ECAI 2012

20TH EUROPEAN CONFERENCE ON ARTIFICIAL INTELLIGENCE

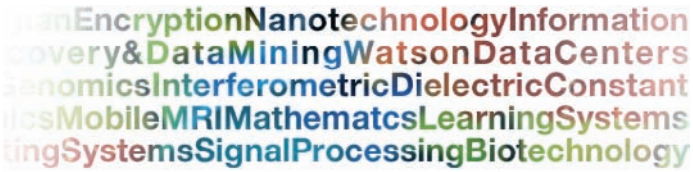
Welcome ECAI participants

IBM Client Center, Montpellier
August 29, 2012

No matter where discovery takes place, IBM Researchers push the boundaries of science, technology and business to make the world work better. Our global network of scientists work on a range of applied and exploratory research projects to help clients, governments and universities apply scientific breakthroughs to solve real-world business and societal challenges. Booths will present you selected projects or illustrations of how innovative and flexible IT infrastructures can better serve citizens, customers. It will give you the opportunity to meet and discuss openly with IBM R&D and Subject Matter Experts.

IBM Discovery Event
August 29 - 7 pm to 10 pm

IBM Client Center, Montpellier
The first step towards building a smarter planet is research



IBM

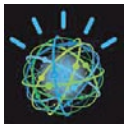
Plenary Sessions

Right and Wrong Answers in Watson

Plenary session Auditorium 1

Synopsis

In 2011, a question answering system named Watson beat the two highest ranked players in a nationally televised two-game competition in the quiz show, Jeopardy! The DeepQA architecture provides the infrastructure that holds Watson together. It binds together elements of information retrieval, natural-language processing, knowledge representation & reasoning, and machine learning. The final machine learning component is responsible for classifying answers as right or wrong, assigning a confidence to that judgement. This talk will describe the DeepQA architecture, including an overview of Watson's techniques for finding answers, evaluating evidence to compute feature values for those answers, and classifying the answers as right or wrong.



Bio

J. William Murdock is a research staff member at the IBM T. J. Watson Research Center. In 2001, he received his Ph.D. in Computer Science from the Georgia Institute of Technology, and he has worked at the United States Naval Research Laboratory. Dr. Murdock has worked on the Watson deep question answering system since the start of the project. He is the guest editor of “This is Watson,” a recent special issue of the IBM Journal of Research & Development. His research interests include natural-language semantics, analogical reasoning, knowledge-based planning, machine learning, and computational reflection.

IBM Research Ireland: Big and Fast Data in the City

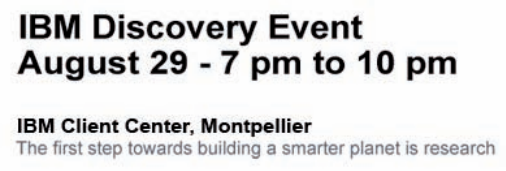
Plenary session Auditorium 2

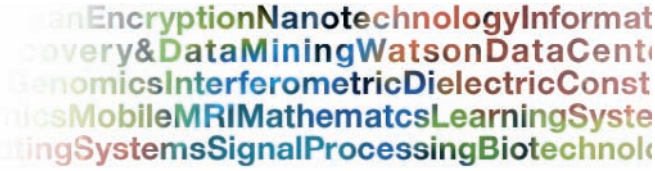
Synopsis

Cities are increasingly seen as the crucibles where the success or failure of our society is determined. The Smarter Cities vision is to bring a new level of intelligence to how the world works — how every person, business, organization, government, natural system, and man-made system interacts. In this talk, I will describe how IBM Research’s Smarter Cities Technology Centre is conducting research to make cities more efficient, productive, and enjoyable by leveraging the big and fast data generated by cities, their citizens, and their utilities. We are creating technology to continuously assimilate diverse and noisy data sources for better awareness and prediction, to model how humans use city infrastructure and infer demand, to factor uncertainty and risk into optimized planning and operations, and to organise open data and knowledge to engage citizens, empower universities, and enable business. I will also highlight the critical challenges these problems present for the AI research community, and approaches we are taking to address them.

Bio

Lisa Amini is a Distinguished Engineer and first Director of IBM Research Ireland, including the Smarter Cities Technology Centre (SCTC). SCTC Researchers focus on advancing science and technology for intelligent urban and environmental systems, with current focus on analytics, optimizations, and knowledge representation and reasoning for sustainable energy, water management, and transportation. Lisa was at IBM’s TJ Watson Research Center for 14 years, where she was a Senior Research Manager and founding Chief Architect for IBM's InfoSphere Streams product for continuous, high throughput, and low latency mining of intelligence from massive amounts of sensor and other machine generated data. The Streams product is the result of a Research technology, System S, for which Lisa was also architectural lead from inception. She also led her team in formative Smarter Planet/Cities pilots analyzing real-time data for cyber security, manufacturing, telecom, market data analysis, radio astronomy, environmental (water) monitoring, and transportation. Lisa received her Ph. D degree in Computer Science from Columbia University in NY.





Mining Customers Conversational Data from Social Media

Plenary session Camargue 6

Synopsis

IBM Customer Modeler is a library of components for distilling customer behavioral data into business insights and scenarios. The library operates on large scale data setups, such as social media data or logs of large systems. It analyzes the relationships between users and content they create and consume. Aiming for mass amount of data and large number of users, the Customer Modeler library is built on IBM Infosphere BigInsights, which builds on and enhances Apache Hadoop technology for managing large volumes of structured and unstructured data. In this paper we describe the different components of Customer Modeler; we start by focusing on the algorithmic part of the components and then elaborate on their possible use for building user profiles from social media data to be used in industry scenarios like advertisement and more.

Bio

Benjamin Sznajder – *IBM Research Division, Haifa Research Labs, Haifa University Campus, 31905 Haifa (benjams@il.ibm.com)* – graduated from Technion, Israel Institute for Technology.

Benjamin joined IBM in 2000 and works in the Information and Interaction Technologies department. He is an author or coauthor of several patents and papers on Information Retrieval in conferences and journals.

Booths

▶▷ Demonstration

Watson, from Winning Games to Saving Lives

Synopsis

The amount of medical information available doubles every 5 years and much is unstructured - often in natural language. Physicians don't have time to read every journal that can help them keep up to date with the latest advances. Computers should be able to help, but natural language is complex: often implicit, dependent on previous exchanges, the topic itself, and in what context it is being discussed.

IBM Watson represents a new class of industry specific analytic solutions that leverages deep content analysis and evidence based reasoning to bring a new form of intelligence to the value of the goods and services delivered to business. A physician could use Watson to assist in diagnosing and treating patients. First the physician might pose a query to the system, describing symptoms and other related factors. Watson mines the patient data to find relevant facts about family history, current medications and other existing conditions. It combines this information with current findings from tests and instruments and then examines all available data sources to form hypotheses and test them. Watson can incorporate treatment guidelines, electronic medical record data, doctor's and nurse's notes, research, clinical studies, journal articles, and patient information into the data available for analysis.

Come and see how the Watson application could interact with the physicans supporting a medical diagnosis.

▶▷ Demonstration

How to develop better customer intimacy and analytics through the use of social media analytics

Synopsis

Customers are more and more interconnected through the use of social media and better trust their network than any corporate messaging, Ads or even journal article.

In this context it becomes crucial for any Marketing, Sales or Communication organization to capture and analyze consumers' feedback directly from people own words to drive better business decisions in a timely manner. Tangible competitive advantages are achieved whenever Social Media Analytics becomes pervasive to existing Customer Analytics and Advanced Analytics platforms. IBM Cognos Consumer Insight is a packaged solution based on IBM Big Insights, IBM DB2 and IBM Cognos plus some other specific capabilities to address Social Media content analysis. Sentiment Analysis is performed through the use of proprietary IBM Natural Language Processing algorithms to better quantify customer satisfaction from a huge amount of data in multiple languages (English, Dutch, French, German, Spanish) collected from various sources of information (blogs, Facebook, Twitter, Youtube, boards…).

Cognos Consumer Insight can be easily connected with SPSS Modeler to use consumer sentiments as a new input for predictive models to better predict customer behavior or better refine customer segmentation.

▶▷ Presentation

Big Data Solution to analyze Cloud Datacenter

Synopsis

IBM has implemented a Big Data Solution based on IBM InfoSphere Streams and InfoSphere BigInsights with Hadoop to analyze the behavior of our Cloud Data center hosting the World-Wide Training Course referred to as the Central Lab Platform (CLP*). The objective of our Big Data Solution is to correlate Business data (Training booking and delivery), equipment provisioning process data, application and systems logs, performance data, electricity consumption of equipment and trouble ticket requests to find out patterns to anticipate problems and to enhance the overall business.

** The CLP manages 700 systems (BladeCenter, System x, Power Systems, Mainframe), 170 Disk storage systems and 200 switches to provide physical and virtualized equipment supporting around 200 training sessions per week, at WorldWide level.*

▶▷ Discussion

Center for Advanced Studies (CAS)

Synopsis

CAS France conducts and coordinates collaborative projects integrating public research centers, IBM France and its strategic customers and partners. Typical projects involve university researchers, interns or PhD students and address among others the following areas: Decision Automation, Optimization algorithms and applications and Smarter Cities applications.

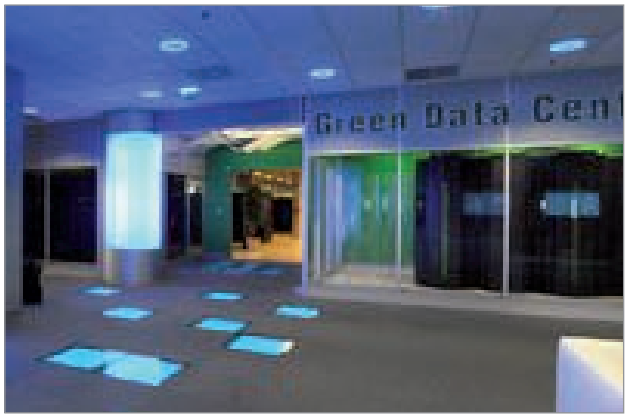
CAS Italy: Come and see how we are contributing to European research projects, particularly with the Knowledge and Language Technologies created by CAS of TrentoRise to perform research on Information Extraction and Retrieval based on deep linguistic analysis and their interactions.
Specific related topics are for example: ontologies engineering, lexical resources, sequences labeling, Dialog systems and interactions.

▶▷ Demonstration

Research for IT Driven Energy Efficiency

Synopsis

Réseaux et Interconnectivité Des Energies classiques et Renouvelables (RIDER) is a collaborative R&D project, which goal is to improve Energy Consumption through the use of IT platforms enabling the interaction between all energy consumers and providers, with the objective to optimize energy usage of a group of physical entities (Interconnected Data Center rooms, company Buildings, Neighbourhoods, …), combining predictive modeling, real data captured through sensors & actuators technology, and business intelligence.



RIDER CONSORTIUM

▶▷ Discussion

High Performance Computing

Synopsis

High Performance Computing (HPC) is moving from traditional HPC to technical computing to create major innovative Systems, Storage, Data Management and Software for different industries.

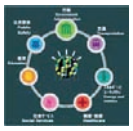
IBM has a great history of innovative leadership in supercomputing starting with DeepBlue in 1997, RoadRunner in 2008, and in June 2012 with the biggest WW supercomputing (>20 109 Billions of operations per second). With more than 40% of aggregate power of the 500 largest systems in the world and the 20 most energy-efficient systems IBM is the WW leader. We are investing massively in Exascale solutions as well as in Mainstream technical computing to drive client value through system optimization, management of resources in clusters, cloud and technical analytics.

With the IBM Exascale program, the challenge is to bring the technology to converge towards our vision with big data, analytics, modeling and simulation to integrated & innovative solutions & systems.

During the tour we will present some IBM HPC 2012 achievements, innovations and solutions around Energy, large scaling (>1M of cores in a single systems) and data analysis coupling HPC and big data approaches.

▶▷ Demonstration

Intelligent Operation Center



Synopsis

On this booth will be presented the IBM Intelligent Operations Center. This software solution is designed to facilitate effective supervision and coordination of operations within a city. The IBM Intelligent Operations Center provides operational insight to help authorities better understand, predict, and intelligently respond to patterns of behavior and events.

- Leverage information across all city agencies and departments
- Anticipate problems and minimize the impact of disruptions
- Coordinate resources to respond to issues rapidly and effectively

Artificial Intelligence for Smarter Cities

Synopsis

There is an ever increasing amount of heterogeneous complex data that is captured in cities today such as GPS, traffic, and weather data, messages from on-line forums, entries from event databases, or data from electricity networks and buildings. They can be exploited for increased well-being of its citizens, cost savings, and reduced C02 emissions.

This requires techniques for identifying relevant data, extracting, analysing, and representing them efficiently, and reasoning over them. Existing AI methods provide a good starting point for tackling these problems, but need to be extended to address scalability and uncertainty challenges and to handle noisy data.

The IBM Research - Ireland booth will give an overview of the AI research conducted at IBM's Smarter Cities Technology Centre in Dublin. This includes work on (i) integrating AI and Web technologies for city data management, (ii) integrating semantic and diagnosis techniques for retrieving the causes of traffic jams, (iii) developing planning methods for optimizing journeys within cities, (iv) integrating semantic and constraint programming techniques for supporting the energy efficiency in buildings, and (iv) developing inference methods for automated reasoning and decision making under uncertainty.

▶▷ Demonstration

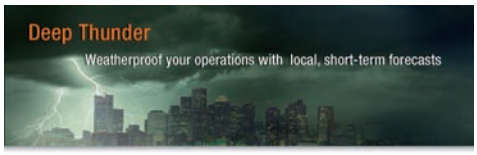
Deep Thunder – Weather and Flood Prediction

Synopsis

Employing good impact and flood forecast models is a promising step to dramatically improve emergency response in managing future storm events.

IBM Deep Thunder combines short scale weather forecasting, flood modeling, and damage modeling to allow for better operational risk management and allocation of resources.

It is running operationally in Rio de Janeiro & the PSSC Customer Center is implementing it as a new asset dedicated to the wider area of Montpellier (specifically focused on a Proof of Concept recreating the flood events of November 2011).



▶▷ Demonstration

Business Rules

Synopsis

IBM France Lab with more than 700 experts in France develops and drives products and solutions in the areas of Operational Decision Management, Mathematical Optimization, Mobile, Software Development Platform and Microelectronics, and delivers support and services to customers on IBM Software offering. Working in fast-growing spaces, Lab professionals leverage leading-edge expertise, IBM R&D network and global collaboration with external research and customers to foster innovation in IBM Portfolio and team-up with sales for developping new businesses and co-innovations.

World class experts in Mathematics, Operational Research and Knowledge Science develop core products & components for Smarter Solutions like:

WebSphere Operational Decision Management: (ex. ILOG JRules) it provides the power to intelligently automate a wide range of decisions across business processes and applications by means of business rules.

Cloud, Use-Case Testimonial of a WorldWide production solution

Synopsis

Whether you know everything about Cloud, or are just starting to get interested, come and see how IBM implemented a private cloud environment that runs in production and provides lab environments for over 200 customer technical classes and self-paced students per week, spread all over the world, in a fully automated, optimized, energy- and cost-efficient solution. Next to the data center that contains over 1,500 of all IBM systems and run all IBM software, we will demonstrate a business dashboard that allows you to touch and feel the value of the Cloud.

For more information about IBM Montpellier France

We are dedicated to deliverying High Value IT Solutions & Services

The IBM Client Center located in Montpellier, France provides comprehensive customer briefings, architecture design, benchmark, testing and training facilities to demonstrate the advantage of IBM systems, software and solutions.

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IBM Discovery Event
August 29 - 7 pm to 10 pm

IBM Client Center, Montpellier
The first step towards building a smarter planet is research

anEncryptionNanotechnologyInformation
overy&DataMiningWatsonDataCenters
enomicsInterferometricDielectricConstant
icsMobileMRIMathematcsLearningSystems
ingSystemsSignalProcessingBiotechnology