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Final Program

Organizers:



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Tutorials

1- Collective Intelligence

By Dr. Epaminondas Kapetanios

Abstract

The concept of Collective Intelligence (CI) has been defined in many different ways and its study has been periodically considered as a subfield of sociology, business, biology, physics, where collective behaviour is the subject of study. This can be found from the level of quarks to the level of bacteria, plant, animals to human societies.

With the rise of communications technology and, in particular, the Internet (Social Web, Web 2.0, Semantic Web), Collective Intelligence has been defined as a form of networking, which seeks to draw on enabling user generated content and enhance the pool of existing knowledge. To this extent, Collective Intelligence has been attributed to media convergence and participatory culture. CI, however, is not only a quantitative contribution, but also a qualitative one.

In the context of an abstract computational space, CI is perceived as a multi-thread inference process and, therefore, as a non-Turing model of computation. Given the rich history of computation as a Turing model and its evolution from mainframes to personal computers, distributed computation and to personalisation of contents and interactive participation of humans, this tutorial reflects on:

- philosophical and epistemological considerations of the concept of Collective Intelligence
- the history and the mathematical underpinnings and techniques associated with CI
- types of Collective Intelligence (e.g., group cognition, co-operation and collaborative software development, co-ordination) and its computational context as a non-Turing model
- engineering aspects of how we build systems, which connect people and computers in such a way that collectively act more intelligently than individuals, groups or computers have done before
- programming with Collective Intelligence (e.g., CI based programming languages, machine learning from user generated contents, collaborative knowledge and ontology engineering)
- current successes (e.g., Google, Wikipedia, bloggers and games communities) and future systems and applications (e.g., climate collaboratorium, collective prediction of future risks)

Biography

Dr. Epaminondas Kapetanios studied Statistics and Informatics at the University (Ionomicon Panepistimion) of Athens. He received his M.Sc. in Information Systems, Institute of Program Structures and Data Organisation, Faculty of Computer Science, Technical University of Karlsruhe, Germany. Epaminondas's Ph.D. has been awarded by ETH-Zurich, Department of Computer Science, Institute of Information Systems. He is currently holding a position as a Senior Lecturer at the School of Computer Science, University of Westminster, London, UK. His research interests and contributions stretch upon a variety of computational and system engineering approaches and techniques, where human participatory culture has been a key aspect as problem solving technique. To this extent, his theoretical and technological achievements vary from languages, automata theory, collective knowledge algebra and models, to natural language based query languages and cross-lingual information retrieval systems. He is currently investigating forms of Collective Intelligence as they apply to the Social and Semantic Web as well as Collaborative Software Development processes and Information Systems Engineering. Epaminondas has published in peer reviewed journals such as Data & Knowledge Engineering and Information Sciences, Elsevier Publisher. He is also member of the editorial review board of the International Journal of Technology and Human Interaction. He has also published peer reviewed articles in conferences such as NLDB, SSDBM, FQAS. He is a member of ACM and is currently acting as a consultant for IT companies.

2- A Unified Knowledge Engineering with Language Engineering for Effectively Knowledge Management: CyberBrain as a Case Study

By Asanee Kawtrakul, Ph.D.

Abstract

Accumulation of knowledge and management on certain topics is crucial for building an Intelligence Society. Knowledge Sources are divided into two different categories: Tacit Knowledge and Explicit Knowledge. Tacit Knowledge that people carry in their minds, such as the lessons learned from solving past problems and valuable information from previous experiences, are invaluable for knowledge sharing. With the development of the Internet and the World Wide Web, the enormous amount of explicit knowledge including best practices or experience on focus areas can be found and shared through writing research reports, visiting blogs, and even participating in Wikipedia. However, these sources of valuable knowledge are scattered over many different sources including human minds, and they come in many different formats. Moreover, desired information/knowledge is more difficult to access from scattered sources since search engines return ranked retrieval lists that offer little or no information on the semantic relationships among scattered information, and even when such information is found, it is often redundant or in excess volume since there is no content filtering or correct answer indicated. Accordingly, as we move beyond the concept of simple information retrieval and simple database queries, automatic content aggregation, question answering, and knowledge visualization become more important.

This tutorial introduces a framework called CyberBrain that unifies Knowledge Engineering and Language Engineering for effectively knowledge management. CyberBrain is a dynamic structure, interconnecting organization and communities. It behaves as a natural ecosystem for collecting and processing including extracting and aggregating the knowledge from both people minds and unstructured documents on the Internet. By exploiting the semantic links between problems, methods for solving them and the people who solve them, knowledge services could be provided as a “one-stop service”. This challenging platform needs both complex natural language processing, including deep semantic relation interpretation, and the collaborative intelligence which is the participation of the right stakeholders to create the community knowledge pool and contribute to both annotate problem-solving solutions scattered on the web and verify the ones that extracted by the question-answering system. Moreover, task-oriented ontology or semantic-based knowledge aggregating and organizing are needed for shortening the time it takes to consume the knowledge.

Biography

Asanee Kawtrakul is the Deputy Executive Director of NECTEC, the National Electronics and Computer Technology Center, National Science and Technology Development Agency, Ministry of Science and Technology and the Associate Professor in Language and Knowledge Engineering Technologies at Kasetsart University. She obtained her B.Eng (honors) and M.Eng in Electrical Engineering from Kasetsart University in Thailand and D.Eng in Information Engineering from Nagoya University, Japan. She is the leader of the Specialty Research Unit of Natural Language Processing and Intelligent Information System Technology (NaiST Lab.) at Kasetsart University. Her current research focuses primarily on unifying language processing technologies with Knowledge Engineering to support knowledge acquisition and management. She has led various large-scale research projects. Not only focusing in research, she, on behalf of NECTEC, works with the young researcher team at NECTEC and the Alliance Universities to bring the researches off the shelf and apply to the real problems solving for the industry, government, enterprise and social community. She has also initiated various collaboration effort in Thailand with FAO, UN agencies and other international institution such as NII, National Informatic Institute (under BIOCASTER Project) and Nagoya University, of Japan, University Joseph Fourier, GETALP, LIG-campus (Under Franco-Thai project), IRIT, Institut de Recherche en Informatique de Toulouse, and Laboratoire LE2I (UMR-CNRS), University of Bourgogne, of France. She has published more than 90 papers and books.

Keynote Talks

1-Proximity-based ad hoc Federation among Smart Objects and its Applications

Professor Yuzuru Tanaka

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Abstract

Information system environments today are rapidly expanding their scope of subject resources, their geographical distribution, their reorganization, and their advanced utilization. Currently, this expansion is understood only through its several similar but different aspects, and referred to by several different stereotyped terms such as ubiquitous computing, pervasive computing, mobile computing, and sensor networks. No one has clearly defined this expansion as a whole. It is so complex and has extremely versatile potentialities. In such an expanded information environment, some resources are accessible through the Web, while others are accessible only through peer-to-peer ad hoc networks. Any advanced utilization of some of these resources needs a way to select them, and a way to make them interoperable with each other to perform a desired function.

This talk focuses on the ad hoc federation of intellectual resources on smart objects, and first reviews our formal model of autonomic proximity-based federation among smart objects including both physical smart objects with wireless network connectivity and virtual smart objects such as services on the Web. Then it proposes some application frameworks based on this model. Smart objects here denote computing devices such as RFID tag chips, smart chips with sensors and/or actuators that are embedded in pervasive computing environments such as home, office, and social infrastructure environments, mobile PDAs, intelligent electronic appliances, embedded computers, and access points with network servers. Our model hides any details on how functions of each smart object are implemented, and focuses on abstract level modeling of its federation interface. Each smart object is modeled as a set of ports, each of which represents an I/O interface for a function of this smart object to interoperate with some function of another smart object. Here, we consider the matching of service-requesting queries and service-providing capabilities that are respectively represented as service-requesting ports and service-providing ports, instead of the matching of a service requesting message with a service-providing message. In the preceding research studies, federation mechanisms were described in the codes that define the behaviors of participating smart objects, and were not separated from these codes to be discussed independently from them. Our abstract model allows us to discuss both the matching mechanism for federation and complex federation among smart objects in terms of a simple mathematical model. Applications can be described from the view point of their federation structures. This enables us to extract a common substructure from applications sharing the same typical federation scenario. Such an extracted substructure may work as an application framework for this federation scenario.

This talk shows how our formal model of federation enables us to describe application frameworks not only for stereotyped applications such as location-transparent service continuation but also novel applications using glue objects and confederators.

Biography

Yuzuru Tanaka is a professor at the Department of Computer Science, Graduate School of Information Science and Technology, Hokkaido University, and the director of Meme Media Laboratory, Hokkaido University. He is also a professor of National Institute of Informatics. His research areas covered multiprocessor architectures, database schema-design theory, hardware algorithms for searching and sorting, multiport memory architectures, database machine architectures, full text search of document image files, and automatic cut detection in movies and full video search. His current research areas cover meme media architectures,

knowledge federation frameworks, and their application to e-Science based on meme media application frameworks such as database and Web visualization frameworks and virtual experiment environment frameworks. He worked as a board member of Japanese Society for Artificial Intelligence (1991-1994), a councilor of Japanese Society for Artificial Intelligence (1995-), a board member of Information Processing Society of Japan (1995-1996, 1999-2000, 2008-), an associate member of Japanese Academy of Science (2006-), and an advisory board member of NTT Research Laboratory (2004-)... He is currently involved in EU's Integrated Project ACGT (Advancing Clinico-Genomic Trials on Cancer).

2-Chance Discovery as Value Sensing by Data based Meta Cognition

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Abstract

Value-sensing means to feel associated with the content of one's awareness. This concept has been defined in the literature of educational psychology, as a particular dimension of human awareness. It is meaningful to extend this concept to the aspect of creativity in business. The "value" here can be dealt with as a new variable which business workers create from their interaction with the dynamic environment, on which they intentionally and sub-intentionally redesign the market sustainably. Data mining and data visualization can provide useful tools for aiding marketers'/designers' sensitivity of emerging values of consumers/users. This leads to the finding of essential scenarios corresponding to useful strategies for the designing and marketing of products.

Biography

Yukio Ohsawa is an associate professor in the School of Engineering, The University of Tokyo. He received Ph.D in Communication and Information Engineering from The University of Tokyo. He worked also for School of Engineering Science in Osaka University (research associate, 1995-1999), Graduate School of Business Sciences in University of Tsukuba (associate professor, 1999-2005), and Japan Science and Technology Corporation (JST researcher, 2000-2003). He initiated the research area of Chance Discovery, defined "discovery of events significant for decision making" in 1999, and series of international meetings (conference sessions and workshops), e.g., the fall symposium of the American Association of Artificial Intelligence (2001). He edited the first book on "Chance Discovery" (2003) and "Chance Discoveries in Real World Decision Making" (2003) published by Springer Verlag, and special issues in international and Japanese (domestic) journals. Chance discovery is growing: Journal issues has been published from the international journals, e.g., Journal of Contingencies and Crisis Management (2001), New Generation Computing (2003), New Mathematics and Natural Computing (2005), and from Journal on Soft Computing in conjunction with the special issue on Web Intelligence (2006), etc, and new books are appearing. He is in the editorial board the Japanese Society of AI and the planning board of New Generation Computing, and is the TC chair of IEEE-SMC technical committee of Information Systems for Design & Marketing.

3-Evolutionary Multiobjective Optimization and Multiobjective Fuzzy System Design

Professor Hisao Ishibuchi

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Abstract

In his talk, Prof. Ishibuchi will present his research on Evolutionary Multiobjective Optimization (EMO) and

Multiobjective Fuzzy System Design. His talk is divided into two parts. The first part is on EMO algorithms. First he will introduce some basic concepts in multiobjective optimization such as Pareto dominance and Pareto optimality. Next he will explain common features of well-known EMO algorithms such as NSGA-II and SPEA. Then he will show difficulties in the handling of many-objective problems by EMO algorithms. After that, he will explain some approaches to the scalability improvement of EMO algorithms to many-objective problems. In the second part of his talk, the focus shall be on the application of EMO algorithms to the design of fuzzy rule-based systems. First he will introduce the concept of accuracy-complexity tradeoff in the design of fuzzy rule-based systems. Next he will explain an EMO approach to multiobjective fuzzy system design. In his approach, the accuracy of fuzzy rule-based systems is maximized while their complexity is minimized. An EMO algorithm is used to search for non-dominated fuzzy rule-based systems with respect to accuracy maximization and complexity minimization. Then he will demonstrate through computation experiments on some classification problems that a large number of non-dominated fuzzy rule-based classifiers can be obtained along the accuracy-complexity tradeoff surface by a single run of his EMO approach. Finally he will suggest some future research issues in multiobjective genetic fuzzy systems.

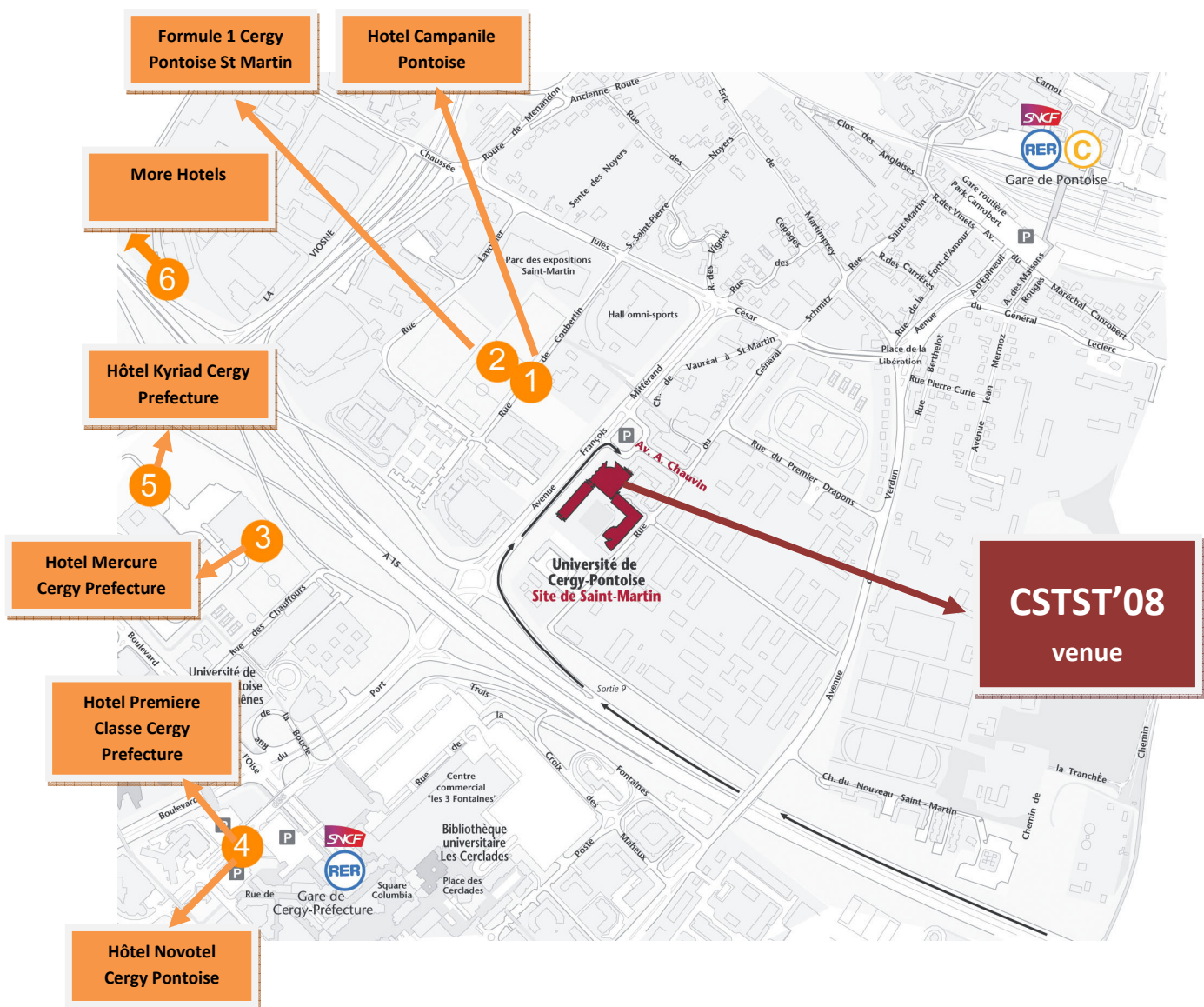
Biography

Professor Hisao Ishibuchi was born in Japan in 1963. He received the BS and MS degrees in precision mechanics from Kyoto University, Japan, in 1985 and 1987, respectively. He received the Ph. D. degree from Osaka Prefecture University, Japan, in 1992. Since 1987, he has been with Osaka Prefecture University, Japan, where he was a research associate (1987-1993), an assistant professor (1993), and an associate professor (1994-1999). He is currently a professor since 1999. He is also the Head of Computational Intelligence Research Center, Osaka Prefecture University. His research interests include evolutionary multiobjective optimization, fuzzy rule-based classifiers, multiobjective genetic fuzzy systems, data mining, and multi-agent systems. He received GECCO 2004 Best Paper Award in the Genetic Algorithm Track, ISIS 2005 Outstanding Paper Award, EFS 2006 Best Runner-Up Paper Award, HIS-NCEI 2006 Best Paper Award, GECCO 2007 Competition First Prize, and JSPS PRIZE from the Japan Society for the Promotion of Science. He is the Fuzzy Systems Technical Committee Chair of IEEE Computational Intelligence Society, and a Vice-President of Japan Society for Fuzzy Theory and Intelligent Informatics. He is also an associate editor of IEEE Trans. on Fuzzy Systems, IEEE Trans. on Evolutionary Computation, IEEE Trans. on Systems, Man, and Cybernetics: Part B, Mathware & Soft Computing, International Journal of Computational Intelligence Research, and International Journal of Metaheuristics. He was the Area Chair in the Hybrid Systems Area in IJCNN 1997 and FUZZ-IEEE 1998, a Technical Co-Chair of FUZZ-IEEE 2006, and a Program Co-Chair of EMO 2007, and will serve as the Program Chair for CEC 2010.

Location

The conference will be held at

**Université de Cergy Pontoise
Site de Saint Martin
2 avenue Adolphe Chauvin
95302 Cergy Pontoise**



Cergy Pontoise is strategically located to the north of Paris (30 Km central Paris). There are several possibilities to arrive to Cergy Pontoise: plane, rail, and road.

By Plane

Cergy Pontoise is served by the international airport of Roissy Charles de Gaulles which is only 30 km away. Participants are encouraged to arrive in France by Paris-CDG airport and then take a shuttle from the airport to Cergy (departure every 30 minutes to Cergy) or a taxi to Cergy. Paris Charles de Gaulle is the closest international airport to Cergy, but an arrival at Orly-Paris international airport is also possible (Subway 1 hour ride).

Air France offers CSTST'08 attendees discounted rates, please go to the following URL with the following code: **05173AF** to book your flight:



<http://w9.traveldoo.com/mice/connect.jsf?eid=05173AF>

By rail

The conference venue in Cergy Pontoise can be accessed by the RER lines.

Paris ↔ Cergy: 45 minutes via RER A (getting off at the Cergy Prefecture station)

- A 5 minute walk from the RER-A / SNCF Railway to arrive at the conference venue (See map above)

Paris ↔ Pontoise: in 35 minutes from Gare du Nord - Paris station, or 40 minutes via RER C (getting off at the Pontoise station)

- A 10 minute walk from RER-C / SNCF Railway to arrive at the conference venue (See map above)

The SNCF railway company offers CSTST'08 attendees discounted rates of about 20%. To take advantage of this discount, please send an email to train@sigapp.fr with your postal address and a specific voucher will be sent to you allowing you to obtain the special rate.

By road

Fast motorway access from:

- Paris (A15): 30 KM
- Lille-Belgium (A1-N1)
- Lyon (A31)

Parking facilities are available on and around the campus.

Social Activities

Conference Banquet

Banquet at the Renaissance castle of Mery sur Oise on Thursday October 30th

Before the banquet, a trip to Auvers sur Oise Castle / Impressionnists Museum is offered to conference participants. A cocktail will be served upon arrival followed by a visit to its gardens and museum.



The banquet will take place in the enchanting setting of the Renaissance castle of Mery sur Oise, beautifully restored by architect Jean-Michel Wilmotte.

The Château de Méry is set in a 27-hectare park with harmonious spaces, sumptuous staircases, dazzling chandeliers and 18th-century decorative woodwork.

Conference participants will be served by the castle's chef who will prepare a variety of delicious and seasonal delicacies.

Shuttle buses will transport participants at 6:30 PM from the conference venue and bring them back to the city by 10:30 PM.



Visit of Paris by Night Cruise on a Typical Fly Boat (Extra Event)

on Tuesday October 28th, 2008

Discover and re-discover Paris during a dinner cruise in a relaxing and convivial atmosphere. The night cruise offers the pleasure of dining on the Seine River amidst the charm of the city of lights. Conference participants will discover Parisian monuments and sights.

This event is a two-hour return cruise in Paris from Bir Hakeim Bridge (near the Eiffel Tower) to Bercy. An individual live commentary performed by actors will present you the following monuments:

- Swan Island / Ile aux Cygnes
- Eiffel Tower
- Alma Bridge
- Alexandre III Bridge and the Orsay Museum

- The Louvre Museum
- The Pont des arts Bridge
- The Neuf Conciergerie Bridge
- Notre Dame of Paris
- Saint Louis Island
- Charles de Gaulle Bercy Bridge
- The Ministry of Finances
- and more!!!

The boat combines viewing some of the finest Parisian monuments while eating a gourmet meal prepared with meticulous care by Chef Martial “Meilleur Ouvrier de France” (Best Skilled Worker in France) .

Shuttle buses will transport participants at 7 PM from the conference venue and bring them back to the city by 10:30 PM.

French Wine and Cheese Tasting (Extra Event)

On October 29th, 2008

What could be more fun than a French Wine and cheese tasting party?

Great wine and cheese combinations can take you all the way around the world. Autumn time is the perfect time to enjoy a red wine tasting during which an expert will reveal the secrets of blind wine tasting. Whether on a stroll through French Roquefort blue cheese or frolicking through France tasting a delectable and creamy Camembert, the right red wine pairing will have you singing “fromage” well before the camera snaps.

The winemakers have pretty much done all the work. All that's left is to choose some grapes, tasting techniques, and add a few complementary bites.

This event will be held inside the conference venue.

Others

Luggage Lockers

A locked room is available if you have to leave your belongings in a safe place during the conference.

Internet Connection

Wireless access & Internet facilities will be provided to CSTST'08 participants during the conference. Connection details will be given at registration desk.

The login/password are:

CSTST08



Final Program

	Tuesday Oct. 28, 2008				Wednesday Oct. 29, 2008				Thursday Oct. 30, 2008				Friday Oct. 31, 2008			
08:30-09:00 AM	Registration				Registration	Keynote Talk 1 (Amphi A1) <i>Prof. Yukio Ohsawa</i>			Registration	Keynote Talk 2 (Amphi A1) <i>Prof. Yuzuru Tanaka</i>			Registration	Keynote Talk 3 (Amphi A1) <i>Prof. Hisao Ishibuchi</i>		
09:00-09:30 AM																
09:30-10:00 AM		Opening Session (Amphi A1)				Coffee Break				Coffee Break				Coffee Break		
10:00-10:30 AM		Welcome Reception				Coffee Break				Coffee Break				Session MED (Amphi A1) Workshop WS 1 (Amphi A2) Workshop WAODS (Amphi A3)		
10:30-11:00 AM		Session CLA (Amphi A1)	Session SEC (Amphi A2)	Session FUZ (Amphi A3)		Session ALG (Amphi A1)	Session HCI (Amphi A2)	Workshop Fis (Amphi A3)		Session ISA (Amphi A1)	Session ANS 1 (Amphi A2)	Workshop ASBS 1 (Amphi A3)				
11:00-11:30 AM																
11:30-12:00 AM																
12:00-12:30 AM																
12:30-02:00 PM	Lunch			Lunch			Lunch			Lunch						
02:00-02:30 PM	Registration	Tutorial 1 (Amphi A1)	Tutorial 2 (Amphi A2)		Registration	Session KM (Amphi A1)	Session DM 1 (Amphi A2)	Workshop CIMI 1 (Amphi A3)	Registration				Workshop CAML 1 (Amphi A1)	Session ANS 2 (Amphi A2)	Workshop ASBS 2 (Amphi A3)	Workshop AASN (Amphi A1)
02:30-03:00 PM																
03:00-03:30 PM		Coffee Break				Coffee Break				Coffee Break						
03:30-04:00 PM																
04:00-04:30 PM						Session OPT (Amphi A1)	Session DM 2 (Amphi A2)	Workshop CIMI 2 (Amphi A3)		Workshop CAML 2 (Amphi A1)	Session ROB (Amphi A2)	Session COS (Amphi A3)	IEEE SYSTEMS, MAN, AND CYBERNETICS SOCIETY			
04:30-05:00 PM																
05:00-05:30 PM																
05:30-06:00 PM																
06:00-06:30 PM	Welcome cocktail			Wine and Cheese Tasting Event (Extra Event)				Conference Banquet Castle of Mery Sur Oise								
06:30-07:00 PM	Paris Sightseeing Cruise on the Seine River (Extra Event)															
07:00-07:30 PM																
07:30-10:30 PM																

IEEE
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SOCIETY

