30th International Conference on Conceptual Modeling

October 31 - November 3, 2011
Brussels, Belgium

http://er2011.ulb.ac.be
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Welcome Message By The General Chairs

Welcome to ER 2011!

On behalf of the conference committee for ER 2011, it is our pleasure to welcome you to Brussels, Belgium for the 30th International Conference on Conceptual Modeling. We devoted all our energy to make it a scientific, social, and artistic success.

Belgium has a long tradition, rooted in the early 1970s, in database research and particularly in database modeling. This 30th ER conference was organized by the CoDE research department of the Université libre de Bruxelles and the PReCISE Research Center of the Université de Namur, both very active in the database community.

Belgium is also the country of beer, character cheese, French fries, comic strips, Art Nouveau, and surrealism, but above all of institutional intricacy. This was thus the ideal venue for an anniversary conference of a series devoted to reducing and mastering information system complexity.

Nothing would have been possible without the unfailing and experienced contribution of the ER Steering Committee as well as the Program, Publicity, Workshop, Tutorial, Panel, Industrial Track (a new one), Demos and Posters, and Doctoral Consortium Chairs and Committees. Organizing such a wide-scope international conference and making it a success requires countless competences, ranging from financial manager to webmaster. They all did an excellent job. Special thanks also to our sponsors and sister scientific societies for their support: Microsoft Research, NSF, Euranova, IBM, FNRS, FWO, Intergraph, Springer, la Ville de Bruxelles, OM Partners, CETIC, Océ, ReveR, ACM SIGMIS, ACM SIGMOD, as well as the Université libre de Bruxelles and the Université de Namur.

Finally, there is no scientific conference without high-quality contributors, attendees, and readers: thanks to all of you.

On behalf of all the persons and partners that contributed to making this conference a success, we hope you will find this conference scientifically and socially exciting and fruitful, and give it a go ahead for the next 30 years.

Esteban Zimányi
Jean-Luc Hainaut
Foreword By The Programme Chairs

The ER conference is the leading international forum for presenting research results and discussing future trends in conceptual modeling. ER 2011 was the 30th such meeting and took place in Brussels, the vibrant “capital” of Europe.

While keeping a strong focus on conceptual modeling, the ER conference has always been open to new trends, such as goal modeling and process modeling. In 2011, the extension of conceptual modeling to requirements engineering, human and social factors in modeling, ontologies, model development and evolution, and data model theory were major trends among the papers accepted for the main conference.

The program committee received 157 submissions to the main programme. Each paper was reviewed by at least three members of the programme committee. Additionally, six senior reviewers moderated the discussion on disputed papers and wrote meta reviews when necessary. The PC meeting ultimately decided to accept 39 papers of excellent academic quality for the main programme, of those were 25 regular-length papers and 14 short papers. The overall acceptance rate was thus 24.8%. The acceptance rate of regular-length papers is 15.9%. The reason for the distinction between regular-length and short papers was the observation that quite a number of submissions had a very good technical quality, but were not yet fully validated or had some comments on relevance or others. So, the PC wanted these papers in the main programme but have them in some sense distinguished from the regular-length papers.

The scientific programme included three keynote talks by Carson Woo, Stefano Spaccapietra, and Alon Halevy, spanning the whole breadth of conceptual modeling. The proceedings also include a summary of the panel discussion, and of the tutorial programme. We like to thanks all authors for submitting their work, the programme committee members for writing reviews and participating in lively discussions, the six senior reviewers for processing all the reviews and creating recommendations.

Manfred Jeusfeld
Lois Delcambre
Tok Wang Ling
The Conference Venue

The Hotel Brussels

All conference sessions are held at The Hotel Brussels (formerly Hilton Brussels) along the Boulevard de Waterloo, surrounded by upscale boutiques, bars and restaurants, only a short ride away from the European Union buildings, the boutiques and antiques of the Sablon area, the Mont des Arts, Magritte Museum, Centre for Fine Arts, and the Grand Place.

Access

Public transportation: the hotel stands a short walk from either Louise or Porte de Namur metro stations, both on lines 2 and 6 (see Metro map on p.8). A number of bus and tram lines also stop close by. More information and trip planning at http://www.stib.be/index.htm?l=en

By train: the hotel is only a few minutes away by metro from Brussels South (Brussels Midi/Zuid in French/Dutch), a high-speed rail hub with great connections to France, Holland, Germany, England and most other European countries. Just take Metro line 2 or 6 for three stops, alight at Louise and walk to the hotel.
By air: most flights land at Brussels National Airport (BRU). The train station at the lowest level has regular service to Brussels South railway station (from there see “by train”.) You can also take a cab, which will probably be slightly faster but costs about 30-40€. Some low-cost flights (most notably from Ryan Air) land at Brussels South/Charleroi airport (CRL). Regular shuttle busses go to Brussels South railway station in about an hour (from there see “by train”).

By road: head for the centre of the city until you reach the “petite ceinture” or “small belt”, a set of pentagon-shaped streets and tunnels surrounding the old city, and follow it until you get to Porte de Namur or Louise. The hotel is on Boulevard de Waterloo, the street linking these two points. Google Maps ([http://maps.google.be/maps?q=Brussels](http://maps.google.be/maps?q=Brussels)) gives great directions inside Brussels.

Traffic in Brussels can be painful. If possible, plan to get there before 7 AM or after 7 PM, and avoid at all cost entering Brussels between 7 AM and 10 AM unless it is your express desire to be stuck in a traffic jam for two hours.

**Hotel Location**
Conference Floor Map

Conference Rooms, First Floor

Lunch Room, 27th Floor
Social Events

Welcome Reception

**Monday, October 31**
7:30 PM to 9:30 PM

City Hall (Hôtel de Ville)
Grand-place, 1
1000 Brussels
(20 minutes walk from the hotel)

Additional tickets are available for purchase for €30 each.

The Welcome reception will take place in Brussels’s City Hall, the most iconic building along a city square that is a jewel of gothic architecture and a UNESCO World Heritage site.

Built around six centuries ago, the building is topped by a 96 metre (310 ft) high tower in Brabant Gothic style topped by a 5 metre-high gilt metal statue of the archangel Michael, patron saint of Brussels, slaying a dragon. Its facade, decorated with numerous statues representing nobles, saints, and allegorical figures, is also whimsically asymmetrical. Legend has it that the architect only noticed this towards the end of construction, and horrified by his “error” leapt to his death from the tower. More likely, the asymmetry of the Town Hall was an accepted consequence of the scattered construction history and space constraints.

After the bombardment of Brussels in 1695 by a French army under the Duke of Villeroi, the resulting fire completely gutted the Town Hall, destroying the archives and the art collections. The interior was soon rebuilt, and the addition of two rear wings transformed the L-shaped building into its present configuration: a quadrilateral with an inner courtyard completed by Corneille Van Nerven in 1712. The Gothic interior was revised by Victor Jamar in 1868 in the style of his mentor Viollet-le-Duc. The halls have been replenished with tapestries, paintings, and sculptures, largely representing subjects of importance in local and regional history.

Besides its architectural magnificence, the city hall is also a cherished historic place for Belgians, having housed its very first government after the revolution of 1830 that made Belgium an independent country.

In the building’s fabled Gothic Room, one of the most magnificent reception halls of Belgium, we’ll enjoy a selection of beverages and canapés in the best tradition of Belgian fine dining.
Beer Tasting Event

**Tuesday, November 1st**
7:30 PM to 9:30 PM

**Delirium Café**
Impasse de la fidélité, 4A
1000 Brussels
(20 minutes walk from the hotel)


*Additional tickets are available for purchase for €20 each.*

Much of Belgium’s charm comes to its extensive devotion to good eating and drinking. The small country makes over 450 different varieties of beer, and even goes to the trouble of designing specific beer glasses for many of them, so that the specific flavors of the beer come across perfectly.

You’ll have the opportunity to discover some of these in our beer tasting event at the “Delirium café.” This small establishment in the center of the old town holds the Guinness Book of Records for serving more brands of beers than any other café in the World — more than 2000 at last count. You’ll probably get hungry long before trying them all, and luckily the neighborhood is full of great restaurants serving traditional Belgian food, as well as many offerings of Mediterranean and Asian cuisine — truly something for every palate.
Conference Dinner

**Wednesday, November 2**
*7:30 PM to midnight*

**Belgian Center for Comic Strip Art**
Rue des Sables, 20
1000 Brussels
(25 minutes walk from the hotel or 8 minutes from Botanique metro station)

http://www.comicscenter.net/en/home

*Additional tickets are available for purchase for € 100 each.*

We’re very pleased to have found a truly exceptional place for hosting the conference dinner. The Belgian Comic Strip Center is housed in a magnificent Art Nouveau temple (architect Victor Horta, 1906) and since its opening in 1989 has become one of Brussels major tourist draws. Every year more than 200,000 visitors come here to explore 4,200 m$^2$ worth of permanent and temporary exhibitions.

With more than 700 comic strip authors, Belgium has more comic strip artists per square kilometre than any other country in the world! It is here that the comic strip has grown from a popular medium into an art in its own right. Nowhere else comics are so strongly rooted in reality and in people’s imagination. This kingdom of the imagination is home to some of Belgium’s best-known comic strip heroes: Tintin, Spirou, Bob and Bobette, the Smurfs, Lucky Luke, Blake and Mortimer, Marsupilami, etc.

We hope this unique building and the world-class meal we’ll enjoy there will make for a memorable networking event and a fitful closing for the conference.
General Information

General Enquiries

The Registration Desk will be open for the duration of the conference at the following hours

- Sunday October 30, 5 PM to 7 PM
- Monday October 31, 8 AM to 6 PM
- Tuesday November 1, 8 AM to 6 PM
- Wednesday November 2, 8 AM to 6 PM
- Thursday November 3, 8 AM to 2 PM

All enquiries during the conference can be directed there.

For all conference registration and logistics queries before the conference, please contact:

Stijn VANSUMMEREN
Université libre de Bruxelles

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Email: svsummer@ulb.ac.be

Post: Department of Computer & Decision Engineering (CoDE)
CP 165/15
50 avenue F.D. Roosevelt
1050 Bruxelles
Belgique

Name Tags

Please wear your name tag at all times during the conference, including the welcome reception and conference dinner. You may be asked to present your name tag.

Note to Speakers

All speakers are requested to present themselves to the session chair 15 minutes before the start of their session.

Please ensure your PowerPoint is loaded well in advance of your presentation time. Please visit the registration desk if you have any questions or for further details.

Lunches, Morning and Afternoon Coffees and Teas

Morning and afternoon coffees and teas will be served at the corridor in front of the conference rooms and the cloak room.
Lunches will be served at the restaurant “En Plein Ciel” which is located on the top floor of the hotel with a beautiful panoramic view of the city.
See the Conference Floor Maps p. [3]

**Urgent Messages**

Urgent messages for delegates can be directed to the registration desk. Messages will be held at the registration desk for collection and the recipient will be notified via a notice board.

**Internet Access**

Complimentary wireless internet access is available for the duration of the conference at the conference venue.

**Mobile Phones, Pagers & Laptop Sound**

As a courtesy to presenters and colleagues, please ensure that all mobile phones, pagers and sound from your laptop are switched off during the conference sessions.

**Extra Tickets for the Social Activities**

Delegates will receive at registration their tickets for the social activities (see p. [9]). Tickets are to be displayed at each event. If you have misplaced your tickets or have not received them, please contact the staff at the registration desk.

Additional tickets are available for purchase subject to availability at a cost of

- € 30 for the Welcome Reception.
- € 20 for the Beer Tasting Event.
- € 100 for the Conference Dinner.

**Conference Parking**

The Hotel has a large availability of parking spaces located within their premises. These parkings are not free. Please ask the reception of The Hotel information in this regard.

**No Smoking Policy**

Delegates should be aware that smoking is banned in Belgium in all public buildings, restaurants, bars, and public areas in hotels.

**Money**

Belgium’s unit of currency is the Euro. Coins have values of 1, 2, 5, 10, 20, and 50 cents, € 1 and € 2. Notes have a value of € 5, € 10, € 20, € 50, € 100, € 200 and € 500. Foreign currency can easily be exchanged at banks and exchange counters (*bureau de change*), for example at the airport.
General Information

Visa, Master Card, Maestro and Cirrus are accepted by most big shops and restaurants in Belgium, and some also take American Express. Most bars and small shops only take cash. Travellers cheques are accepted in hotels, banks and some stores.


Electricity

Electricity is supplied throughout the country at 230 volts, 50 hertz, which most small adapters (for laptops and cell-phones) from anywhere in the world are compatible with, although checking for this on the adapter before plugging in is recommended.

Tipping

All displayed prices include all taxes (generally VAT of 6% or 21% depending on the product), and service is always included in restaurants and bars, so tipping is not mandatory in Belgium.

That said, it’s not frowned upon either. If you receive excellent service, tipping around 10% or more will certainly be appreciated.

Banking

Banks are generally open Monday to Friday between 9 AM – 5 PM, and Saturday morning. Note that most branches are now entirely automated and don’t carry cash outside their ATM machines, so if for some reason you need to withdraw money but can’t do it on an ATM, you might need to head to one of the bigger branches. Your hotel can probably help you find one.

Sending a Postcard

Stamps are sold in post offices and most bookshops and libraries. You can post your letter in one of the street letterboxes (red) or in a post office.

Train to the Airport

Going from the conference hotel to Brussels Airport (BRU) takes less than 40 minutes. Walk to Louise metro station (5 min) then take the metro to Brussels South Railway station (5 min). From there, the “Airport Express” train will take you to the airport in about 25 minutes.

If you’re flying out from Charleroi/Brussels South airport (CRL), take the Ryan Air shuttle bus from Brussels South railway station. Check [http://www.ryanair.com](http://www.ryanair.com) for schedule.
A Brief History Of Brussels

Brussels was born around 979. The development of the city is marked by 3 big periods. The first one is situated between the 11th and the first half of the 12th century, the second one between the 13th and the 14th century and the last one between the 17th and the 18th century.

At the end of the 10th century, the current territory of Belgium belonged, partially to the emperor of the Germanic Saint Empire (roughly, South half of the country) and to the king of France (roughly, North half of the country). The emperor Otton III wished to watch the count of Flanders, vassal of the king of France, and to prevent him from entering his Empire. He thus handed over lands to his vassal, the duke of Basse-Lotharingie, asking him to build a fort there.

A fort

The natural site of the islands of Senne, defended by the river and the swamps, appeared to agree perfectly. Charles of France, duke of Basse-Lotharingie, installed a fort here around 979. Next to this fort the city of Brussels originated. The site attracted lots of traders. In the North, the river became indeed navigable. They installed a little port there, a modest hamlet where inhabitants settled for their agricultural and commercial activities.

In the military and state-owned fort a port emerged, which attracted the inhabitants. A square was converted into a market. It took the name of Nedermerct, the origin of the future Grand-Place. This stage of pre-urban development is situated between 1000 and 1150. Around the same time, on one of the hills around the Senne, the church Saint Michel was built, in the place of a former Carolingian church and near a village. On another hill, in the Coudenberg, the count of Louvain, heir of the rights of the duke of Basse-Lotharingie, built a castle. The fort of the 10th century was abandoned.

The motive remains unclear. Did the count wish, for strategic reasons, to move his housing environment on a hill? Or did he look for a more pleasant place, away from the urban community? Historians and archaeologists wonder. The urban nucleus grows between these three zones: the port, the church Saint Michel and the castle of the Coudenberg. A population absorbed in commercial, craft and rural activities, settled down at first on the right bank, in front of the islands, then extended also eastwards of the hill of the Coudenberg, to avoid the floods.

First wall

A first wall was built around the village in the 12th century. Certain historians place it at the beginning of the century, the others toward the end. The wall had a length of 4 kilometres with 50 towers and 7 doors. Some of these can still be seen in the city today. In the 13th and 14th century, this wall became too narrow to contain all the population. Worker districts had even been established outside. The increase of the population was explained by a demand of manpower, justified by the prosperity of the local industries. So, a second wall was built in the 4th quarter of the 14th century. It would contain the population of the city till the end of the 18th century.

In the 17th and 18th century, the increase of the urban populating entailed the reproduction and the diversification of markets, the creation of specialized markets and market halls. Most of the markets occupied spaces around the Grand-Place. The most cumbersome markets were held near the first wall. The first halls must have been built in the 13th century. They became vaster or more numerous from the 14th century onwards.

The first public buildings appeared later. The construction of a belfry and a modest municipal hall took place only in the course of the 14th century, on the Grand-Place. In the bend of the 14th and 15th
A Brief History Of Brussels

century, this first municipal hall was replaced by what constitutes the left wing of the current Gothic building today. The right wing was built in the middle of the 15th century.

**Bombardment**

At the end of the 17th century, a drama happened in the city of Brussels: the bombardment of the city by the French people during the campaigns of Louis XIV against Spain. The evaluations of the scale of the disaster diverge a little, but it seems that some 3,800 houses, 11 churches and numerous convents were destroyed. Hundreds of houses were badly damaged. Approximately a quarter of the city was in ruin. The disaster especially struck the centre. The Grand-Place was ravaged. On the other hand, the cathedral Saint Michel was saved, as well as the district of the palace. Less than 40 years later, in 1731, a violent fire destroyed the palace of the Coudenberg. It was not immediately reconstructed. The architecture of the palace did not correspond to the tastes of the time anymore. This destruction prepared the start for the development of the district of the current Place royale. The whole took got a neo-classic style.

**Revolution**

In 1830, the Belgian revolution took place in Brussels after a performance of Auber’s opera La Muette de Portici at the La Monnaie theatre. On 21 July 1831, Leopold I, the first King of the Belgians, ascended the throne, undertaking the destruction of the city walls and the construction of many buildings. Following independence, the city underwent many more changes. The Senne had become a serious health hazard, and from 1867 to 1871 its entire course through the urban area was completely covered over. This allowed urban renewal and the construction of modern buildings and boulevards characteristic of downtown Brussels today. The 1927 Solvay Conference in Brussels was the first world physics conference. During the 20th century the city has hosted various fairs and conferences, including the fifth Solvay Conference in 1927 and two world fairs: the Brussels International Exposition of 1935 and the Expo '58.

**Europe**

Brussels suffered damage from World War II, though it was minor compared to cities in Germany and the United Kingdom. After the war, Brussels was modernized for better and for worse. The construction of the North–South connection linking the main railway stations in the city was completed in 1952, while the first Brussels premetro was finished in 1969, and the first line of the Brussels Metro was opened in 1976. Starting from the early 1960s, Brussels became the de facto capital of what would become the European Union, and many modern buildings were built. Unfortunately, development was allowed to proceed with little regard to the aesthetics of newer buildings, and many architectural gems were demolished to make way for newer buildings that often clashed with their surroundings, a process known as Brusselization. The Brussels-Capital Region was formed on 18 June 1989 after a constitutional reform in 1970. The Brussels-Capital Region was made bilingual, and it is one of the three federal regions of Belgium, along with Flanders and Wallonia.

**Sources**

- A. Smolar-Meynart and J. Stengers (s dir. of), La Région de Bruxelles. Des villages d’autrefois à la ville d’aujourd’hui, (Brussels), municipal Credit of Belgium, 1989, p. 45-79 (synthesis of the Unit of didactics in history of the UCL) via [http://www.brussels.be](http://www.brussels.be)
Brussels Points Of Interest

Conference Venue

The Hotel Brussels
Boulevard de Waterloo, 38
1000 Brussels, Belgium
+32 2 504 11 11
http://www.thehotel.be

Brussels Tourism Office (VISITBRUSSELS)

Rue Royale 2
1000 Brussels
+ 32 2 513 89 40
Open daily 10 AM to 6 PM

Or:

Town Hall of Brussels
Grand-Place
1000 Brussels
Open daily 10 AM to 6 PM
info@visitbrussels.be
http://visitbrussels.be

Hotels

Please visit http://er2011.ulb.ac.be/accomodation

Culture in Brussels

The culturally inclined will find plenty to do in Brussels. While best-known for Art Nouveau architecture, Flemish renaissance painters, and comic strip arts, where Brussels is second-to-none, the capital of Europe offers plenty to fans of contemporary and classical music, cinema, theater, graphical arts and fashion.

You’ll find information about current events in any copy of local city newspapers Zone 02, Agenda or The Bulletin, all available for free in most cafes. In the following sections we list what we think are the more interesting venues to check out for evening entertainment.
Brussels Points Of Interest

Theaters

- Théâtre des Galleries [http://www.trg.be]
- Théâtre Royal de la Monnaie [http://www.lamonnaie.be]
- Théâtre Royal du Parc [http://www.theatreduparc.be]
- Théâtre National [http://www.theatrenational.be]
- Théâtre Varia [http://www.varia.be]
- Théâtre Le Public [http://www.theatrelepublic.be]
- Théâtre de la Place des Martyrs [http://www.theatredesmartyrs.be]
- Théâtre du Rideau [http://www.rideaudebruxelles.be]
- Koninklijke Vlaamse Schouwburg [http://www.kvs.be]

Cinemas

- UGC Toison d’Or [http://www.ugc.be]
- UGC De Brouckère [http://www.ugc.be]
- Cinéma Vendôme [http://www.cinema-vendome.be]
- Cinéma Arenberg-Galeries [http://www.arenberg.be]
- Kinepolis Bruxelles [http://www.kinepolis.be]
- Actor’s Studio [http://actorsstudio.cinenews.be]
- Cinéma Nova [http://www.nova-cinema.org]

Museums

- Musées Royaux d’Art et d’Histoire [http://www.kmkg-mrah.be]
- Musées Royaux des Beaux Arts de Belgique [http://www.fine-arts-museum.be]
- Musical Instruments Museum [http://www.mim.be]
- Musée Magritte Museum [http://www.musee-magritte-museum.be]
- Musée BELvue [http://www.belvue.be]
- Natural Sciences Museum of Belgium [http://www.naturalsciences.be]
- Horta Museum [http://www.hortamuseum.be]
- Royal Museum for Central Africa [http://www.africamuseum.be]
- Belgian Comic Strip Center [http://www.stripmuseum.be]
- Autoworld [http://www.autoworld.be]
- Musée Royal de l’Armée [http://www.klm-mra.be]
Brussels Points Of Interest

Shopping

- Galeries Royales Saint-Hubert (The world’s oldest shopping mall.)
- Galeria Inno (Department store for fashion and cosmetics.)
- Brüsel, 100 Boulevard d’Anspach (Best in town for contemporary comics.)
- Pele-Mele, 55 Boulevard Lemonnier (Huge second-hand bookshop.)
- Pierre Marcolini sells some of the world’s best chocolates. [http://www.marcolini.be](http://www.marcolini.be)
- Beer Mania [http://www.beermania.be](http://www.beermania.be) has 400 beers for sale.

Sightseeing

- Grand-Place and the Sacred Isle are probably the most visited tourist neighborhoods in Brussels
- Manneken Pis
- Botanical Gardens
- The Atomium (Sort of the Belgian Eiffel tower, less impressive but nerdier.)
- European Union buildings around Schuman metro station

Restaurants

- Falstaff, one of Brussels’ oldest eateries, serves Belgian cuisine in a art nouveau decor every day until 2AM
- Place St-Géry and the Bourse have many Asian restaurants (mainly Thai and Chinese)
- Place Sainte-Catherine is the place to be for seafood, whether traditional mussels-in-white-whine or fancy lobster dishes
- Maison Antoine, on Place Jourdan, sells arguably the best fries in Brussels
- Chez Oki, 62, Rue Lesbroussart has creative Japanese-French fusion fare at reasonable prices
- Sea Grill is close to the hotel and one of the very best restaurants in Brussels. Carries two Michelin stars and is not cheap. [http://www.seagrill.eu](http://www.seagrill.eu)

Bars and Clubs

- Place St-Géry has many great places for a night out, centered on a former covered market turned into a trendy café with a club down the stairs
- The student neighborhood is around Cimetière d’Ixelles, a few stops from Porte de Namur on the 71 bus
Move In Brussels

STIB / MIVB

The public transportation network relies on a combination of metro, trams, trains and busses. You can buy a single ticket as you get on a bus or a tram, for € 2. That ticket remains valid for the next hour, even if you change vehicle.

It is usually better to buy tickets in advance, either in bookshops, libraries, or STIB counters in the bigger metro and train stations. You probably won’t be able to use automated vending machines because these – ridiculously – only accept Belgian debit cards. You can get 10 trips for € 12.50 or 3 days unlimited for € 9.50.

Most of the metros, trams and busses operate until midnight, but stop soon afterwards and don’t come back until 6AM.

Villo

Villos are rentable bikes found at automated stations everywhere around Brussels. If you don’t mind the exercise they can be the most convenient way of getting around, especially at night when busses become less frequent. Renting a bike is easy and only requires a Visa or MasterCard. More info on http://www.villo.be/

Taxi

Taxis queue up in many waiting areas around the popular parts of town (e.g., the Bourse or Porte de Namur) but it is often more convenient to call one directly:

- Taxis bleus: +32 2 268 00 00
- Taxis verts: +32 2 349 49 49
Full Program

Monday 08:30-09:00

Opening Ceremony
Room: Louise 1a

Monday 09:00-10:30

Keynote 1: The Role of Conceptual Modeling in Managing and Changing the Business

Carson Woo (University of British Columbia, Canada)
Room: Louise 1a
Chair: Tok Wang Ling (National University of Singapore, Singapore)
Abstract: p. 55

Monday 11:00-12:30

ER 1 - Modeling Goals and Compliance
Room: Louise 1a
Chair: Matthias Jarke (Aachen University, Germany)
CSRML: A Goal-Oriented Approach to Model Requirements for Collaborative Systems
Miguel A. Teruel, Elena Navarro, Víctor López-Jaquero, Francisco Montero, and Pascual González
Establishing Regulatory Compliance for Software Requirements
Silvia Ingolfo, Alberto Siena, and John Mylopoulos
Making Explicit some Implicit i* Language Decisions
Lidia López, Xavier Franch, and Jordi Marco

MoRe-BI Keynote 1: Modeling management information

Arthur E. Overlack (Altran, The Netherlands)
Room: Louise 1b
Chair: Ivan Jureta (Université de Namur, Belgium)
Abstract: p. 41

MoRe-BI 1 - Multidimensional Modeling
Room: Louise 1b
Chair: Ivan Jureta (Université de Namur, Belgium)
A model-driven approach for enforcing summarizability in multidimensional modeling
Jose-Norberto Mazón, Jens Lechtenbörger and Juan Trujillo
A Comprehensive Framework on Multidimensional Modeling
Oscar Romero and Alberto Abelló
CICM Panel 1: SOA, C4ISR, Software Architecture
Panelists: John Callahan, Paul Losiewicz, T.C. Ting, Peter Chen, and others
Room: Louise 3b
Chair: Arne Solberg (Norwegian University of Science and Technology, Norway)

Monday 14:00-15:30
ER 2 - Human and Socio-Technical Factors
Room: Louise 1a
Chair: Bernhard Thalheim (Kiel University, Germany)

The Impact of Perceived Cognitive Effectiveness on Perceived Usefulness of Visual Conceptual Modeling Languages
Kathrin Figl and Michael Derntl

Effects of External Conceptual Models and Verbal Explanations On Shared Understanding in Small Groups
Wolfgang Maass, Veda C. Storey, and Tobias Kowatsch

Sociotechnical Trust: An Architectural Approaches
Amit K. Chopra, Elda Paja, and Paolo Giorgini

MoRe-BI 2 - Ontologies and Classification
Room: Louise 1b
Chair: Jose-Norberto Mazón (Universidad de Alicante, Spain)

Semantic Cockpit: An Ontology-driven, Interactive Business Intelligence Tool for Comparative Data Analysis
Bernd Neumayr, Michael Schrefl and Konrad Linner

Repairing Dimension Hierarchies under Inconsistent Reclassification
Monica Caniupan and Alejandro Vaisman

Ontologies and Functional Dependencies for Data Integration and Reconciliation
Abdelghani Bakhtouchi and Ladjel Bellatreche

Poster & Demo Session
Room: Louise 3a

An Eclipse Plugin for Validating Names in UML Conceptual Schemas
David Aguilera, Raúl García-Ranea, Cristina Gómez, and Antoni Olivé

KEYRY: a Keyword-based Search Engine over Relational Databases based on a Hidden Markov Model
Sonia Bergamaschi, Francesco Guerra, Silvia Rota, and Yannis Velegrakis

VirtualEMF: a Model Virtualization Tool
Caué Clasen, Frédéric Jouault, and Jordi Cabot

Towards a model-driven framework for Web usage warehouse development
Paul Hernández, Octavio Glorio, Irene Garrigós, and Jose-Norberto Mazón

CRESCO: Construction of Evidence Repositories for Managing Standards Compliance
Rajwinder Kaur Panesar-Walawege, Torbjorn Skyberg Knutsen, Mehrdad Sabetzadeh, and Lionel Briand
Modeling Approach for Business Networks with an Integration and Business Perspective
Daniel Ritter and Ankur Bhatt

Mosto: Generating SPARQL Executable Mappings Between Ontologies
Carlos R. Rivero, Inma Hernández, David Ruiz, and Rafael Corchuelo

The CSTL Processor: A Tool for Automated Conceptual Schema Testing
Albert Tort, Antoni Olivé, and Maria-Ribera Sancho

A Tool for Filtering Large Conceptual Schemas
Antonio Villegas, Maria-Ribera Sancho and Antoni Olivé

Tutorial 1: Towards a theory of search queries
Jan Van den Busche (Hasselt University, Belgium)
Room: Louise 3b
Abstract: p. 37

Monday 16:00-17:30

ER 3: User Interfaces and Software Classification
Room: Louise 1a
Chair: Avigdor Gal (Technion - Israel Institute of Technology, Israel)

From Pattern-based User Interfaces to Conceptual Schemas and Back
Ravi Ramdoyal and Anthony Cleve

Automatically Mapping and Integrating Multiple Data Entry Forms into a Database
Yuan An, Ritu Khare, Il-Yeol Song, and Xiaohua Hu

External Variability of Software: Classification and Ontological Foundations
Iris Reinhartz-Berger, Arnon Sturm, and Yair Wand

MoRe-BI Keynote 2: Business Continuity Management
Philip Taylor (SAP Research, UK)
Room: Louise 1b
Chair: Stéphane Faulkner (Université de Namur, Belgium)
Abstract: p. 42

MoRe-BI 3 - Models and Concepts
Room: Louise 1b
Chair: Stéphane Faulkner (Université de Namur, Belgium)

GrHyMM: a Graph-oriented Hybrid Multidimensional Model
Francesco Di Tria

Formal Concept Analysis for Qualitative Data Analysis over Triple Stores
Frithjof Dau and Baris Sertkaya

Poster & Demo Session
Room: Louise 3a
CICM Panel 2: Incorporating Security in Conceptual Modeling

Panelists: John Callahan, Paul Losiewicz, T.C. Ting, Mark Elmore, Peter Chen, and others

Room: Louise 3b
Chair: Arne Solberg (Norwegian University of Science and Technology, Norway)

Tuesday 09:00-10:30

Keynote 2: Adding Meaning to your Steps

Stefano Spaccapietra (EPFL, Switzerland)

Room: Louise 1a
Chair: Lois Delcambre (Portland State University, USA)
Abstract: p. 36

Tuesday 11:00-12:30

ER 4 - Data Model Theory

Room: Louise 1a
Chair: Jacky Akoka (National Conservatory of Arts and Crafts, France)

Querying Conceptual Schemata with Expressive Equality Constraints
Andrea Cali, Georg Gottlob, and Andreas Pieris

A Precious Class of Cardinality Constraints for Flexible XML Data Processing
Flavio Ferrarotti, Sven Hartmann, and Sebastian Link

Formal Semantics and Ontological Analysis for Understanding Subsetting, Specialization and Redefinition of Associations in UML
Dolors Costal, Cristina Gómez, and Giancarlo Guizzardi

SeCoGIS 1 - Topology

Room: Louise 1b
Chair: Roland Billen (Université de Liège, Belgium)

Cognitive Adequacy of Topological Consistency Measures
Nieves R. Brisaboa, Miguel R. Luaces and Andrea Rodriguez

Referring Expressions in Location Based Services: The case of the 'Opposite' Relation
Phil Bartie, Femke Reitsma, Eliseo Clementini and Simon Kingham

The Neighborhood Configuration Model. a New Framework To Distinguish Topological Relationships between Complex Volumes
Tao Chen and Markus Schneider

Panel 1: New Directions for Conceptual Modeling

Panelists: Antoni Olivé, Sudha Ram, Gerd Wagner, Yair Wand, and Eric Yu

Room: Louise 3a
Chair: Jeffrey Parsons (Memorial University of Newfoundland, Canada)
Abstract: p. 39
Tuesday 14:00-15:30

ER 5 - Model Development and Maintainability

Room: Louise 1a  
Chair: Sudha Ram (University of Arizona, USA)

Developing RFID Database Models for Analysing Moving Tags in Supply Chain Management  
Wilfred Ng

Semi-Automatic Conceptual Data Modeling Using Entity and Relationship Instance Repositories  
Ornsiri Thonggoom, Il-Yeol Song, and Yuan An

Impact of MDE Approaches on the Maintainability of Web Applications: an Experimental Evaluation  
Yulkeidi Martínez, Cristina Cachero, Maristella Matera, Silvia Abrahao, and Sergio Luján

SeCoGIS Keynote: Semantic modelling and vario-scale geo-information

Peter van Oosterom (Delft University, The Netherlands)

Room: Louise 1b  
Chair: Max Egenhofer (University of Maine, USA)
Abstract: p. 40

Variability@ER Keynote: ISO Initiatives on Software Product Line Engineering: Vision and Current Status

Timo K. Käkölä (Univ. of Jyväskyla, Jyväskyla, Finland)

Room: Louise 3a  
Chair: Arnon Sturm (Ben-Gurion University, Israel)
Abstract: p. 43

Variability@ER 1 - Standards and Techniques

Room: Louise 3b  
Chair: Arnon Sturm (Ben-Gurion University, Israel)

An Overview of Techniques for Detecting Software Variability Concepts in Source Code  
Angela Lozano

Tutorial 2: Patterns of Data Modeling

Michael Blaha (Modelsoft Consulting Corp, USA)

Room: Louise 3b  
Abstract: p. 37
Tuesday 16:00-17:30

**ER 6 - Ontologies**

**Room:** Louise 1a  
**Chair:** Sven Hartmann (Clausthal University of Technology, Germany)

- **Generating SPARQL Executable Mappings to Integrate Ontologies**  
  Carlos R. Rivera, Inma Hernández, David Ruiz, and Rafael Corchuelo

- **Enterprise Monitoring Ontology**  
  Patrício de Alencar Silva and Hans Weigand

- **Multilingual Ontologies for Cross-Language Information Extraction and Semantic Search**  
  David W. Embley, Stephen W. Liddle, Deryle W. Lonsdale, and Yuri Tijerino

**SeCoGIS 2 - Topology and Semantics**

**Room:** Louise 1b  
**Chair:** Eliseo Clementini (University of L’Aquila, Italy)

- **Towards Modeling Dynamic Behavior with Integrated Qualitative Spatial Relations**  
  Stefan Mitsch, Werner Retschitzegger and Wieland Schwinger

- **Transforming conceptual spatiotemporal model into Object model with semantic keeping**  
  Chamseddine Zaki, Myriam Servières and Guillaume Moreau

- **Reasoning with Complements**  
  Max Egenhofer

**Variability@ER 2 - Patterns and Tools**

**Room:** Louise 3a  
**Chair:** Kim Mens (Université catholique de Louvain, Belgium)

- **Service Variability Patterns**  
  Ateeq Khan, Gunter Saake, Christian Küstner, and Veit Köppen

- **Variability in Multi-tenant Environments: Architectural Design Patterns from Industry**  
  Jaap Kabbedijk and Slinger Jansen

- **Feature Modeling Tools: Evaluation and Lessons Learned**  
  Mohammed El Dammagh and Olga De Troyer

**CICM Panel 3: Web Service Design and Conceptual Modeling**

  Panelists: Paul Losiewicz, T.C. Ting, Peter Chen, and others

**Room:** Louise 3b  
**Chair:** Arne Sølvberg (Norwegian University of Science and Technology, Norway)

Wednesday 09:00-10:30

**Keynote 3: Best-Effort Modeling of Structured Data on the Web**

  Alon Halevy (Google, USA)

**Room:** Louise 1a  
**Chair:** Manfred Jeusfeld (Tilburg University, The Netherlands)

**Abstract:** p. 36
Wednesday 11:00-12:30

ER 7 - Evolution, Propagation and Refinement

Room: Louise 1a
Chair: Anthony Cleve (Université de Namur, Belgium)

- Context Schema Evolution in Context-Aware Data Management
  *Elisa Quintarelli, Emanuele Rabosio, and Letizia Tanca*

- Modeling the Propagation of User Preferences
  *Paolo Ciaccia and Riccardo Torlone*

- Towards a Theory of Refinement for Data Migration
  *Bernhard Thalheim and Qing Wang*

Foundations and Practices of UML Workshop

Room: Louise 1b
Chair: Guido Geerts (University of Delaware, USA)

- On Automated Generation of Associations in Conceptual Database Models
  *Drazen Brdjanin and Slavko Maric*

- Specification and Utilization of Core Assets: Feature-Oriented vs. UML-based Methods
  *Iris Reinhartz-Berg and Arava Tsoury*

- Actor-eUML for Concurrent Programming
  *Kevin Marth and Shanping Ren*

OntoCom 1 - Ontological Foundations for Conceptual Modeling

Room: Louise 3a
Chair: Oscar Pastor (Universidad Politécnica de Valencia, Spain)

- Ontological Usage Schemes: A Working Proposal for the Ontological Foundation of Language Use
  *Frank Loebbe*

- Levels for Conceptual Modeling
  *Claudio Masolo*

- Principled Pragmatism: A Guide to the Adaptation of Ideas from Philosophical Disciplines to Conceptual Modeling
  *David W. Embley, Stephen W. Liddle, and Deryle W. Lonsdale*

Industrial Track 1 - Business Intelligence

Room: Louise 3b
Chair: Michael Blaha (Modelsoft Consulting Corp, USA)

- QBX: A CASE Tool for Data Mart Design
  *Antonino Battaglia, Matteo Golfarelli, and Stefano Rizzi*

- The Meta-Morphing Model Used in TARGIT BI Suite
  *Morten Middelfart and Torben Bach Pedersen*

- Tool support for technology scouting using online sources
  *Elena Tsiporkova and Tom Tourné*
Wednesday 14:00-15:30

ER 8 - UML and Requirements Modeling

Room: Louise 1a
Chair: Yuan An (Drexel University, USA)

Design by Selection: A Reuse-based Approach for Business Process Modeling
Ahmed Awad, Sherif Sakr, Matthias Kunze, and Mathias Weske

System Identification for Adaptive Software Systems: a Requirements Engineering Perspective
Vitor E. Silva Souza, Alexei Lapouchnian, and John Mylopoulos

Using UML Profiles for Sector-Specific Tailoring of Safety Evidence Information
Rajwinder Kaur Panesar-Walawege, Mehrdad Sabetzadeh, and Lionel Briand

Panel 2: Modeling for Future Internet

Arne J. Berre (SINTEF, Norway) and Michele Missikoff (IASI-CNR, Italy)

Room: Louise 1b
Abstract: p. 39

OntoCom 2 - Ontological Commitments and Experimental Evaluation

Room: Louise 3a
Chair: Yair Wand (University of British Columbia, Canada)

Experimental Evaluation of an Ontology-Driven Enterprise Modeling Language
Frederik Gailly and Geert Poels

Unintended Consequences of Class-based Ontological Commitment
Roman Lukyanenko and Jeffrey Parsons

Formal Ontologies, Exemplars, Prototypes
Marcello Frizione and Antonio Lieto

Industrial Track 2 - Industrial Applications of Conceptual Modeling

Room: Louise 3b
Chair: Hans Van Mingroot (IBM, Belgium)

Governance issues on heavy models in an industrial context
Sabri Skhiri, Marc Delbaere, Yves Bontemps, Gregoire de Hemptinne, and Nam-Luc Tran

High quality technical documentation for large industrial plants using an enterprise engineering and conceptual modeling based software solution
Steven J.H. van Kervel

Publishing open data and services for the Flemish Research Information Space
Christophe Debruyne, Pieter De Leenheer, Peter Spyns, Geert van Grootel, and Stijn Christiaens
Wednesday 16:00-17:30

**ER 9 - Views, Queries, and Search**

**Room:** Louise 1a  
**Chair:** Riccardo Torlone (Università Roma Tre, Italy)

- **Merging Relational Views: A Minimization Approach**  
  Xiang Li and Christoph Quix

- **Ontology Evolution in Data Integration: Query Rewriting to the Rescue**  
  Haridimos Kondylakis and Dimitris Plexousakis

- **Object-Oriented XML Keyword Search**  
  Huayu Wu and Zhifeng Bao

- **A Hidden Markov Model Approach to Keyword-based Search over Relational Databases**  
  Sonia Bergamaschi, Francesco Guerra, Silvia Rota, and Yannis Velegrakis

**ER 10 - Process Modeling**

**Room:** Louise 1b  
**Chair:** Juan Trujillo (University of Alicante, Spain)

- **Content-Based Validation of Business Process Modifications**  
  Maya Lincoln and Avigdor Gal

- **Visual Change Tracking for Business Process Models**  
  Sonja Kabicher, Simone Kriglstein, and Stefanie Rinderle-Ma

- **An Empirical Analysis of Human Performance and Error in Process Model Development**  
  Alexander Nielen, Denise Költer, Susanne Mütze-Niewöhner, Jürgen Karla, and Christopher M. Schlick

**OntoCom 3 - Ontological Distinctions in Bioinformatics**

**Room:** Louise 3a  
**Chair:** Giancarlo Guizzardi (Federal University of Espírito Santo, Brazil)

- **Gene Ontology based automated annotation: why it isn’t working**  
  Matthijs van der Kroon and Ana M. Levin

**OntoCom Keynote: Modeling Services as Socio-Technical Systems**  

_Nicola Guarino (ISTC-CNR, Italy)_

**Room:** Louise 3a  
**Chair:** Giancarlo Guizzardi (Federal University of Espírito Santo, Brazil)  
**Abstract:** p. [44](#)

**CICM Panel 4: Searching of Entity-Relationship Data**

**Panelists:** Paul Losiewicz, T.C. Ting, Mark Elmore, Peter Chen, and others

**Room:** Louise 3b  
**Chair:** Arne Solberg (Norwegian University of Science and Technology, Norway)
Thursday 09:00-10:30

**ER 11 - Requirements and Business Intelligence**

**Room:** Louise 1a  
**Chair:** Marco Antonio Casanova (PUC Rio, Brazil)

**A Modularization Proposal for Goal-Oriented Analysis of Data Warehouses Using I-star**  
Alejandro Maté, Juan Trujillo, and Xavier Franch

**Strategic Models for Business Intelligence**  
Lei Jiang, Daniele Barone, Daniel Amyot, and John Mylopoulos

**Evolving Requirements in Socio-Technical Systems: Concepts and Practice**  
Anna Perini, Nauman Qureshi, Luca Sabatucci, Alberto Siena, and Angelo Susi

**Composite Indicators for Business Intelligence**  
Daniele Barone, Lei Jiang, Daniel Amyot, and John Mylopoulos

**Doctoral Consortium 1**

**Room:** Louise 1b  
**Chair:** Oscar Pastor (Universidad Politécnica de Valencia, Spain)

**Context-Aware Data Management**  
Emanuele Rabosio

**Abstract reasoning and individual differences in conceptual modelling**  
Ilona Wilmont

**Modeling and analyzing causality between threats to privacy and user behavior of privacy management on Online Social Networks**  
Kijung Lee

**Tutorial 3: Uncertain Schema Matching**

*Avigdor Gal (Technion-Israel Institute of Technology, Israel)*

**Room:** Louise 3a  
**Abstract:** p. 38

**WISM Keynote: Academic Social Networks**

*Jose Palazzo Moreira de Oliveira (Universidade Federal do Rio Grande do Sul, Brazil)*

**Room:** Louise 3b  
**Chair:** Giancarlo Guizzardi (Federal University of Espírito Santo, Brazil)  
**Abstract:** p. 42

**WISM 1 - Data Interoperability in Web Information Systems**

**Room:** Louise 3b  
**Chair:** Giancarlo Guizzardi (Federal University of Espírito Santo, Brazil)

**Conceptual Modelling for Web Information Systems: What Semantics Can Be Shared?**  
Simon McGinnes
Thursday 11:00-12:30

**ER 12 - MDA and Ontology-Based Modeling**

**Room:** Louise 1a  
**Chair:** Christoph Quix (Technical University of Aachen, Germany)

- Incorporating Traceability in Conceptual Models for Data Warehouses by using MDA  
  *Alejandro Maté and Juan Trujillo*

- Lightweight Verification of Executable Models  
  *Elena Planas, Jordi Cabot, and Cristina Gómez*

- Towards a Model of Services Based on Co-creation, Abstraction and Restriction  
  *Maria Bergholtz, Paul Johannesson, and Birger Andersson*

- A Semantic Oriented Method for Conceptual Data Modeling in OntoUML Based on Linguistic Concepts  
  *Lucia Castro, Fernanda Baião, and Giancarlo Guizzardi*

**Doctoral Consortium 2**

**Room:** Louise 1b  
**Chair:** Stephen W. Liddle (Brigham Young University)

- Requirements Engineering in Data Warehouses  
  *Alejandro Maté*

- Introducing Canonical Structures over a Domain-Specific Collection  
  *Scott Britell*

**Tutorial 3: Uncertain Schema Matching**

*Avigdor Gal (Technion-Israel Institute of Technology, Israel)*

**Room:** Louise 3a  
**Abstract:** p. 38

**WISM 2 - Requirements Analysis, User Interaction, and Service Composition in Web Information Systems**

**Room:** Louise 3b  
**Chair:** Jose Palazzo Moreira de Oliveira (Universidade Federal do Rio Grande do Sul, Brazil)

- A Goal-Oriented Approach for Optimizing Non-Functional Requirements in Web Applications  
  *José Alfonso Aguilar, Irene Garrigós, and Jose-Norberto Mazón*

- Yet Another BPEL Extension for User Interactions  
  *Mohamed Boukhebouze, Waldemar Pires Ferreira Neto, and Lim Erbin*

- Semantics-Enabled Web API Organization and Recommendation  
  *Devis Bianchini, Valeria De Antonellis, and Michele Melchiori*
Conference Co-located Workshops

First International Workshop on Modeling and Reasoning for Business Intelligence (More-BI 2011)

MORE-BI brings together researchers in conceptual modeling, ontology engineering, knowledge representation, and reasoning with business analysts, developers, managers, and consultants involved in the definition of requirements for, development, use, and evolution of Business Intelligence (BI) systems. The aim is to initiate discussions and studies in ontologies, modeling languages, and reasoning methods relevant for the engineering of requirements for, and the engineering and specification of BI systems. These modeling and reasoning techniques should provide more precise and rich information for the end-user, bridging the gap between technical and user-centric tools for Business Intelligence. The workshop is the first of its kind to provide a forum for both research and practice in the conceptual modeling and reasoning needed for the engineering of BI systems, and encourages interdisciplinary discussions in all aspects of this field.

Chairs: Ivan Jureta, Stéphane Faulkner, Esteban Zimányi
Date: October 31, 2011
Website: http://www.morebusinessintelligence.com

Critical Issues in Conceptual Modeling (CICM 2011)

This workshop provides the forum for researchers and practitioners from industries, academia, and government agencies to discuss several critical issues in conceptual modeling. In the workshop this year, there are four panel discussion sessions focusing on the following topics: (1) SOA, C4ISR, Software Architecture, (2) Incorporating Security in Conceptual Modeling, (3) Web Service Design and Conceptual Modeling, (4) Searching of Entity-Relationship Data.

This workshop is co-sponsored by the U.S. Office of Naval Research Global (ONRG).

Chairs: Arne Sølvberg, Peter Chen, Leah Wong
Date: October 31 – November 2, 2011

Workshop on Software Variability Management (Variability@ER’11)

As software requirements constantly increase in size and complexity, the need for methods, formalisms, techniques, tools and languages for managing and evolving software artifacts become crucial. One way to manage variability when dealing with a rapidly growing variety of software products is through developing and maintaining families of software products rather than individual products. Variability management is concerned with controlling the versions and the possible variants of software systems. Variability management gained a special interest in various software-related areas in different phases of the software development lifecycle. These areas include conceptual modeling, product-line engineering, feature analysis, software reuse, configuration management, generative programming and programming language design. The purpose of this workshop is to promote the theme of variability management from different perspectives. In particular, it aims at providing a venue for researchers and practitioners interested in software variability management, in order to identify possible points of synergy, common problems and solutions, and visions for the future of the area.

Chairs: Iris Reinhartz-Berger, Arnon Sturm, Kim Mens
Date: November 1, 2011
Website: http://www.domainengineering.org/Variability@ER11/
Fifth International Workshop on Semantic and Conceptual Issues in GIS (SeCoGIS 2011)

MORE-BI brings together researchers in conceptual modeling, ontology engineering, knowledge representation, and reasoning with business analysts, developers, managers, and consultants involved in the definition of requirements for, development, use, and evolution of Business Intelligence (BI) systems. The aim is to initiate discussions and studies in ontologies, modeling languages, and reasoning methods relevant for the engineering of requirements for, and the engineering and specification of BI systems. These modeling and reasoning techniques should provide more precise and rich information for the end-user, bridging the gap between technical and user-centric tools for Business Intelligence. The workshop is the first of its kind to provide a forum for both research and practice in the conceptual modeling and reasoning needed for the engineering of BI systems, and encourages interdisciplinary discussions in all aspects of this field.

Chairs: Roland Billen, Esteban Zimányi
Date: November 1, 2011
Website: http://cs.ulb.ac.be/conferences/secogis2011/

Seventh International Workshop on Foundations and Practices of UML (FP-UML)

The Unified Modeling Language (UML) has been widely accepted as the standard object-oriented (OO) modeling language for modeling various aspects of software and information systems. The UML is an extensible language, in the sense that it provides mechanisms to introduce new elements for specific domains if necessary, such as web applications, database applications, business modeling, software development processes, data warehouses. Furthermore, the latest version of UML 2.0 got even bigger and more complicated with more diagrams for some good reasons. Although UML provides different diagrams for modeling different aspects of a software system, not all of them need to be applied in most cases. Therefore, heuristics, design guidelines, lessons learned from experiences are extremely important for the effective use of UML 2.0 and to avoid unnecessary complication. Also, approaches are needed to better manage UML 2.0 and its extensions so they do not become too complex to manage in the end. Already, the many UML extensions are not well integrated and the UML 2.0 metamodel has become very complex.

The objective of FP-UML’11 is to be an international forum for exchanging ideas on the latest and best practices of the UML in all aspects of software development. Papers focusing on the application of the UML in new domains; new experiences with UML 2.0; and foundations, theory, and UML 2.0 extensions will be highly encouraged. The workshop will be a forum for researchers and practitioners who are interested in the different facets related to the use of the UML for the development of software and information systems.

Chairs: Guido Geerts (University of Delaware, USA) Matti Rossi (Aalto University, Finland)
Date: November 2, 2011
Website: http://www.aisvillage.com/fpuml

ER Industrial Track (ER-IT 2011)

The ER Industrial Track is the forum for high quality presentations on innovative commercial software, systems and services for all facets of conceptual modeling methodologies and technologies as described in the list of topics of the ER 2011 conference. It also cover experiences with innovative applications. The focus is to underline the use of conceptual modeling related to commercial software or industrial-strength software. Important aspects to be highlighted are innovativeness of software and the potential of impact.

Chairs: Alkis Simitsis, Hans Van Mingroot
Date: November 2, 2011
International Workshop on Ontologies and Conceptual Modeling (Onto-Com 2011)

There has been a growing interest in the role played by formal ontology, as well as areas such as philosophical logics, cognitive sciences and linguistics, in the development of theoretical foundations for conceptual modeling. In particular, a number of ontological theories such as BWW, DOLCE, GFO and UFO have been successfully applied to the evaluation of conceptual modeling languages and frameworks (e.g., UML, ORM, ER, REA, TROPOS, ARIS, BPMN, RM-ODP, Archimate and OWL), and to the development of engineering tools (e.g., methodological guidelines, modeling profiles, design patterns) that contribute to the theory and practice of this discipline. Additionally, there has been an increasing interest in the use of empirical studies to assess the impact of the application of these theoretical foundations to the design of conceptual modeling grammars and tools. The objective of this workshop is to collect innovative and high-quality research contributions regarding the role played by the aforementioned disciplines to the foundations of conceptual modeling. This workshop has been created as an official event of the Special Interest Group (SIG) on Ontologies and Conceptual Modeling of the International Association for Ontologies and Applications (IAOA).

Chairs: Giancarlo Guizzardi, Oscar Pastor, Yair Wand  
Date: November 2, 2011  
Website: [http://www.inf.ufes.br/~gguizzardi/ontocom-2011/](http://www.inf.ufes.br/~gguizzardi/ontocom-2011/)

Eighth International Workshop on Web Information Systems Modeling (WISM 2011)

The aim of the workshop is to provide a platform for bringing together researchers, practitioners, designers, and users of Web Information Systems (WIS) and discuss how specific issues of WIS design can be addressed by means of modeling. Specifically, we will discuss how the influence of Semantic Web technology can help in a model-driven WIS development. Thus, the workshop should enable a fruitful exchange of ideas in the state-of-the-art of WIS modeling.

Chairs: Flavius Frasincar, Geert-Jan Houben, Philippe Thiran  
Date: November 3, 2011  

ER Doctoral Consortium (ER-DC 2011)

The ER 2011 Doctoral Consortium brings together PhD students working on topics related to the ER conference series. The workshop offers PhD students the opportunity to present, discuss, and receive feedback on their research in a constructive and collegial atmosphere. Prominent researchers in the field of conceptual modeling attend the workshop and mentor the participant students.

The Doctoral Consortium is intended for students who have already settled on a specific research proposal and have some preliminary results, but still have enough time remaining before submitting their dissertation so that they can benefit from workshop feedback. The technical scope of the Doctoral Consortium is the same as that of the ER 2011.

Chairs: Lois Delcambre, Christophe Claramunt, Markus Schneider  
Date: November 3, 2011
Keynote Abstracts

The Role of Conceptual Modeling in Managing and Changing the Business

Carson Woo (University of British Columbia)

Date: Monday 09:00-10:30
Room: Louise 1a
Chair: Tok Wang Ling (National University of Singapore)

Carson Woo is Stanley Kwok Professor of Business, Sauder School of Business, University of British Columbia, and an associate member of the Department of Computer Science at the same university. He received his B.Sc., M.Sc., and Ph.D. degrees in Computer Science from the University of Toronto. His research interests include conceptual modeling, systems analysis and design, and requirements engineering. In particular, he is interested in using conceptual models to help management in digesting information and deriving knowledge through documentation, investigation, and planning. Dr. Woo is editor of Information Technology and Systems abstracts journal at the Social Science Research Network (ITS-SSRN) as well as serving on the editorial board of ACM Transactions on Management Information Systems and Requirements Engineering. He was conference co-chair ER 2010 Conference on Conceptual Modeling (ER’2010) and program co-chair of the 14th International Conference on Advanced Information Systems Engineering (CAiSE 2002). He has served as President of Workshop on Information Technology and Systems (WITS), Inc. (2004-2006) and chair of ACM Special Interest Group on Office Information Systems (SIGOIS) 1991-1995.

Abstract Conceptual modeling has been used mainly for supporting information systems (IS) development. In order to better capture requirements for developing IS, we have been extending conceptual models to include more business context (e.g., mission of the organization). This seems to interest organizational workers in using those conceptual models to solve problems. We propose dual roles for conceptual modeling: developing IS, and managing the changes occurring in the business. To fulfill the second role, conceptual modeling must provide constructs that are not biased toward IS background and thinking, but assist organizational workers to better understand the business and its operations. Research and literature on management will be useful to accomplish this objective. Our research in this direction suggests much potential in expanding conceptual modeling to support organizational workers.
Adding Meaning to your Steps

Stefano Spaccapietra (EPFL, Switzerland)

Date: Tuesday 09:00-10:30
Room: Louise 1a
Chair: Lois Delcambre (Portland State University)

Stefano Spaccapietra is Emeritus professor at the Swiss Federal Institute of Technology (EPFL), Switzerland, where he headed the database laboratory. He got his master in Computer Science and his PhD from the University of Paris VI. Prior to the EPFL, he had a professor position at the University of Burgundy, Dijon. Prof. Spaccapietra is a Fellow of the IEEE and recipient of the IFIP Silver Core Award. He was Editor-in-chief of the Journal of Data Semantics. He is member of the editorial boards of the Data and Knowledge Engineering Journal, the Internet and Web Information Systems Journal, the Revue Internationale de Géomatique, and the Computing Letters Journal. He was former Chair of the IFIP Working Group 2.6 “Databases” and of the ER Steering Committee.

Abstract  Mobility has been stated to be one of the three major computer science domains for the current decade. Indeed, the challenge to develop the state of art in this domain is scientifically exciting and the number of foreseeable new applications is huge. This talk addresses one piece of the puzzle: providing a conceptual framework for turning the spatio-temporal traces generated by moving objects (be they humans, animal, or things) into information meaningful for the application at hand. A moving object in this context is an object whose position in geographical space changes over time. The talk discusses the concepts that play a role in giving a structure to the raw (e.g. GPS) data in a movement track. Next, it surveys methods to extract further knowledge, providing examples from different application areas. Finally, it considers privacy concerns that must be covered when monitoring people’s tracks.

Best-Effort Modeling of Structured Data on the Web

Alon Halevy (Google, USA)

Date: Thursday 09:00-10:30
Room: Louise 1a
Chair: Manfred Jeusfeld (Tilburg University)

Alon Halevy heads the Structured Data Management Research group at Google. Prior to that, he was a professor of Computer Science at the University of Washington in Seattle, where he founded the database group. In 1999, Dr. Halevy co–founded Nimble Technology, one of the first companies in the Enterprise Information Integration space, and in 2004, Dr. Halevy founded Transformic Inc., a company that created search engines for the deep web, and was acquired by Google. Dr Halevy is a Fellow of the ACM, received the the Presidential Early Career Award for Scientists and Engineers (PECASE) in 2000, and was a Sloan Fellow (1999–2000). He received his Ph.D in Computer Science from Stanford University in 1993.

Abstract  The World-Wide Web provides access to millions of data table with high-quality content, either in HTML tables, lists or other structured formats. These tables contain data about virtually every domain of interest to mankind. Creating a conceptual model for such a collection of data is impractical because of the breadth of the data, the fact that domains overlap in complex ways, and that modeling assumptions differ depending on the level of detail and cultural context. I will describe several projects at Google whose goal is to leverage this collection of data and to make it easier to create and share new data sets. I will explain the challenges arising from the lack of a conceptual model. In the WebTables Project we collected over 100 million high-quality HTML tables, developed search over this collection. We used information from text on the Web to recover some of the semantics of these tables. In Google Fusion Tables, we make it easy for data owners to upload and manipulate their data, create visualizations and discover other data sets that may be relevant to them, all this without requiring them to a priori create a model of their data.
Towards a theory of search queries

Jan Van den Bussche (Hasselt University, Belgium)

Date: Monday 14:00-15:30
Room: Louise 3b

Jan Van den Bussche is a professor of databases and theoretical computer science at Hasselt University, Belgium. His research is on the theory of database systems, broadly construed, and he has recently published on topics as diverse as workflow provenance and DNA computing. He has been the recipient of two PODS best paper awards. He obtained his PhD from the University of Antwerp in 1993, under the supervision of Jan Paredaens. He has served as PC chair for the International Conference on Database Theory (ICDT) in 2001 and the ACM Symposium on Principles of Database Systems in 2006, and has served from 2001 until 2011 as chair of the ICDT council. He currently serves on the editorial boards of Information Systems, ACM Transactions on Database Theory, and Fundamenta Informaticae.

Abstract  Current information systems, such as file systems, library catalogues, websites, Semantic Web search, dataspaces, Google Fusion Tables, offer search capabilities that are typically weaker that the standard "first-order" SQL query capabilities expected of a fully-fledged database system. The theory of databases has explored first-order queries (relational algebra, relational calculus) extensively, but a theory of weaker, search-like query mechanisms is only at its beginnings. In this tutorial we present our first steps in this direction, based on an article we published with Fletcher, Van Gucht, and Vansummeren, in ACM TODS in 2010. We will begin by recalling some basics of the theory of database queries, so that everyone can follow the tutorial.

Patterns of Data Modeling

Michael Blaha (Modelsoft Consulting Corp, USA)

Date: Tuesday 14:00-15:30
Room: Louise 3b

Michael Blaha has been a consultant and trainer in conceiving, architecting, modeling, designing, and tuning databases since 1994. He has worked with dozens of organizations throughout the world. Blaha has authored six books, six US patents, and many papers. His most recent book is "Patterns of Data Modeling". He was an editor of IEEE Computer from 2000-2007 and was a member of the IEEE-CS Publications Board from 2004-2007. Blaha received his doctorate from Washington University in St. Louis and is an alumnus of GE Global Research.

Abstract  Data modeling is one of the most difficult tasks for software development. The difficulty lies with the need to reach beyond the literal problem by abstracting and capturing a problem’s essence. Patterns promote abstraction by illustrating the options and trade-offs in alternative data model representations. Most of the data patterns literature focuses on seed models. In contrast, this tutorial emphasizes true abstract patterns that are apart from a problem domain. There are multiple aspects of pattern technology including mathematical templates, antipatterns, archetypes, identity, and canonical models.

This tutorial quickly covers the breadth of patterns and then goes into depth on selected topics. We present six ways for modeling trees (a mathematical template) along with examples and trade-offs. We also present several antipatterns and show how they apply when reverse engineering the LDAP standard to recover its underlying conceptual data model.
Uncertain Schema Matching

Avigdor Gal (Technion-Israel Institute of Technology)

Date: Thursday 09:00-10:30
Room: Louise 3a

Avigdor Gal is an Associate Professor at the Technion – Israel Institute of Technology. He has published more than 95 papers in journals (e.g. Journal of the ACM (JACM), ACM Transactions on Database Systems (TODS), IEEE Transactions on Knowledge and Data Engineering (TKDE), ACM Transactions on Internet Technology (TOIT), and the VLDB Journal), books (Schema Matching and Mapping) and conferences (CIKM, ICDE, ER, CoopIS, BPM) on the topics of data integration, temporal databases, information systems architectures, and active databases. Avigdor Gal is the author of the book Uncertain schema Matching, part of Synthesis Lectures on Data Management (March 2011).

Abstract  Schema matching is the task of providing correspondences between concepts describing the meaning of data in various heterogeneous, distributed data sources. Schema matching is one of the basic operations required by the process of data and schema integration, and thus has a great effect on its outcomes, whether these involve targeted content delivery, view integration, database integration, query rewriting over heterogeneous sources, duplicate data elimination, or automatic streamlining of workflow activities that involve heterogeneous data sources.

Although schema matching research has been ongoing for over 25 years, only recently a realization has emerged that schema matchers are inherently uncertain. Since 2003, work on the uncertainty in schema matching has picked up, along with research on uncertainty in other areas of data management.

This tutorial presents various aspects of uncertainty in schema matching within a single unified framework. We introduce basic formulations of uncertainty and provide several alternative representations of schema matching uncertainty. Then, we cover two common methods that have been proposed to deal with uncertainty in schema matching, namely ensembles and top-K matchings, and analyze them in this context. We conclude with a set of real-world applications and in particular, the use of uncertain schema matching in NisB, a European project that is aimed at harnessing an evolving Wisdom of the Network to dynamically connect businesses to attain common business goals.
Panel Abstracts

New Directions for Conceptual Modeling

Panelists: Antoni Olivé, Sudha Ram, Gerd Wagner, Yair Wand, and Eric Yu
Date: Tuesday 11:00-12:30
Room: Louise 3a
Chair: Jeffrey Parsons (Memorial University of Newfoundland, Canada)

Abstract This year marks the 30th ER conference. During this time, research in conceptual modeling has made significant progress. Advances in conceptual modeling have made important contributions to requirements analysis, database design, and information systems development. In view of the changing landscape in which information technology applications are developed and used, this is an appropriate time to consider where we are in conceptual modeling research and what the future might hold. In particular, this panel will focus on emerging and understudied domains for the application of conceptual modeling research. Panelists will consider what conceptual modeling research brings to understanding phenomena in new or non-traditional domains. Equally importantly, they will reflect on new conceptual modeling research issues arising from the demands and requirements of these domains. The objective of the panel is to spark increased interest in conceptual modeling and the ER conference by encouraging audience members to consider new opportunities for applying conceptual modeling.

Modeling for the Future Internet

Panelists: Klaus Fischer, Sergio Gusmeroli, Robert Meersman, Elio Salvadori, Bernhard Thalheim
Date: Wednesday 14:00-15:30
Room: Louise 1b
Chair: Arne J. Berre (SINTEF, Norway) and Michele Missikoff (IASI-CNR, Italy)

Abstract The Internet is a paradigmatic example of a successful system that has not been designed by using any of the available modelling methods. The components have been realised and deployed, then the Internet (seen as a socio-technical system) has evolved (and is still evolving) in a spontaneous, bottom-up fashion. What can we learn from this that we can apply to other complex socio-technical systems?

We need to explore if there are new design and engineering paradigms that will emerge for complex systems. From ‘story telling’ (i.e., people reporting on their concrete experiences) to user-generated mashups, to crowdsourcing: Are there new paradigms that are challenging our “traditional” way of addressing modelling and, in general, software engineering? At the same time, emerging technologies such as Internet of Things with smart objects, autonomic computing, self-configuring/healing systems indicate that there are large areas where the need of human intervention is simply superfluous. Are we at a turning point in the development of the Future Internet Application Systems? And therefore, do we need to deeply rethinking our ideas, methods, tools, aimed at modelling for developing complex socio-technical systems?

The future of modelling in complex applications, especially those supported by the Future Internet, is the main focus of this Panel.
SeCoGIS Keynote: Semantic modelling and vario-scale geo-information

Peter van Oosterom (Delft University, The Netherlands)

Date: Tuesday 14:00-15:30
Room: Louise 1b
Chair: Max Egenhofer (University of Maine, USA)

Peter van Oosterom obtained an MSc in Technical Computer Science in 1985 from Delft University of Technology, The Netherlands. In 1990 he received a PhD from Leiden University. From 1985 until 1995 he worked at the TNO-FEL laboratory in The Hague, The Netherlands as a computer scientist. From 1995 until 2000 he was senior information manager at the Dutch Cadastre, where he was involved in the renewal of the Cadastral (Geographic) database. Since 2000, he is professor at the Delft University of Technology (OTB institute) and head of the section “GIS Technology”. He is the current chair of the FIG joint commission 3 and 7 working group on “3D-Cadastres” (2010-2014).

Abstract

The Digital Landscape Model (DLM) contains the basic primary model of reality. DLMs at lower accuracies can be generated by the derivation of primary models at lower semantic and geometric resolution from the basic DLM. In generalization this is called “model generalization” and this is based on reclassification, selection and aggregation operations. The Digital Cartographic Model (DCM) is the result of applying “cartographic generalization”, i.e. reduction, enlargement, and modification of the graphic symbols to the DLMs. It is well known that in order to automate generalization, the semantics plays a crucial role in the decisions. Although the separation between DLM and DCM is considered theoretically as the optimal way of maintaining data sets at multiple scales, in practice data producers, like national mapping agencies (NMA), wrestle with the question what to store explicitly in order to efficiently maintain their geographic databases and maps. A main disadvantage of explicit storage of both models, up to the data instance level, is that it leads to more redundancy in multi-scale data models and makes it more difficult to manage geographic databases. We can extend the line of thinking for the scales stored in the database: If certain features are present at multiple scales, then why store these representations redundantly? Variable-scale data structures have been proposed to provide an answer. Two advantages of variable-scale data structures are: 1) no, or at least very little, redundancy between scales and 2) also the possibility of “in-between scales” representations, not only the fixed, stored representations. Vario-scale structures have to apply both semantic and geometric techniques in order to obtain good representations. Most recently the true vario-scale structure for geographic information has been defined by the property: a delta in scale leads to a delta in the map (and smaller scale deltas lead to smaller map deltas until including the infinitesimal small delta) for all scales. The structure is called smooth topological Generalized Area Partitioning (tGAP) and the solution is based on full integration of 2D space and 1D scale representation into a single 3D data structure: the space-scale cube (SSC). The 2D polygonal area objects are mapped to 3D polyhedral representations in the smooth tGAP structure. The polyhedral primitive is integrating all scale representations of a single 2D area object. Together all polyhedral primitives form a partition of the space-scale cube: no gaps and no overlaps (in space or scale). Obtaining a single scale map is computing an horizontal slice through the structure. The structure can be used to implement smooth zoom in an animation or morphing style. The structure can also be used for mixed-scale representation: more detail near to user/viewer, less detail further away by taking non-horizontal slices. For all derived representations, slices and smooth-zoom animations, the 2D maps are always perfect planar partitions (even mixed-scales objects fit together and form a planar partition).
MoreBI Keynote 1: Modeling management information

Arthur Overlack (Altran)

Date: Monday 11:00-12:30
Room: Louise 1b
Chair: Ivan Jureta (Université de Namur, Belgium)

Arthur Overlack After his university degree in Aerospace Technology Mr. Overlack worked in the Aircraft Industry for 8 years in materials management, after sales support and Marketing (Fokker 50). After 4 years of HR consulting with Mercury Urval, he joined Cap Gemini, working with clients in many industries and (semi-)government. Assignments varied from Business Intelligence consultancy to large scale change management and strategy development in banking, insurance, industry and trade.

Mr. Overlack joined Altran in 2005 and is now responsible for development of (Group) Solutions and deployment in the Netherlands. At Altran Group level he is Global Practice Manager for BI, responsible for managing and supporting the development and deployment of BI solutions by Altran in Europe.

Throughout his career, Business Intelligence has been a recurring subject. Since the emergence of Windows-based BI systems and maturing Data Warehouse tools, technology became less important and more focus was needed on developing requirements for BI systems. The quest for the nature of management and in particular the contents and character of management information led to the development of the Business Control Matrix, as a means to translate management notions about control mechanisms into data-structures that would yield effective management information.

Abstract Hundreds of models have been designed in the past to represent management processes, most of them dedicated to a specific aspect to be managed. To model management information is difficult, since there is a gap between managerial thinking and the way relevant data are to be identified, stored, retrieved and assembled to make information.

The essence of the problem is to find a way to represent manager’s needs, allowing managers to validate the correctness and completeness, while allowing IT staff to use it as an unambiguous input to build a data warehouse and customize a presentation tool, of which there are many in the market.

The method to model management information needs, must be verifiable and easy, to realize a short lead-time and to generate and strong commitment of future users, to facilitate adoption of the system to be built. Also, it must allow adaptation in consecutive periods of adjustment, if new insights lead to extension of the management information requirements.

The method of the BCM aims to provide a relatively simple method to bridge the gap between the way managers think, using systems theory and the way IT specialists deal with data warehouse design. Also some other features of the BCM allow cross-checking the consistency of management mechanisms across boundaries in the organization and verification of the consistency of data- and dimension definitions.

The method is meant to be transferred to the standing organizations, in order to enable them to expand and improve their model continuously.
MoreBI Keynote 2: Business Continuity Management

Philip S. Taylor (SAP Research, UK)

Date: Monday 16:00-17:30
Room: Louise 1b
Chair: Stéphane Faulkner (Université de Namur, Belgium)

Philip S. Taylor is currently a manager for the Business Intelligence Research Practice at SAP. His current research focuses on Text Analysis and Business Continuity Management. Prior to joining SAP he was a Research Fellow at Queen’s University Belfast and a consultant for Enterprise Ireland in the area of Software Process Implementation and Adaptation. In 1998 he joined Nortel Networks as a Senior Software Engineer. During his employment with Nortel Networks he completed his PhD part-time in 2000 on the topic of Software Processes for Geographically Distributed Software Engineering. He started his career as a Research Officer at the University of Ulster in 1995 with the Northern Ireland Knowledge Engineering Laboratory (NIKEL). His publications have featured in journals such as IEEE Software and Software Process: Improvement and Practice.

Abstract  Business Continuity Management (BCM) is very important for large enterprises across many different lines of business. A key factor for BCM is being able to understand enough about business processes so that accurate continuity plans can be deployed and monitored. Current research is addressing the needs of decision makers by providing simulation systems involving historical and near real-time data that help mitigate the risk of inappropriate and ineffective business continuity plans.

WISM Keynote: Collaboration Recommendation on Academic Social Networks

José Palazzo Moreira de Oliveira (Universidade Federal do Rio Grande do Sul, Brazil)

Date: Thursday 09:00-10:30
Room: Louise 3b
Chair: Giancarlo Guizzardi (Federal University of Espírito Santo, Brazil)

Jose Palazzo Moreira de Oliveira is full professor at Federal University of Rio Grande do Sul. He has a doctor degree in Computer Science from Institut National Polytechnique - IMAG (1984), Grenoble, France, a M.Sc. degree in Computer Science from PPGC-UFRGS (1976) and has graduated in Electronic Engineering (1968). Palazzo heads the CNPq Information System Group of INF-UFRGS. His research interests include information systems, e-learning, database systems and applications, conceptual modeling and ontologies, applications of database technology and distributed systems. He has published about 255 papers. He was former head of the graduate program of INF-UFRGS, member of the CNPq Computer Science Advisory Board, and had a strong commitment with research and teaching in Computer Science for the last forty years.

Abstract  Nowadays, information can be electronically accessed as soon as they are published on the Web. However, problems associated to the information overload phenomena emerged. The recovery of relevant digital information on the Web is a complex task and research in the information filtering area, specifically about recommender systems, is very important. In the academic context, scientific research works are often performed through collaboration and cooperation between researchers and research groups. Researchers work in various subjects and in several research areas. Identifying new partners to execute joint research and analyzing the level of cooperation of the current partners can be very complex tasks. Recommendation of new collaborations may be a valuable tool for reinforcing and discovering such partners. This talk presents an innovative approach to recommend collaborations on the context of academic Social Networks. We introduce the architecture for such approach and the metrics involved in recommending collaborations. I also present a case study to validate our approach.
Variability@ER Keynote: ISO Initiatives on Software Product Line Engineering: Vision and Current Status

Timo K. Käkölä (Univ. of Jyväskyla, Jyväskyla, Finland)

Date: Tuesday 14:00-15:30
Room: Louise 3a
Chair: Arnon Sturm (Ben-Gurion University, Israel)

Timo K. Käkölä is a tenured associate professor in University of Jyväskylä. He has achieved the formal competencies of a full professor in both information systems and software engineering research in Finland. He has worked as the senior research scholar of the Academy of Finland in Claremont Graduate University, California, USA. His research agenda focuses on the socio-technical design of flexible and effective business models and processes and enabling information systems architectures in software-intensive high-tech corporations. He is active in the editorial boards of three international journals and runs information systems and software business research related mini-tracks in leading international conference series such as Hawaii International Conference on Systems Sciences and Americas Conference on Information Systems. He is an advisor of numerous doctoral students from all over the world. He served as the editor-in-chief of the book “Software Product Lines: Research Issues in Engineering and Management” published by Springer in August 2006. The book crystallizes and integrates some of the most central research results of an ambitious six-year European Union funded Eureka-ITEA research program on software product line engineering. In 2006, International Organization for Standardization (ISO/JTC1/SC7 Software and Systems Engineering) appointed Dr. Käkölä as one of the editors responsible for leading the software product line engineering and management related international standardization activities.

Abstract Software product line engineering and management is still a relatively young discipline and its industrial diffusion is somewhat limited, partly due to the lack of international standards. It involves sub-disciplines that may not necessarily be mature enough yet for standardization. On the other hand, well-focused standardization efforts contribute to the diffusion of best product line practices and help raise the maturity of these practices. Careful roadmapping and execution of the standardization initiative is thus vital. This talk discusses the current roadmap for the international standardization initiative of software product line engineering and management methods and tools and the status of the work done so far in this area in the International Organization for Standardization (ISO). One of the purposes of the talk is to invite discussion about the most critical areas to be standardized and the time frames involved. The role of variability management in the standards will be especially emphasized.
OntoCom Keynote: Modeling Services as Socio-technical Systems

Nicola Guarino (CNRS, Italy)

Date: Wednesday 16:00-17:30
Room: Louise 3a
Chair: Giancarlo Guizzardi (Federal University of Espírito Santo, Brazil)

Nicola Guarino works at the CNR Institute for Cognitive Sciences and Technologies (ISTC-CNR), where he leads the Laboratory for Applied Ontology (LOA), a section of the Institute located in Trento. Since 1991 he has been playing a leading role in the ontology field, developing a strongly interdisciplinary approach that combines together Computer Science, Philosophy, and Linguistics, and relies on logic as a unifying paradigm. As early as 1993 he organized in Padua the first International Workshop on Formal Ontology in Conceptual Analysis and Knowledge Representation, and since then he has gained a well-known international leadership concerning the ontological foundations of conceptual modeling and knowledge engineering, and more in general the role of semantic technologies in information systems, multi-agent systems, and natural language processing. His impact is testified by the successful series of conferences on Formal Ontology in Information Systems (FOIS), a long list of widely cited research papers, and many keynote talks and invited tutorials in major conferences involving different communities. Among the best known results of his lab, the OntoClean methodology (www.loa-cnr.it/Ontoclean) and the DOLCE foundational ontology (www.loa-cnr.it/DOLCE). Current research interests include the ontology of services, e-government, and socio-technical systems. He is founder and editor-in-chief (with Mark Musen) of the international journal Applied Ontology; editorial board member of the International Journal of Semantic Web and Information Systems, the Journal of Data Semantics, and editor of the IOS Press book series Frontiers in AI and Applications. He is was also general chair of the international conference on Formal Ontology in Information Systems (FOIS), and is founder and president of the recently established International Association for Ontology and its Applications (www.iaoa.org).

Abstract Despite the increasing diffusion of service-oriented architectures, which are seen as a solution for flexible integration of services in complex organizations, still a huge gap exists between the way services are understood at the business level, and the way services are described at the technical level.

Indeed, at the technical level, most of the efforts conducted on services nowadays are focusing on aspects related to data and control flow, often disregarding the business implications at the social, economical, legal and organizational level. In this talk I will present an ontological model of services that describes them as complex temporal entities, constituted by interrelations of states, events and processes, occurring in a wider service system. The explicit distinction between services and service systems (whose dynamics we call the “service system life-cycle”) allows us to account for the interactions between different services within the same service system, as well as their impact on the surrounding social, institutional and physical environment. Special attention will be given to the process of service value co-creation, that involves all the actions and events during the service system life-cycle that contribute to the ascription of value to the service; it culminates with the event of service value exchange in which the value flows (costs and benefits) between provider and customer are considered. Such flows are obviously strongly dependent upon the physical, social and institutional surrounding environment.
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Sabri Skhiri dit Gabouje
Research director

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Profile

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Strategy

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- **Increase and coordinate resources for researchers**: optimize equipment and operation
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The International Conference on Conceptual Modeling is the leading international forum for presenting and discussing current research on conceptual modeling for computer-supported and networked applications. The topics of interest span the entire spectrum of conceptual modeling including research and practice in areas such as: theories of concepts and ontologies underlying conceptual modeling, methods and tools for developing and communicating conceptual models, and techniques for transforming conceptual models into effective implementations.

We encourage submissions relating to all aspects of conceptual modeling defined broadly, and particularly encourage work on topics of emerging interest in the research and development communities.

ER 2012 will be held in Florence, one of the Italy’s most important and historic cities with world-wide famous museums. The Historic Centre of Florence is inscribed in the UNESCO World Heritage List. Full of beautiful, Renaissance-style buildings, including wonderful churches and elegant palaces, Florence is also a busy cosmopolitan centre which offers many tourist attractions and entertainments, historic cafes and excellent restaurants. The mingling and the mutual interaction of ancient and modern culture make Florence a magical, enchanting and inspiring city that can offer impressive conference premises.

General chairs

- Valeria De Antonellis (University of Brescia)
- Stefano Rizzi (University of Bologna)

Program Committee chairs

- Paolo Atzeni (University of Rome 3)
- David Cheung (University of Hong Kong)
- Sudha Ram (University of Arizona)

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