

**Final Program of the DAAD Summer School CTDS 09**  
 September 24<sup>th</sup> to 26<sup>th</sup> 2009, Barceló Hotel – Gammarth – Tunisia

Time	Thu 24.09.09	Fri 25.09.09	Sat 26.09.09	
8:00-8:45	Registration			
8:45-9:00	Opening Session			
9:00-9:30	Session 1: Mashups and SaaS	Session 6: Machine Learning for Search	Session 10: Ubiquitous Computing	
9:30-10:00				
10:00-10:30				
10:30-11:00	Break	Break	Break	
11:00-11:30	Session 2: Mashups and SaaS	Session 7: Machine Learning for Search	Session 11: Grid Middleware	
11:30-12:00				
12:00-12:30	Lunch	Lunch	Lunch	
12:30-13:00				
13:00-13:30	Session 3: Cloud Computing	Session 8: Tutorial Grid Service Development	Session 12: Student Work Session	
13:30-14:00				
14:00-14:30				
14:30-15:00	Break	Session 9: Visit of Technology Pole Elgazala	Break	
15:00-15:30	Session 4: Cloud Computing			
15:30-16:00				
16:00-16:30	Session 5: Tutorial Web Service Development			Closing Session
16:30-17:00				<u>Social Program:</u>
17:00-17:30		Excursion to		
17:30-18:00		<u>Social Program:</u>	Excursion to	
18:00-18:30		Excursion to Tunis -Banquet-	Carthage and Sidi-bousaid	
18:30-19:00				
19:00-				

The session details are on the next pages of the program.

Session details:

**Sessions 1 and 2: Mashups and Software as a Service: Evolutions and Revolutions in the Integration Landscape, Boualem Benatallah, University of New South Wales, Sydney, Australia**

Integration is a key technique in software engineering, which aims to bring together disparate components and systems to form new, value-adding applications. In this context, *web mashups* and *software/platform/infrastructure as a service* are novel, innovative paradigms and forms of integration that are fascinating a rapidly growing number of researchers and practitioners. Yet, the exact meaning and scope of those terms, the technological challenges underlying these paradigms, as well as the research and business opportunities they bring are still vague and sometimes hard to grasp.

This talk aims at clarifying these paradigms, at discussing the relationships that exist among them, and also at outlining the challenges and potentials they bring. It starts by presenting the concepts and technologies that characterize web mashups and integration at the user interface level. Particular focus will be given to similarities and differences between this novel form of Web-based and often user-oriented form of integration with respect to traditional forms of integration, which have been around for years (e.g., data and application integration and, more recently, service composition). We also discuss the potential shift that mashups bring in terms of “mass programming”, as opposed to programming done by a small set of skilled developers. We then discuss how the software, platform, infrastructure, and user experience provided “as a service” benefit from and affect mashup or traditional integration as well as application development techniques in general.

**Sessions 3 and 4: Cloud Computing, Stefan Tai, Karlsruhe University, Germany**

Building on compute and storage virtualization, Cloud Computing provides scalable, network-centric, abstracted IT infrastructure, platforms, and applications as on-demand services that are billed by consumption. Cloud Service Engineering leverages Cloud Computing in the context of the Internet in its combined role as a platform for technical, economic, organizational and social networks.

This lecture introduces fundamentals of Cloud Computing and Cloud Service Engineering, providing an overview of state-of-the-art in research and practice.

**Sessions 5: Web Service Development Tutorial, Benjamin Schmeling, SAP Research, Germany**

In this talk you will learn how to develop and deploy a Web Service using open source tools and how to write a client for it. Further, you will learn how to enhance the web service with WS-\* functionality such as security, etc.

Further, the web service composition language WS-BPEL will be presented and you will see how to write a BPEL process and deploy it on an open-source BPEL engine. The composite service will be tested and the message exchange will be monitored.

**Sessions 6 and 7: Machine Learning for Search, Thomas Hofmann, Google, Switzerland**

High quality information retrieval and search engines require some degree of built-in intelligence to deal with uncertainty and vagueness. Machine learning and statistical methods are a key technology to accomplish this by harvesting large volumes of data.

The talk will provide a brief introduction to statistical techniques for supervised (perceptron, SVM) as well as unsupervised classification and discuss applications for document categorization, concept-based indexing, collaborative filtering, and result ranking.

**Session 8: Grid Service Development Tutorial, Kay Dörnemann, Marburg University, Germany**

The Distributed System Group of Marburg University, represented by Kay Dörnemann and Roland Schwarzkopf, will present their Grid Development Tools (GDT). GDT is a bundle of Eclipse Plugins useful for service and application development, workflow creation, and Grid management in the Eclipse Integrated Development Environment and which is a part of the Marburg Ad-hoc Grid Environment (MAGE).

GDT is divided into the GDT Service Generator, the Visual Grid Orchestrator (ViGO) and the partly standalone tools for Grid Management, Development and other Grid related tools, such as the not yet released Grid Browser. As tutorial, the Service Generator and ViGO will be presented by slides and a live demo. The Service Generator is responsible for creating and maintaining the entire Grid middleware specific code base of the service implementation, leaving the application developer free to concentrate on the application logic. Transformation of application code into Grid services will be supported by the use of annotations. The Visual Grid Orchestrator (ViGO) provides support for graphical modelling of Grid applications from individual Grid services as the component building blocks. The execution of composed Grid applications is done by the BPEL4Grid Engine.

**Session 9: Visit to the Communication Technology Pole Elgazala.**

We will visit the Elgazala pole of communication technologies. More information on this site can be found at <http://www.elgزالacom.nat.tn/en/index.htm>

**Session 10: Trends in Middleware for Ubiquitous Computing: WComp Solution, Jean-Yves Tigli, University Nice, France**

Ubiquitous Computing, introduced by Mark Weiser in 1991, raised many challenges across computer science: in systems design and engineering, in systems modeling, and in user interface design. Initially the effective integration and interaction with the physical world sufficed to promote ubiquitous computing interest due to significantly increased real world visibility as well as real world control, towards ambient intelligence. But these first ubiquitous systems were often proofs of concept with a single static configuration with a priori known devices. Today mobility of users and an increasing heterogeneity of devices introduce a new significant challenge for Middleware for ubiquitous computing. We witness to a kind of inversion in the classical software methodology where the software applications levels are much more stable and stationary than the software infrastructure level. The operational environment is then tightly connected with the real world but is also partly unknown at design time and is always changing at runtime in uncountable manner.

Building on experience from work on service continuity for mobile workers in the French national research project CONTINUUM ([continuum.unice.fr](http://continuum.unice.fr)), the speaker will postulate that we are moving towards an era of emergent middleware that is

middleware that emerges at run-time to match the current operational environment and application requirements.

The first part of this talk will conclude with identifying a set of requirements, trends, open issues associated with middleware for ubiquitous computing in a dynamic real world. In the second part of this talk, the speaker will present a new middleware for ubiquitous computing, called WComp, based on services for devices and three models for local composition (LCA), distributed composition (SLCA) and reactive adaptation (AA) using Aspects. Demonstrations on the platform WComp shall illustrate the various stages of this talk.

**Sessions 11: How to decentralize Desktop Grid middlewares, lessons learnt and future works, Christophe Cérin, University Paris 13, France**

In this talk, we explore the opportunities and the techniques used by our groups in order to decentralize Desktop Grid (DK) middlewares. DK middlewares, such as Boinc, Condor, XtremWeb are now very popular and quite mature (more than 10 years of history). However, architectures are often centralized in the sense that a single node (namely, the coordinator) is responsible for all the important services. Our vision considers the possibility to coordinate multiple instances of Condor, Boinc, Xtremweb DK middlewares, running concurrently in a single institution. Our middleware is named BonjourGrid and it is based on Bonjour, the Apple protocol based on publish and subscribe systems. The second view to decentralize services is to use Peer-to-peer systems, and in our case the Pastry system. We introduce the architecture of our PastryGrid middleware and its central element: the notion of Rendez-vous which is decided in a dynamic way. In this talk, we also discuss views from colleagues aiming at coupling the emerging cloud computing paradigms with volunteer PCGrids. The talk will focus on the big-picture challenges needed to realize effective DK middlewares, and possible solutions to challenging problems, including fault tolerance, results certification and progress we have to make within our research groups. This presentation is based on a joint work between LIPN (Paris) and UTIC-ESSTT (Tunis) laboratories.

**Sessions 12: Student work session.**

In this session PhD students will present their work to the summer school participants. The session will run like a poster session (but using the student laptop) where the summer school participants can go from one presentation to the other and ask questions and give feedback on the students research work.