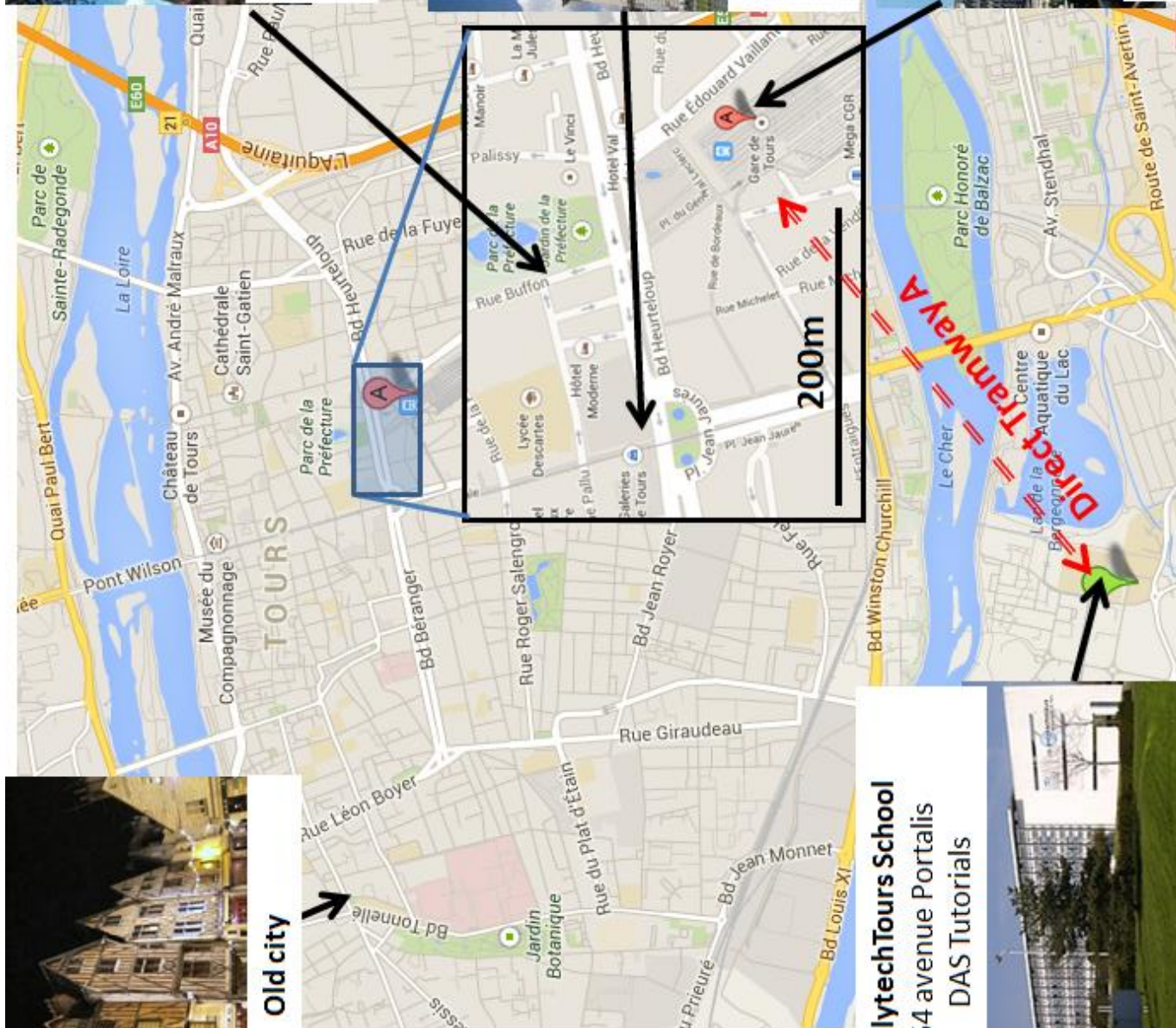
Vinci -Congress Centre
26 Boulevard Heurteoup
DAS 2014



Tours City House
1-3 Rue des Minimes
Welcome Reception



Railway Station Tours city



Old city

PolytechTours School
64 avenue Portalis
DAS Tutorials



	Polytech'Tours	Vinci			
	Monday, 7th April	Tuesday, 8th April	Wednesday, 9th April	Thursday, 10th April	
08h30	Tutorial 1 <i>Ray Smith</i> (4h00')	Opening ceremony (30')			08h30
08h40			Oral-5a OCR, Word Spotting and Recognition (4x20')	Oral-6 Super-resolution and born digital document processing (4x20')	08h40
09h00		IAPR Invited Talk - 1 Prof Andreas DENGEL (60')			09h00
10h00		Coffee break	Coffee break	Coffee break	10h00
10h30		Oral-1 Document Classification and Retrieval (3x20')	Oral-5b OCR, Word Spotting and Recognition (3x20')	Oral-7 Ground truthing and performance evaluation (3x20')	10h30
11h30		Oral-2 Writer Identification and Verification (3x20')	Spotlight Shortpaper poster+demo (10x1')	IAPR Invited Talk - 3 Vincent Poulain d'Andecy (45')	11h30
12h15					12h15
12h30	Lunch (1h30')	Lunch (1h30')	Lunch (1h00')	Lunch (1h45')	12h30
13h30					13h30
13h45					13h45
14h00	Tutorial 2 <i>C. V. Jawahar Pramod Kompalli</i> (4h00')	Oral-3 Text detection and Correction (4x20')	Discussion groups (2h00')	Teasers-2 Poster-2 (24x1')	14h00
15h20					15h20
15h30		Coffee break	Coffee break	Coffee break	15h30
16h00		Oral-4 Handwritten Text recognition and Graph Edit distances (3x20')	IAPR Invited Talk - 2 Vladimir Rybkin Konstantin Anisimovich (45')	Reports of discussion groups (45')	16h00
16h45				Concluding remarks and awards (45')	16h45
17h00					17h00
17h30		Teasers-1 Poster-1 (22x1')			17h30
18h00			Social Event Bus departure from Vinci – 17h30 Visit of the Amboise Castle	18h00	
19h15	Welcome reception	DAS2014 PC dinner	Banquet Dinner at the Amboise Castle	19h15	
...				...	

Tutorial 1: Everything you always wanted to know about Tesseract

Ray Smith, Google, USA

This tutorial will cover the algorithms, design and implementation of the open source OCR engine known as Tesseract.

Designed largely in secret, the methods used in Tesseract are not well known, yet it remains a formidable force in OCR, and continues to improve. The layout analysis was second in the 2009 ICDAR competition, it supports more than 60 languages, including Chinese, and several Indic languages, and recent changes have allowed easy plug-in of new classifiers.

This tutorial will lay all the cards on the table, covering the following topics:

- Background/history
- Overall architecture
- Internal data structures
- Layout analysis
- Character classification
- How to add a new character classifier
- Integration of LSTM, which brings Tesseract right up to date.
- Segmentation and language models
- Training
- Challenges of truly multilingual OCR
- Live demos

Optional Hands-on opportunity:

This tutorial aims to provide a hands-on experience in which you get to build and run the latest Tesseract on your own machine, to follow along with the demos, and possibly even make your own modifications! Bring along your own laptop with the following configuration to take part:

- Hardware: Laptop **with external Mouse!! (Scroll wheel needed.)**
- Ram/Disk: Most laptops under 10 years old should handle it with ease.
- Operating system: Linux or Windows. No specific version needed.
- C++ compiler: Linux: gcc, Windows: Visual Studio Express 2010 OR Mingw.
- Java runtime. Version not important.
- Working WiFi or USB port for downloading software and data.
- Mac users: The Tesseract demos are **very hard to use without a scrollwheel**. If you can emulate that somehow, bring it along, and we will give it a try! No guarantees though.

Tutorial 2: Building Scalable Solutions for Document Retrieval and Recognition.

C. V. Jawahar, IIT Hyderabad, India

Pramod Kompalli, Xerox Research Centre, India

Scalability of a given solution is an important consideration towards enabling retrieval and recognition over large collections of document images. However, the definitions of scalability are fast changing with the emergence of huge datasets and digital libraries, as well as the advent of new computing paradigms. In this tutorial, we shall cover three approaches towards building scalable document image retrieval and recognition systems:

- Recognition-free retrieval using bag-of-visual-words
- Recognition of word-images using indexing schemes
- Large-scale testing/deployment using cloud computing

This tutorial shall include a parallel hands-on practical session, where the attendees would have the opportunity to practice the methods described in the tutorial. A dataset, along with the necessary code libraries, will be provided to the audience. Multiple solution stacks shall be deployed and evaluated by the various groups/individuals, with a scalable retrieval system being built by the end of the tutorial.

The target audience of the tutorial is:

- students that would benefit by obtaining a broad overview of the state-of-the-art approaches and access to code libraries to apply over their datasets
- researchers who might appreciate that scalable solutions can be built in practice, with slightly unconventional approaches that were possibly discarded or overlooked earlier
- practitioners that might be interested in picking up know-how and tools for quick deployment of document retrieval solutions.

IAPR Invited Talks



Vladimir Rybkin

Character Recognition and Image Processing Group - ABBYY.



Konstantin Anisimovich

An Inside Look into ABBYY OCR Technology

This keynote uncovers fundamental aspects of ABBYY FineReader OCR technology, the technology that empowers a series of ABBYY's software products.

Ideas behind FineReader technology are holistic approach and purposeful search. In top-to-bottom approach complex object is divided into simple ones that can be easily recognized. In bottom-to-top approach easily recognizable simple objects are combined to form a complex object. Holistic approach deals both with complex object as a whole and with its more simple parts, observing relationships between these parts. It considers different variants of divisions, combinations and recognition of parts in order to recognize the whole object.

FineReader applies holistic approach on the word level, taking word image as an input and producing a list of word recognition variants as an output of this level.

Each word is treated as a complex object consisting from more simple objects called graphemes. A "grapheme" concept is introduced and used alongside with "character" concept in order to differentiate shape and semantics. Division of a word into graphemes is redundant and is targeted to produce all reasonable variants of graphemes, not just the most probable ones. Several classifiers are used to produce recognition variants for each presumable grapheme. Separate classifier is used to order these variants. Results of division and recognition are represented as a Graph of Linear Division (GLD).

The context analysis stage works on GLD and assembles word recognition variants from graphemes recognition variants. Purposeful search principle is exploited and word variants are build according to a set of rules or grammars called "models". Models aim the search and help to avoid building word variants that are just arbitrary combinations of characters. Word variants are evaluated and ordered based on the set of features including (but not limited to) graphemes recognition quality, model type and geometrical features.

Further improvements can include promotion of holistic approach above the word level, fine-tuning using automated tools and large datasets and implementing on-the-fly adaptability.



DFKI Kaiserslautern – Germany

Document Evolution drives Document Analysis

Prof Andreas DENGEL

We are using text and graphic editors or other technical means, such as cameras, recorders, as well as messaging channels, all of which allow us to produce a document, i.e. a resource for furnishing information evidence or proving the information authenticity. As a result we obtain a preservation of an idea, an announcement, an incident, a solution, an accusation, etc. that may become a subject of study and interpretation. This could be a printed photograph or a sheet of paper with printed text, graphics, or writings, all of which in their specific and individual combination bear the original or legal form of something. When we take this attempt of a definition, then a document is associated with surfaces that capture the information, surfaces as they are employed for millenniums to distribute and preserve communication intends over time and space. The more we think about this very traditional view to a document, the more we are faced with raising challenges that are caused by the way we communicate these days that confronts us with the question: What is a document and what would a changing definition mean for the field of document analysis and recognition?

I am asking this question because I am convinced that it is time to redefine the target of our studies to a more open understanding of the term document. Therefore, in my talk I like to give an analytical view to our research field and address the various dimensions of a “modern” document trying to impulse a rethinking in understanding document analysis and recognition. Further, my intension is to stimulate a discussion about what might be research focus of our community in the coming years and how to attract people who study the nature of a document from a different perspective.



Design and management of Document Analysis systems ITESOFT – France

From Academia to Industry, the knowledge transfer in Document Analysis

Vincent POULAIN D'ANDECY

This keynote will cover the following topics:

- 1- Motivations of partnerships between academia and industry?
 - From heterogeneous interests to the creation of common goals to ensure convergent motivations
 - Division and complementarity of the competences of the both partners
- 2- Existing partnership tools, resources and best practices
 - Several key tools for effective technology transfer through practical examples
 - Feedbacks from experiences and personal suggestions
- 3- Perspectives and Opportunities in DAS field
 - What does make attractive these partnerships during DAS projects?
 - Evolutions and forces of the market
 - Beyond the images, New Trends and requirements in document analysis

Monday, April 7, 2014
Turing Amphitheater – Polytech’Tours

8:30		Tutorial 1
12:30	Everything you always wanted to know about Tesseract <i>Ray Smith - Google USA</i>	
12:30	Lunch	
14:00		Tutorial 2
14:00	Building Scalable Solutions for Document Retrieval and Recognition <i>C. V. Jawahar, IIT Hyderabad, India - Pramod Kompalli, Xerox Research Centre, India</i>	
19:15		Welcome Reception
22:30	at the city House of Tours	

Welcome reception

The welcome reception will be at the TOURS city House built in 1896 and 1904 by Victor Laloux (well-known architect born in Tours).

At this venue, it will be possible to experience typical local food (cheeses) and wine degustation.



Tuesday, April 8, 2014
Room Courteline - Vinci

8:30
9:00

Opening Ceremony

9:00 **IAPR Invited Talk - 1**
10:00 **Document Evolution drives Document Analysis**

Prof Andreas DENGEL - DFKI Kaiserslautern - Germany

Session chair: Jean-Marc Ogier

10:00 **Coffee break**
10:30 (Salon Agnes Sorel - Vinci)

10:30 **Oral-1 Document Classification and Retrieval**

11:30 Session chair: David Doermann

10:30 #14 - Plane Geometry Figure Retrieval with Bag of Shapes
10:50 *Lu Liu, Xiaoqing Lu, Keqiang Li, Jingwei Qu, Liangcai Gao, Zhi Tang*

10:50 #144 - Multiscale Stroke-Based Page Segmentation Approach
11:10 *Mehdi Felhi, Salvatore Tabbone, Maria V. Ortiz Segovia*

11:10 #95 - Business Forms Classification using Earth Mover's Distance
11:30 *Syed Saqib Bukhari, Markus Ebbecke, Michael Gillmann*

11:30 **Oral-2 Writer Identification and Verification**

12:30 Session chair: Alicia Fornés

11:30 #133 - Multiclass Learning for Writer Identification using Error-Correcting Codes
11:50 *Utkarsh Porwal, Chetan Ramaiah, Ashish Kumar, Venu Govindaraju*

11:50 #72 - A Hierarchical Framework for Accent Based Writer Identification
12:10 *Chetan Ramaiah, Venu Govindaraju*

12:10 #59 - Feasibility Study of Visualizing Diversity of Japanese Hiragana Handwritings by Multidimensional
12:30 Scaling of Earth Mover's Distance toward Assisting Forensic Experts in Writer Verification
Yoshinori Akao, Atsushi Yamamoto, Yoshiyasu Higashikawa

12:30 **Lunch**
14:00 (Salon Agnes Sorel - Vinci)

14:00 **Oral-3 Text detection and Correction**

15:20 Session chair: Vincent Poulain d'Andecy

14:00 #91 - Flexible Noisy Text Correction
14:20 *Andrey Sariev, Vladislav Nenchev, Stefan Gerdjikov, Petar Mitankin, Hristo Ganchev, Stoyan Mihov, Tinko Tinchev*

14:20 #129 - Planting, Growing, and Pruning Trees: Connected Filters Applied to Document Image Analysis
14:40 *Guillaume Lazzara, Thierry Géraud, Roland Levillain*

14:40 #33 - Text Detection Using Delaunay Triangulation in Video Sequence
15:00 *Liang Wu, Palaiahnakote Shivakumara, Tong Lu, Chew Lim Tan*

15:00 #42 - A Typed and Handwritten Text Block Segmentation System for Heterogeneous and Complex
15:20 Documents
Philippine Barlas, Sébastien Adam, Clément Chatelain, Thierry Paquet

15:20 **Coffee break**
16:00 (Salon Agnes Sorel - Vinci)

16:00
17:00

Oral-4 Handwritten Text recognition and Graph Edit distances

Session chair: Venu Govindaraju

16:00 #81 - A System for Recognizing Online Handwritten Mathematical Expressions and Improvement of
16:20 Structure Analysis
Anh Duc Le, Truyen Van Phan, Masaki Nakagawa

16:20 #40 - Curriculum Learning for Handwritten Text Line Recognition
16:40 *Jérôme Louradour, Christopher Kermorvant*

16:40 #6 - Iterative Bipartite Graph Edit Distance Approximation
17:00 *Kaspar Riesen, Rolf Dornberger, Horst Bunke*

17:00
17:30

Teasers-1

Session chair: Marçal Rusiñol

17:30
19:00

Poster-1

Session chair: Marçal Rusiñol

#104 - A Combined System for Text Line Extraction and Handwriting Recognition in Historical Documents
Andreas Fischer, Micheal Baechler, Angelika Garz, Marcus Liwicki, Rolf Ingold

#115 - Multi-oriented Text Recognition in Graphical Documents Using HMM
Partha Pratim Roy, Sangheeta Roy, Umapada Pal

#125 - Spotting Symbol Using Sparsity over Learned Dictionary of Local Descriptors
Thanh-Ha Do, Salvatore Tabbone, Oriol Ramos Terrades

#126 - Sequential Word Spotting in Historical Handwritten Documents
David Fernández-Mota, R. Manmatha, Alicia Fornés, Josep Lladós

#13 - NIST 2013 Open Handwriting Recognition and Translation (Open HaRT'13) Evaluation
Audrey Tong, Mark Przybocki, Volker Märgner, Haikal El Abed

#134 - Towards a Robust OCR System for Indic Scripts
Praveen Krishnan, Naveen Sankaran, Ajeet Kumar Singh, C.V. Jawahar

#137 - Holistic Recognition of Online Handwritten Words Based on an Ensemble of SVM Classifiers
Avinaba Srimany, Souvik Dutta Chowdhuri, Ujjwal Bhattacharya, Swapan Kr. Parui

#148 - Word-Graph Based Handwriting Key-Word Spotting: Impact of Word-Graph Size on Performance
Alejandro Héctor Toselli, Enrique Vidal

#154 - Text Classification via iVector Based Feature Representation
Shengxin Zha, Xujun Peng, Huaigu Cao, Xiandan Zhuang, Pradeep Natarajan, Prem Natarajan

#26 - A Context Based Text Summarization System
Rafael Ferreira, Frederico Freitas, Luciano de Souza Cabral, Rafael Dueire Lins, Rinaldo Lima, Gabriel França, Steven J. Simske, Luciano Favaro

#27 - Multilingual Off-Line Handwriting Recognition in Real-World Images
Michał Kozielski, Patrick Doetsch, Mahdi Hamdani, Hermann Ney

#36 - The Influence of Language Orthographic Characteristics on Digital Word Recognition
Ofer Biller, Jihad El-Sana, Klara Kedem

#51 - Multi-oriented Handwritten Annotations Extraction from Scanned Documents

Mohamed Benjlaiel, Rémy Mullot, Adel M. Alimi

#53 - Evaluation of Texture Features for Offline Arabic Writer Identification

Chawki Djeddi, Labiba-Souici Meslati, Imran Siddiqi, Abdellatif Ennaji, Haikal El Abed, Abdeljalil Gattal

#58 - Context-Dependent Confusions Rules for Building Error Model Using Weighted Finite State Transducers for OCR Post-Processing

Mayce Al Azawi, Thomas M. Breuel

#66 - A Cache Language Model for Whole Document Handwriting Recognition

Volkmar Frinken, Dimosthenis Karatzas, Andreas Fischer

#7 - The A2iA Arabic Handwritten Text Recognition System at the Open HaRT2013 Evaluation

Théodore Bluche, Jérôme Louradour, Maxime Knibbe, Bastien Moysset, Mohamed Faouzi Benzeghiba, Christopher Kermorvant

#73 - Printer Identification Using Supervised Learning for Document Forgery Detection

Sara Elkasrawi, Faisal Shafait

#74 - Local Binary Patterns for Arabic Optical Font Recognition

Anguelos Nicolaou, Fouad Slimane, Volker Maergner, Marcus Liwicki

#82 - Historical Chinese Character Recognition Method Based on Style Transfer Mapping

Bohan Li, Liangrui Peng, Jingning Ji

#85 - The RWTH Large Vocabulary Arabic Handwriting Recognition System

Mahdi Hamdani, Patrick Doetsch, Michał Kozielski, Amr El-Desoky Mousa, Hermann Ney

#88 - On-line Handwritten Mathematical Expression Recognition Method Based on Statistical and Semantic Analysis

Yang Hu, Liangrui Peng, Yejun Tang

Wednesday, April 9, 2014
Room Courteline - Vinci

8:40 **Oral-5a OCR, Word Spotting and Recognition** Session chair: Faisal Shafait
10:00

08:40 #28 - Combining Focus Measure Operators to Predict OCR Accuracy in Mobile-Captured Document
09:00 Images
Marçal Rusiñol, Joseph Chazalon, Jean-Marc Ogier

09:00 #9 - End-to-End Text Recognition Using Local Ternary Patterns, MSER and Deep Convolutional Nets
09:20 *Michael Opitz, Markus Diem, Stefan Fiel, Florian Kleber, Robert Sablatnig*

09:20 #89 - Adapting Tesseract for Complex Scripts: An Example for Urdu Nastalique
09:40 *Qurat ul Ain Akram, Sarmad Hussain, Aneta Niazi, Umair Anjum, Faheem Irfan*

09:40 #10 - Performance Improvement in Local Feature Based Camera-Captured Character Recognition
10:00 *Takahiro Matsuda, Masakazu Iwamura, Koichi Kise*

10:00 **Coffee break**
10:30 (Salon Agnes Sorel - Vinci)

10:30 **Oral-5b OCR, Word Spotting and Recognition** Session chair: Abdel Belaïd
11:30

10:30 #68 - OCR Performance Prediction Using a Bag of Allographs and Support Vector Regression
10:50 *Tapan Kumar Bhowmik, Thierry Paquet, Nicolas Ragot*

10:50 #35 - A Novel Learning-Free Word Spotting Approach Based on Graph Representation
11:10 *Peng Wang, Véronique Eglin, Christophe Garcia, Christine Largeton, Josep Lladós, Alicia Fornés*

11:10 #15 - Over-Generative Finite State Transducer N-Gram for Out-of-Vocabulary Word Recognition
11:30 *Ronaldo Messina, Christopher Kermorvant*

11:30 **Spotlight (10x1') Shortpaper poster+demo** (Salon Agnes Sorel - Vinci) Session chair: Andreas Fischer
12:30

#175 - A Hybrid Algorithm for Automatic Language Detection on Web and Text Documents
Luciano Cabral, Rinaldo Lima, Rafael Lins, Fred Freitas, Rafael Mello, Gabriel França, George D. C. Cavalcanti

#176 - A system for camera-based complex map image retrieval using a multi-layer approach
Quoc Bao Dang, Muhammad Muzzamil Luqman, Mickael Coustaty, Nibal Nayef, Jean-Marc Ogier, Cao De Tran

#177 - Dehyphenation by Classification for OCR Results
Mayce Al-Azawi, Thomas M Breuel

#178 - Efficient OCR Training Data Generation with Aletheia
Christian Clausner, Stefan Pletschacher, Apostolos Antonacopoulos

#179 - PaRADIIT Project: Main Concepts and Outcomes
Frédéric Rayar, Jean-Yves Ramel, Pascal Bourquin, Rémi Jimenes, Toshinori Uetani, Sandrine Breuil, Marie-Luce Demonet

#181 - An Android Application for Browsing and Searching in Historical Manuscripts
Alicia Fornés, Pau Riba, Josep Lladós

#182 - Boosting-based approaches for Arabic text detection in news videos
Sonia Yousfi, Sid-Ahmed Berrani, Christophe Garcia

#184 - A simple approach to distinguish between Maghrebi and Persian calligraphy in old manuscripts
Insaf Setitra, Abdelkrim Meziane

#185 - Categorizing a New Collection for Document Recognition Research
Barri Bruno, Daniel Lopresti

#187 - NOE-EDHI: A trans-disciplinary project to create a platform for demographic forms retro-conversion
Mickaël Coustaty, Alain Bouju, Pascal Chareille, Jean-Marc Ogier, Arnaud Bringé, Isabelle Seguy, Pierre Darlu

12:30 13:30	Lunch (Salon Agnes Sorel - Vinci)		
13:30 15:30		Discussion groups	Session chair: Marcus Liwicki
15:30 16:00	Coffee break (Salon Agnes Sorel - Vinci)		
16:00 16:45	An Inside Look into ABBYY OCR Technology <i>Vladimir Rybkin and Konstantin Anisimovich - ABBYY Europe</i>	IAPR Invited Talk - 2	Session chair: Koichi Kise
17:30 19:15	Visit of the Amboise Castle	Social Event	
19:15 22:30	Dinner at the Amboise Castle	Banquet	

Banquet



For the banquet, an historical dinner will be organized in one of the prestigious places such as Loire Valley castles (Amboise Castle). A visit of the castle will be organized before the dinner.

At this venue, it will be possible to experience traditional French entertainment, a typical gastronomic food and local wines.

Thursday, April 10, 2014
Room Courteline - Vinci

8:40 **Oral-6 Super-resolution and born digital document processing**
10:00 Session chair: Muhammad Muzzamil Luqman

08:40 #96 - CERMINE — Automatic Extraction of Metadata and References from Scientific Literature
09:00 *Dominika Tkaczyk, Pawel Szostek, Piotr Jan Dendek, Mateusz Fedoryszak, Lukasz Bolikowski*

09:00 #52 - End-to-End Conversion of HTML Tables for Populating a Relational Database
09:20 *George Nagy, Sharad Seth, David W. Embley*

09:20 #60 - Efficient Example-Based Super-Resolution of Single Text Images Based on Selective Patch Processing
09:40 *Nibal Nayef, Joseph Chazalon, Petra Gomez-Krämer, Jean-Marc Ogier*

09:40 #21 - Real-Time Document Image Super-Resolution by Fast Matting
10:00 *Yun Zheng, Xudong Kang, Shutao Li, Yuan He, Jun Sun*

10:00 **Coffee break**
10:30 (Salon Agnes Sorel - Vinci)

10:30-11:30 **Oral-7 Ground truthing and performance evaluation**
Session chair: Daniel Lopresti

10:30 #145 - Ground-Truth Production in the Transcriptorium Project
10:50 *Basilis Gatos, Georgios Louloudis, Tim Causer, Kris Grint, Verónica Romero, Joan Andreu Sánchez, Alejandro H. Toselli, Enrique Vidal*

10:50 #108 - An On-line Platform for Ground Truthing and Performance Evaluation of Text Extraction Systems
11:10 *Dimosthenis Karatzas, Sergi Robles, Lluís Gomez*

11:10 #20 - Ground-Truth and Performance Evaluation for Page Layout Analysis of Born-Digital Documents
11:30 *Xin Tao, Zhi Tang, Canhui Xu, Liangcai Gao*

IAPR Invited Talk - 3

11:30 **From Academia to Industry, the knowledge transfer in Document Analysis**
12:15 *Vincent POULAIN D'ANDECY - ITESOFT France*
Session chair: Ray Smith

12:15 **Lunch**
13:45 (Salon Agnes Sorel - Vinci)

13:45 **Teasers-2**
14:10 Session chair: Christophe Kermorvant

14:10 **Poster-2**
15:30 Session chair: Christophe Kermorvant

#117 - A Study to Achieve Manga Character Retrieval Method for Manga Images
Motoi Iwata, Atsushi Ito, Koichi Kise

#119 - Color Descriptor for Content-Based Drawing Retrieval
Christophe Rigaud, Dimosthenis Karatzas, Jean-Christophe Burie, Jean-Marc Ogier

#124 - Fast and Optimal Binary Template Matching Application to Manga Copyright Protection
Mathieu Delalandre, Motoi Iwata, Koichi Kise

#135 - Newspaper Article Extraction Using Hierarchical Fixed Point Model
Anukriti Bansal, Santanu Chaudhury, Sumantra Dutta Roy, J.B. Srivastava

#138 - A Two Level Algorithm for Text Detection in Natural Scene Images

Li Rong, Wang Suyu, Zhixin Shi

#162 - Recognition of Handwritten Mathematical Characters on Whiteboards Using Colour Images

Behrang Sabeghi Saroui, Volker Sorge

#166 - Forgery Detection Based on Intrinsic Document Contents

Amr Gamal Hamed Ahmed, Faisal Shafait

#169 - A Seed-Based Segmentation Method for Scene Text Extraction

Bo Bai, Fei Yin, Cheng Lin Liu

#19 - Logical Labeling of Fixed Layout PDF Documents Using Multiple Contexts

Xin Tao, Zhi Tang, Canhui Xu, Yongtao Wang

#30 - Robustness Assessment of Texture Features for the Segmentation of Ancient Documents

Maroua Mehri, Van Cuong Kieu, Mohamed Mhiri, Pierre Héroux, Petra Gomez-Krämer, Mohamed Ali Mahjoub, Rémy Mullot

#39 - Improving Classification of an Industrial Document Image Database by Combining Visual and Textual Features

Olivier Augereau, Nicholas Journet, Anne Vialard, Jean-Philippe Domenger

#41 - A New One-Class Classification Method Based on Symbolic Representation: Application to Document Classification

Fahimeh Alaei, Nathalie Girard, Sabine Barrat, Jean-Yves Ramel

#46 - The Robustness of a New 3D CAPTCHA

Qi Ye, Youbin Chen, Bin Zhu

#5 - Automatic Training Set Generation for Better Historic Document Transcription and Compression

Gabriel de França Pereira e Silva, Rafael Dueire Lins, Cesar Gomes

#56 - A New Laplacian Method for Arbitrarily-Oriented Word Segmentation in Video

Shivakumara Palaiahnakote, Mahamad Suhil, Devanur Guru, Chew Lim Tan

#57 - Separation of Graphics (Superimposed) and Scene Text in Video Frames

Shivakumara Palaiahnakote, N. Vinay Kumar, Devanur Guru, Chew Lim Tan

#67 - Design of Unsupervised Feature Extraction System for On-line Bangla Handwriting Recognition

Volkmar Frinken, Nilanjana Bhattacharya, Umapada Pal

#71 - AreCAPTCHA: Outsourcing Arabic Text Digitization to Native Speakers

Menna Bakry, Mohamed Khamis, Slim Abdennadher

#77 - Text Line Segmentation Based on Matched Filtering and Top-Down Grouping for Handwritten Documents

Youbao Tang, Xiangqian Wu, Wei Bu

#80 - Land Map Images Binarization Based on Distance Transform and Adaptive Threshold

Samit Biswas, Sekhar Mandal, Amit Kumar Das, Bhabatosh Chanda

#83 - Graph Model Optimization Based Historical Chinese Character Segmentation Method

Jingning Ji, Liangrui Peng, Bohan Li

#84 - The Maudor Project: Improving Automatic Processing of Digital Documents

Sylvie Brunessaux, Patrick Giroux, Bruno Grilhères, Mathieu Manta, Maylis Bodin, Khalid Choukri, Olivier Galibert, Juliette Kahn

#92 - Empirical Evaluation of CRF-Based Bibliography Extraction from Reference Strings

Manabu Ohta, Daiki Arauchi, Atsuhiko Takasu, Jun Adachi

#97 - A Complete Logo Detection/Recognition System for Document Images

Alireza Alaei, Mathieu Delalandre

Programs for accompanying people

There are numerous attractions in and around Tours city and Loire Valley for accompanying people. Customized half-day or full-day trips in Touraine / Loire Valley can be organized by many local incoming agencies. But it is also possible to organize the visits by yourself by using buses, train or by renting a car.

Not to be missed:

- The impressive medieval and Renaissance heritage (castles, rivers, vineyards, ...)
- Local wines and gastronomy : A richness in gastronomy with several traditional restaurants cooking local high-quality products such as goat cheese, pork specialties, vegetables and fruits,
- The Loire valley possesses some well-known wines and vineyards like Chinon, Bourgueil... for red wines and Vouvray, Montlouis for white and sparkling wines....
- Residences of famous artists: Leonardo da Vinci, Rabelais, Balzac, Ronsard, Calder

Furthermore, original activities for incentives and team building: cooking courses in chateaux, treetop adventure trails, oenological games, dune buggy tours in the vineyards, balloon flights for small groups, quad bikes, canoe, golf, cycling “on the Loire by Bike” itineraries...

Examples of possible tours

- http://www.tours-tourisme.fr/excursions_en.php: The castles of the Loire valley by minibus from Tours, all inclusive Châteaux in Loire Valley and Vineyards by minibus, private tour in Loire Valley Minibuses 9 seats, Castles by air
- <http://www.tours-tourisme.fr/guided-tours.html>: Visit of Tours city organized by the Tourist Office of Tours
- <http://www.tours-tourisme.fr/tours-museums.html>: Museums in Tours
- <http://www.tours-tourisme.fr/parks-and-gardens.html>: Parks and Garden in Tours



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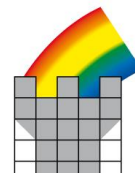
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