



## **LarKC**

*The Large Knowledge Collider*

*a platform for large scale integrated reasoning and Web-search*

**FP7 – 215535**

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# **D8.1 Training Activities in LarKC**

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Document Identifier:	LarKC/2008/D8.1/Vx.x
Class Deliverable:	LarKC EU-IST-2008-215535
Version:	version 3.0.0
Date:	December 17, 2010
State:	final
Distribution:	public



## EXECUTIVE SUMMARY

This document reports the training activities undertaken in LarKC from month 19 until month 33 (October 2009 to December 2010) of the project. It includes an overview of the internal and external training activities, educational activities, documentation, as well as the generation and maintenance of training materials. In particular, the deliverable presents the status of the LarKC exchange program. The initial aim of the program was to establish better communications and encourage knowledge transfer within the consortium by facilitating an exchange of PhD students and researchers between all LarKC partners. Following this, the mid- to long-term aim of the program is to enable PhD exchange to organizations outside of the LarKC consortium in order to disseminate the LarKC results to other organizations and provide training in the process of using the LarKC platform for research purposes.



## DOCUMENT INFORMATION

<b>IST Project Number</b>	FP7 – 215535	<b>Acronym</b>	LarKC
<b>Full Title</b>	The Large Knowledge Collider: a platform for large scale integrated reasoning and Web-search		
<b>Project URL</b>	<a href="http://www.larkc.eu/">http://www.larkc.eu/</a>		
<b>Document URL</b>			
<b>EU Project Officer</b>	Stefano Bertolo		

<b>Deliverable</b>	<b>Number</b>	8.1	<b>Title</b>	Training Activities in LarKC
<b>Work Package</b>	<b>Number</b>	8	<b>Title</b>	Training, dissemination, community-building, cross-fertilization

<b>Date of Delivery</b>	<b>Contractual</b>	M33	<b>Actual</b>	31-December-10
<b>Status</b>	version 3.0.0		final	<input checked="" type="checkbox"/>
<b>Nature</b>	prototype <input type="checkbox"/> report <input checked="" type="checkbox"/> dissemination <input type="checkbox"/>			
<b>Dissemination Level</b>	public <input checked="" type="checkbox"/> consortium <input type="checkbox"/>			
















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<b>Abstract (for dissemination)</b>	This document reports the training activities undertaken in LarKC from month 19 until month 33 (October 2009 to December 2010) of the project. It includes an overview of the internal and external training activities, educational activities, documentation, as well as the generation and maintenance of training materials. In particular, the deliverable presents the status of the LarKC exchange program.
<b>Keywords</b>	training, internal training, external training, LarKC exchange program

Version Log			
Issue Date	Rev No.	Author	Change
July 19, 2010	1	Zhisheng	Updated from Month 18 deliverable
August 25, 2010	2	Zhisheng	Update Chap 2 and Chap 3
Dec 2, 2010	3	Zhisheng	Update Chap 3
Dec 6th, 2010	4	Matthias	Update on Chapter 3
Dec 7th, 2010	5	Yi Zeng	Update on Chapter 2 and Chapter 3
Dec 10th, 2010	6	Zhisheng	Final Integration
Dec 15th, 2010	7	Hansjoerg Neth	Minor corrections
Dec 17th, 2010	8	Zhisheng	Final Update



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## LIST OF ACRONYMS

<b>Acronym</b>	<b>Description</b>
DL	Description Logics
MORE	Multi-version Ontology Reasoner
OWL	Web Ontology Language
PION	The System of Processing Inconsistent Ontologies
RDF	Resource Description Framework
RDFS	Resource Description Framework Schema
SPARQL	SPARQL Protocol And RDF Query Language



## 1. Introduction

The main goal of task T8.1 in LarKC is the implementation of a program for internal and external training purposes. This program provides interested audiences within and beyond the boundaries of the LarKC consortium a series of training activities, ranging from general training (e.g., introduction to project-related areas, for the usage of the LarKC platform, or for the development of plug-ins) to specific training in the techniques and tools developed in the project. Internal training targets primarily the case study partners. They require additional expertise on particular topics in order to ensure an effective and efficient operation of the respective empirical studies. In contrast, external training targets parties which are not members of the LarKC consortium, but are interested in the topics related to the project setting. External training includes educational activities (e.g., co-organization of summer schools and establishment of the LarKC PhD exchange program), but also the user and developer documentation of the LarKC platform and associated plug-ins.

This document is an accumulated report of the LarKC training activities. The corresponding materials will be regularly updated based on the user feedback received. The results of this interaction are summarized in the different versions of D8.1, which are due in M6, M18, M33, and M42, respectively.

The current version of the document reports the training activities in LarKC from month 19 until month 33 (October 2009 to December 2010), including an overview of the internal and external training activities, educational activities and documentation, as well as the generation and maintenance of training materials. In particular, the deliverable presents the status of the LarKC PhD exchange program prospected to be implemented in this reporting period.



## 2. Internal Training Activities

The internal training within the LarKC project is designed to deliver the background materials on topics such as reasoning, knowledge representation languages, semantic search, information retrieval, and programming models for distributed systems, to the LarKC members, so that trainees and researchers can gain the necessary knowledge for working with the LarKC platform.

Internal face-to-face trainings of case study partners on specific topics are relevant for the successful operation of the case studies. This includes the delivery of background material on topics such as reasoning and knowledge representation languages, focused training in the form of hands-on sessions and practical exercises to facilitate the usage of semantic technologies and tools (reasoning platforms, language-specific editors, validators, parsers etc.), as well as the structured delivery of the case study process descriptions (in terms of main phases, phase transitions, data to be collected and measured in each phase, measurements and measurement tools and suites, etc). The latter aims to ensure a sound operation of the case studies and to ease the task of result collection and feedback.

From month 19 to month 33 (October 2009 to December 2010) we have organized the following main events of internal training:

- Internal training activities at the LarKC General Assembly, Berlin, September 2009;
- Internal training activities at the LarKC General Assembly, Munich, January 2010;
- Internal training activities at the LarKC General Assembly, Sofia, May 2010;
- Workshop on interleaving reasoning and selection, Sofia, May 2010;
- Workshop on causality research, July 2010;
- Internal training activities at the LarKC General Assembly, Beijing, November 2010;
- LarKC platform coding workshop 2010.

These training events will be reported with additional details in the following sections.

### 2.1 Internal Training Activities at the LarKC General Assembly, Berlin, September 2009

The main topics of this research meeting were:

- tighter integration between work packages;
- web reasoning;
- L2/WSML-Core/OWL 2;



- WSMO-Lite (MicroWSMO) standardisation;
- OASIS SEE TC (decider);
- non-functional properties (wsmo);
- data layer.

## 2.2 Internal Training Activities at the LarKC General Assembly, Munich, January 2010

The main topics of this research meeting were:

- Parallelisation and performance;
- life sciences and plugin alignment;
- moving computation close to the data;
- advanced plugin and data annotation;
- using the platform for use cases;
- data layer diversification;
- market and industry analysis.

## 2.3 Internal Training Activities at the LarKC General Assembly, Sofia, May 2010

The main topics of this research meeting were:

- Distribution model (GAT and JEE implementations);
- integration of plug-ins;
- workshop on interleaving reasoning and selection;
- parallelising and scaling reasoning;
- achieving real LarKC applications;
- 'XBRL Global' opportunity with both market/strategy, technology investigation;
- introduction of the Korean Institute for Construction Technology.



## 2.4 Workshop on Interleaving Reasoning and Selection, Sofia, May 2010

The purpose of this workshop was to explore various aspects of interleaving reasoning and selection for the scalability of web reasoning. This work consists of a joint effort between WP2 (Selection) and WP4 (Reasoning) on the interleaving approach withing the LarKC platform.

The agenda of this workshop included the following presentations:

- Zhisheng Huang (VUA): Interleaving reasoning and selection – general framework.
- Atanas Kiryakov (OntoText): Interleaving reasoning and selection from the perspective of WP2.
- Yi Zeng (WICI): Interleaving reasoning and selection with user interests.
- Hansjoerg Neth (MPG): Models of stopping rules and heuristic reasoning.
- Barry Bishop (Innsbruck and OntoText): Interleaving reasoning and selection for rule-based reasoning.

## 2.5 Workshop on Causality Research, July 2010

The main topics of this workshop were:

- Causality search task refinement;
- GUI specification;
- Dataset improvements.

The main workshop results can be summarized as follows:

- We need a better task definition; different people understand different meanings.
- Here is a detailed description of what we are doing: We *do* mine existing causal relationships, explore and rank chains of causal relationships, integrate datasets that describe causality between entities (e.g. LHGDN), implement simple text analysis algorithm to find already known causal relationships in text (see <http://www-tsujii.is.s.u-tokyo.ac.jp/medie/>)

We do *not* predict new causality links on the basis of instance data.

- Our end users are people with medical background. Thus, the preferred output format is text!
- A critical feature for success is causality chain ranking, by chain length, by provenance (different causality chains my have different thrusts).
- A very good system interface was proposed by Peter.



## 2.6 Internal training activities at the LarKC General Assembly, Beijing, November 2010

During the LarKC Beijing Meeting (Nov. 14–16, 2011), we organized several work package break-out sessions for internal training activities. The WP2 break session lasted for 2 hours. First we went through about 20 min presentations by each partner, and then we discussed the remaining review response issues. During the meeting, USFD presented research on random indexing and LLD1/LLD2. At the WP4 break-out session VUA presented on the general framework of interleaving reasoning and selection within the LarKC platform and discussed the approach of evaluation and benchmarking on the LarKC reasoners. STI presented work on rule-based reasoning. MPG reported recent work of heuristic processing with semantic data and stopping rules.

## 2.7 LarKC platform coding workshop 2010

We organized several LarKC platform coding workshops in 2010. The purpose of these workshops is to bring together the main programmers of WP5 in order to prepare the next platform release.

- The 1st LarKC Platform Coding Workshop, took place in Innsbruck, on June 7–9, 2010. The workshop lasts for 3 days. The topics of the workshop covered i) executor, decider, flow control, ii) caching, iii) distribution models, and iv) integrating and testing the new features.
- The 2nd LarKC Platform Coding Workshop took place in Ljubljana, on July 14–16, 2010. The workshop lasts for 3 days. The topics of the workshop covered i) executor, decider, flow control ii) caching, iii) distribution models, iv) new plug-in API, v) integrating and testing the new features.
- The 3rd LarKC Platform Coding Workshop took place in Amsterdam, on October 18-20, 2010. The agenda of this workshop was as follows:

Monday, 18 Oct. 2010

- 9:30 – 11:00: Status reports: what is working, what is missing, what hasn't considered yet
- 11:00 – 11:15: Coffee Break
- 11:15 – 13:00: Instrumentation and the new architecture (discussion). The goal of this session is to find out which parts are relevant for WP11 and how to integrate them with particular instrumentation components (e.g., agents and eventing)
- 13:00 – 14:00: Lunch
- 14:00 – 17:30: Split up into smaller groups and continue work on different sub-components, e.g. making the Hadoop workflow compatible with the latest developments (SPARQL endpoint integration, Mgmt. interface), Sindice workflow (integration with SPARQL endpoint and eventing), etc.



Tuesday, 19 Oct. 2010

- 9:30 – 11:00: Progress reports, summary of day 1 achievements
- 11:00 – 11:15: Coffee Break
- 11:15 – 13:00: Split up into smaller groups and continue work on different sub-components (tasks tbd)
- 13:00 – 14:00: Lunch
- 14:00 – 17:30: Split up into smaller groups and continue work on different sub-components (tasks tbd)

Wednesday, 20 Oct.

- 9:30 – 11:00: Progress reports
- 11:00 – 11:15: Coffee Break
- 11:15 – 13:00: Wrap-up, next steps and deadlines
- 13:00 – 14:00: Lunch
- 14:00 – 18:00: Split up into smaller groups and continue work on different sub-components (for those staying until the end of the day)



### 3. External Training Activities

External training on LarKC is designed for interested parties outside the LarKC consortium regarding the technologies employed or developed throughout the project.

#### 3.1 Plan of External Training Activities

- **Academic seminars / courses.** Academic partners in the LarKC consortium will include training activities on the project key features within their own institution programmes. They will be of different nature, depending on the type of audience that is intended to reach:

- Regular undergraduate lectures,
- PhD lectures and activities,
- Postgraduate courses, in the scope of Masters and speciality degrees.

In these areas, the academic groups working on the LarKC project are responsible for lecturing on several topics, so that LarKC-related concepts are being introduced in a gradual way.

- **LarKC public workshops.** It is expected to organize dedicated LarKC public workshops along the project lifecycle. The workshops will mainly consist in topical presentations focused on the most relevant key features and innovations worked out at the moment to be held. Expected attendees to these workshops are:

- Students from the hosting organization or from universities/centres external to the LarKC consortium.
- Research audience: researchers from the LarKC partners and from organizations external to the LarKC consortium.
- Business audience: business units of LarKC partners or external industry organizations interested into the exploitation of LarKC results.
- Early access group: As this is a special target group for the results of the LarKC project, a dedicated section describes the training plan for this group in more detail (see Section 3.5 on page 3.5).

- **Cooperation with the EastWeb project.** The goal of the EastWeb project (see <http://www.eastweb.eu/>) is to build an integrated leading Euro-Asian high education and research community in the field of the Semantic Web, the next generation of the Web. LarKC has a plan to cooperate with the EastWeb project. Particular attention will be paid to training events in Asian countries, realized with the help of our Chinese and Korean partners. Their participation in the project opens new opportunities for the European reasoning and search community to outreach their technology towards two of the most rapidly evolving IT sectors worldwide. Elena Simperl (STI Innsbruck) was one of the organizers of the Asian Semantic Web School (ASWS), which was organized together with EastWeb for the second time in December, 2008, in Thailand.



- **European summer schools on the Semantic Web.** Further external training will be provided in the context of existing European summer schools such as the Semantic Web Summer School (SSSW) and the Reasoning Web Summer School. We will contribute to the organization of at least one summer school during the project runtime — in terms of providing tutors and teaching materials — in order to educate the young research community on the novel ideas and technologies emerging in the LarKC project and to establish the continuity of the research initiated throughout the project beyond its boundaries. An important part of the external training will also be to train potential beneficiaries of the LarKC platform on how to use it and to register and plug-in additional custom modules. In order to improve the quality of the materials documenting the usage and the further development of the platform, the project web site will contain a dedicated discussion forum for users to provide feedback on the quality of the documents delivered (see [https://gforge.hlr.de/forum/forum.php?forum\\\_id=522](https://gforge.hlr.de/forum/forum.php?forum\_id=522)).
- **Participation of LarKC in external workshops.** LarKC will offer training activities (such as topical presentations on certain results of the project) in workshops organized by other projects and organizations.
- **Exchange program.** Efforts regarding exchanges of LarKC students and researchers are reported in the following section (Section 3.2).

## 3.2 Exchange Program

This section introduces the LarKC exchange program that was set up within the first twelve months of the LarKC project. The major aims of the program are as follows:

- The initial aim of the program is to establish better communication between the partners of the LarKC project by facilitating an exchange of PhD students and young researchers, between all partners in the LarKC consortium, to encourage a transfer of knowledge within the consortium. By establishing better communication within the consortium a better shared understanding of the research problems faced within the LarKC project will be reached and ultimately a better quality of research can be conducted resulting in better results from the LarKC project;
- Following this the aim of the program is to enable PhD exchange to organizations outside the LarKC consortium in order to disseminate the LarKC results to other organizations and provide training in the process of using the LarKC platform for research. Exchanging PhD students outside the consortium is crucial to ensure the acceptance of the LarKC platform as a platform for large scale reasoning research and will ensure the endurance of the LarKC platform as an infrastructure beyond the duration of the LarKC project. STI International will play a major role in this endeavor by establishing connections with organizations outside the LarKC consortium that are relevant for the topics of LarKC;
- Finally the longer term aim of the program is to establish lasting communication channels between the different organization, both within the LarKC consortium



and external organizations, beyond the length and scope of the LarKC project. These lasting communication channels will enable better collaboration within the community and will be evident from the number of publications that will be created from cross organization authors. The exchange program will also support the Early Access Group, described in more detail in Section 3.5.1, by raising awareness of the LarKC platform and disseminating results in a timely fashion to early adopters.

For the purposes of describing the exchange program we identify a terminology, which is described in the appendix of this document.

The guidelines are put in place for the purpose of establishing an exchange for a given **Student** with a given **Host Organization**, and ensuring its successful execution and completion. Deviation from these guidelines is possible only with agreement from the ork package WP8 leader and the LarKC Technical Project Management Board. See the Appendix for the detail of the guidelines.

The following table provides an overview of the current academic partners that will participate in the LarKC exchange program. In each case the estimated number of exchanges to be made during the LarKC project is provided:

- **VUA**

- Martijn Brakenhoff, MPG, April to September 2009. His exchange report can be found from the following link: <http://wiki.larkc.eu/MartijnBrakenhoff>.
- Gaston Tagni, MPG, 2011.
- Zhisheng Huang, WICI, October to November 2010. His exchange report can be found from the following link: <http://wiki.larkc.eu/LarkcProject/WP8/ExchangePlan?action=AttachFile\&do=view\&target=Exchange+Plan+Report\%28VUA\%29-Zhisheng.doc>.

- **USFD**

- Hamish Cunningham, IARC, 2009.
- Kalina Bontcheva, IARC, 2009.
- Angus Roberts, Ontotext, Summer 2009.
- Valentin Tablan, Ontotext, Summer 2009.

- **WICI**

- Yi Zeng, VUA, May 23rd to June 30th 2009. His exchange plan report can be found from the following link: <http://wiki.larkc.eu/LarkcProject/WP8/ExchangePlan?action=AttachFile\&do=view\&target=Exchange+Plan+Report\%28WICI\%29-YiZeng.pdf>
- Yan Wang, VUA, May to June 2010. Her exchange plan report can be found from the following link: <http://wiki.larkc.eu/LarkcProject/WP8/ExchangePlan?action=AttachFile\&do=view\&target=Exchange+Program+Report\%28WICI\%29--YanWang.doc>

- **MPG**



- Lael Schooler or Hansjoerg Neth, VUA, 2011 (tentative).
- Jose Quesada, Siemens, 2011 (tentative).

- **HLRS**

- Axel Tenschert, VUA, May 4–15, 2009. His exchange plan report can be found from the following web link: <http://wiki.larkc.eu/LarkcProject/WP8/ExchangePlan?action=AttachFile%26do=view%26target=ExchangeReportAxelTenschert%28HLRS%29May09.doc>
- Alexey Cheptsov, Sheffield University, 2010, in the time-frame of the GATE summer school. (This exchange was eventually postponed, due to unforeseen issues. A new date is still not decided.)

### 3.3 LarKC PhD Symposium

The LarKC PhD exchange program also runs an annual PhD Symposium, where PhD students can present their current research on their topic and receive feedback from the foremost experts in the field. Prior to the symposium, students will submit a report outlining the current state of their research and their future plans. These PhD reports will be reviewed by chosen experts from within the LarKC consortium or externally. A number of PhD students will be chosen to present their work at the symposium, those who are not chosen will receive written feedback in terms of the reviews to their PhD report. The PhD symposium will run and each PhD student will present his or her current work in the form of a short presentation. The experts who performed the reviews will be present to give further feedback on the PhD Students current directions towards their PhD. The PhD symposium offers a great opportunity to students to get feedback on their thesis and to see the research of other students in order to get a clear understanding of the obstacles that they face and potential solutions to these obstacles.

One of the intended side effects of the exchange program and PhD symposium is to establish joint PhD supervision in a cross organizational manner. When a given **Student** is exchanged from the **Student Organization** to the **Hosting Organization** a research topic may be established that has parts to both organizations. In such a case the given **Student's** PhD thesis may be supervised by representatives of both organizations. In this way, the PhD student will benefit from the knowledge of the representatives of both organizations, which will result in a PhD degree of a higher quality. Also, via the PhD student, the level of cooperation and communication between the two organizations jointly supervising the student will be improved.

The LarKC PhD symposium is a yearly event where researchers engaged in pursuing PhDs can gain feedback from more experienced researchers within the community. It also gives PhD students at less advanced stages an opportunity to see the state of other PhD students who are more advanced, thus enabling them to avoid common pitfalls and mistakes when writing a PhD.

The **1st LarKC PhD Symposium** has been organized in conjunction with STI Innsbruck and STI Berlin and was held on the 22nd and 23rd of September 2009 in Berlin, Germany. The symposium has deliberately been co-located with the LarKC plenary meeting to make it easy for leading researchers in the LarKC consortium to be



present and give their invaluable feedback to the PhD students. 18 PhD students were accepted and presented their research on the two days of the symposium. Students in early phases of their PhD were given a twenty minute slot to present the outline of the work they plan to conduct in their thesis, while more advanced students were given thirty minutes to present their current status and remaining plans. The full schedule of the event is listed below.

### Day 1 – 22/09/2009

Time	Title	Presenter
9:30	Welcome	Elena Simperl
9:45	Ontology Merging by Matching a Selection of Ontologies in a Cluster Environment	Axel Tenchert
10:15	Towards Agile Ontology Maintenance	Markus Luczak-Rsch
10:45	A Parametric Design Approach to Scalability Management of Semantic Middleware	Reto Krummenacher
11:15	<b>Coffee break</b>	
11:30	Query Optimization in Semantic-Web-Databases	Ralf Heese
12:00	Feedback-driven Ontology Reorganisation	Elmar Wach
12:30	<b>Lunch</b>	
13:30	Evaluating WSMO-Lite	Jacek Kopecky
14:00	Search Refinement through User Interests: A Case Study in Medical Research	Yan Wang
14:30	Semantic Learning for Trend Recognition in Text Collections	Olga Streibel
15:00	Knowledge-based Complex Event Processing	Kia Teymourian
15:20	Structure-based Analysis and Modularization of Ontologies	Goekhan Coskun
15:40	<b>Coffee break</b>	
16:00	Explorative analysis of realworld dynamic networks	Benedikt Meuthrath
16:20	<b>Closing - Day 1</b>	

### Day 2 – 23/09/2009

Time	Title	Presenter
9:30	Unifying Search and Reasoning: From the Viewpoint of Granularity	Yi Zeng
10:00	MEMOS: A Methodology for Modeling Services	Mick Kerrigan
10:30	Automatic plugin workflow construction	Luka Bradesko
11:00	Latent-Class Statistical Relational Learning from Formal Knowledge	Achim Rettinger
11:30	<b>Coffee break</b>	
11:45	Information Extraction and Integration from Heterogeneous Semi-structured Web Sources in the Domain of Used Cars	Radoslaw Oldakowski
12:05	Cognitively-inspired Heuristic Reasoning for Scalable Semantic Web Reasoning	Gaston Tagni



<b>12:35</b>	Monitoring and Adaption of Semantic Execution Environments	Srdjan Komazec
<b>13:05</b>	<b>Closing - Day 2</b>	

The **2nd LarKC PhD Symposium** was held in Beijing in Nov 14th, 2010. More than 40 participants attended this symposium.

The official website for this symposium can be found online at <http://www.wici-lab.org/wici/larkc-phd-2010>

The Proceeding of the symposium can be downloaded from <http://www.wici-lab.org/wici/larkc-phd-2010/LarKC-PhD-2010.pdf>.

<b>Time</b>	<b>Presenter</b>	<b>Title</b>
<b>9:00-9:05</b>	Yi Zeng	Opening
<b>9:05-9:35</b>	Danica Damljanovich (USFD)	Natural Language Interfaces to Ontologies
<b>9:35-10:05</b>	Matthias Assel (HLRS)	Intelligent Segmentation of Large Datasets
<b>10:05-10:35</b>	Yan Wang (WICI)	Interleaving reasoning and selection by knowledge summarization
<b>10:35-11:00</b>		Tea Break
<b>11:00-11:30</b>	Jacopo Urbani (VUA)	Scalable and parallel reasoning in the Semantic Web
<b>11:30-12:00</b>	Jun Fang (NPU)	Contrastive Reasoning with Inconsistent Ontologies
<b>12:00-12:30</b>	Yi Huang (SIMENS)	Relation prediction using machine learning in semantic domains
<b>12:30-13:00</b>	Daniele Dell'Aglio (CE-FRIEL)	ANSWERS: A Novel Semantic Web-Enabled Recommender System
<b>13:00</b>	Yi Zeng	Closing Remark

The seminar was open and free to everyone who was interested. The 2010 LarKC PhD Symposium was the 2nd symposium in this series. The participants of the first event all agreed that they learned a lot from each other and that was one of the most important reason why we have this event this year. During year 2 of the LarKC project, the consortium has made much progress towards Web-scale reasoning and search, ranging from new selection and reasoning strategies to real-world use cases. Many of these progresses were enabled by PhD students and young researchers in this consortium. We were very proud to have these researchers report their recent results at the 2nd LarKC PhD symposium.

In addition, we were very pleased to see that there were external plug-in contributions outside the LarKC consortium in the form of close collaboration with the LarKC members. The speakers for the 2nd LarKC PhD symposium were from China, Germany, Italy, the Netherlands, the UK, etc. We were pleased to have several talks, covering a wide range of topics on the semantic web, machine learning, and AI in general.



The topics were focussed but not limited to the following: natural language interfaces to ontologies, segmentation strategies for web-scale data, machine learning meets the semantic web, selection strategies, parallel and contrastive reasoning for the semantic web, and semantic web-enabled recommender systems. Some of the speakers are still in their PhD program, hence we were very pleased to have several senior members from within and outside the LarKC consortium to make comments and suggestions to their future research in the area of web search and reasoning. More importantly, the speakers learned a lot from each other during their communications throughout the symposium.

### 3.4 Training via the LarKC Wiki and Blog

The training activities in the LarKC Wiki (<http://wiki.larkc.eu>) and Blog (<http://blog.larkc.eu>) can be considered to be targeted at both internal and external training activities, because the information appear on the public pages of the LarKC Wiki and the LarKC blog are accessible for both internal members and researchers from the outside of the LarKC consortium. The LarKC Wiki and the LarKC Blog have served as one of main channels for the communications between the researchers inside the LarKC project and the researchers outside of LarKC. The research resources which are collected in the LarKC Wiki and the discussions in the LarKC blog provide rich repositories of relevant research information. That is achieved mainly via the following approaches: A Semantic Web Technology Hierarchy at the LarKC Wiki, training materials on the LarKC Wiki, LarKC Blog entries devoted to training, and online video training.

- Semantic Web Technology Topics at the LarKC Wiki: The pages of the Semantic Web Technology Topics (see <http://wiki.larkc.eu/TechnologyTopics>) at the LarKC Wiki are designed to be a place for the LarKC community to collect different technologies and topics that are relevant to LarKC. So far, the following topics have been created:
  - Adaptive Memory
  - Approximate Reasoning
  - Distribution and Parallelisation
  - Information Extraction
  - Thinking At Home
  - Triple Stores
  - Why We Need LarKC
  - Closed World Assumption and Negation as Failure
  - Librarianship: the Forgotten Silver Bullet
  - Granular Computing and Variable Precision Logic
  - Meta Reasoning
  - Contextual Reasoning
  - Module Reasoning



- Rule-Based Reasoning
- Resource-Bounded Reasoning

Additional topics of relevance are expected to be added. Moreover, part of the content in the LarKC survey deliverables such as D1.1.1 (Overview of relevant work in other areas) and D4.1 (A Survey of Web Scale Reasoning) will be converted and added into the corresponding Wiki pages after those deliverables are completed.

- Training material in the LarKC Wiki. The LarKC Internal Training Wiki pages (see <http://wiki.larkc.eu/InternalTraining>) are designed to be internal, i.e., accessible only by LarKC members only. They collect resources for mutual education of the LarKC partners. The External Training wiki page (at <http://wiki.larkc.eu/ExternalTraining>) will eventually contain material for educating external parties on how to use the LarKC platform.
- LarKC Blog for Training. The LarKC Blog serves as a forum for the LarKC researchers.
- Online video training. The training page provides some links to the external online videos, which include Video Lectures on the Semantic Web (see [http://videlectures.net/Top/Computer\\\_Science/Semantic\\\_Web](http://videlectures.net/Top/Computer\_Science/Semantic\_Web)) and video lectures on search engines ([http://videlectures.net/Top/Computer\\\_Science/Search\\\_Engines](http://videlectures.net/Top/Computer\_Science/Search\_Engines)).

## 3.5 Training for Early Access Group

### 3.5.1 General Ideas

LarKC has created a **Researcher Early Access Group** that is open for participation to scientists working in related fields. Members of this group will get early access to project infrastructure and will be invited to experiment with plug-ins on the collider. Plans for training the members of the Early Access Group have not yet been finalised, but the following options are considered:

- Programming by example: Providing a set of pre-programmed open-source plugins that the Group members can adapt.
- An instructional video explaining the overall LarKC plugin architecture, and the general design motivations behind it. This is easier to get across in a spoken than in a written medium.
- Joint programming sessions: These are 1–2-day events where LarKC designers can instruct the members of the Group and do “physical handholding”. Because of the high overhead of these events (time, travel costs), we expect to conduct at most 1 or 2 of such sessions.
- Home-visits: In order to get more people involved at each of the organisations participating in the Early Access Group, LarKC designers might visit those organisations on-site. This is more cost- and time-efficient for the Group members than the joint programming sessions.



- Textual material: We will make extensive use of the LarKC Wiki for publishing on-line documentation, both on the plugin interfaces and on example plugins already written. We will use the wiki facilities for collecting feedback and improvements on this documentation from the group members. (This will prepare the documentation for wider exposure at a later stage).

### 3.5.2 3rd Early Adopters Tutorial

The **3rd Early Adopters Tutorial** took place on the 30th of May at the ESWC 2010 (<http://www.eswc2010.org>) in Crete. There were 15 registered attendees for the workshop. Participants to the tutorial had the opportunity to work directly with the LarKC platform and use a number of LarKC workflows, including Urban City and GATE Transformer with CyC reasoning. Furthermore, a main goal of this workshop was to explain LarKC's capabilities for executing particular plug-ins and workflows remotely and in a distributed manner. The agenda of the tutorial was as follows:

<b>09:30 - 10:00</b>	Overview and Goals of LarKC,
<b>10:00 - 10:30</b>	Introduction to the LarKC Architecture
<b>10:30 - 11:00</b>	<b>Coffee break</b>
<b>11:00 - 12:00</b>	Hands-on 1: Introduction to the LarKC code base. Working with an existing LarKC workflow
<b>12:00 - 13:00</b>	Hands-on 2: Building a LarKC decider plug-in to create a workflow from existing plug-ins
<b>13:00 - 14:30</b>	<b>Lunch</b>
<b>14:30 - 15:00</b>	Introduction to Distributed and Parallel Processing in LarKC
<b>15:00 - 16:00</b>	Hands-on 3: Building a LarKC plug-in and integrating it into an existing workflow
<b>16:00 - 16:30</b>	<b>Coffee break</b>
<b>16:30 - 17:15</b>	Understanding and Manipulating the Urban Computing workflow
<b>17:15 - 17:30</b>	Closing and Open Discussion

At the end of the 3rd Early Adopters Tutorial, questionnaires were provided to the participants. Through this, feedback regarding the tutorial was collected and analysed in order to improve the the next Early Adopters Tutorial and to learn from the comments and suggestions from scientists outside the LarKC consortium. Figure 3.1 shows the evaluation of the collected answers.

All in all, most early adopters rated the organisation, the programme, and their individual impression of the tutorial as positive and they would be interested in another tutorial. Furthermore, all participants suggested their preferred development environment and version control system. These suggestions are considered within LarKC internal discussions about usage of development environments and version control systems. Last but not least, one participant was asking for more coding, i.e., his concern was that in the current form there is too much copy-pasting from simple, exemplarily code, rather than own development effort.



<b>LarKC 2010: Early Adopters Workshop in conjunction with ESWC 2010</b> 30th May, 2010, Crete								
<b>Evaluation Survey</b>								
A - Organization of the event	Poor	Fair	Average	Good	Very good	Excellent	Average (1..6)	
Overall Impression of the organization	0	0	0	3	7	0	4,70	
Advance information that you received about the event	0	0	1	6	3	0	4,20	
Web Site of the event - was the information you needed easy to find, sufficient, etc	0	0	0	8	2	0	4,20	
Venue	0	0	2	7	1	0	3,90	
Quality of the provided accommodation	0	0	1	3	5	1	4,60	
B - Programme	Poor	Fair	Average	Good	Very good	Excellent		
Programme content	0	0	0	3	5	2	4,90	
How was the content in addressing your interests and needs?	0	0	0	4	3	3	4,90	
Quality of speakers' presentations?	0	0	2	3	3	2	4,50	
Opportunities to participate in discussions	0	0	0	3	3	4	5,10	
C - Overall impression of the event	Poor	Fair	Average	Good	Very good	Excellent		
Overall impression of the event	0	0	0	2	6	2	5,00	
Opportunities to identify partners and create contacts for future collaborative work	0	1	0	5	3	1	4,30	
Opportunities to develop new ideas	0	0	1	2	5	2	4,80	
D - General comments	YES	NO						
Are you interested in attending the next LarKC Workshop?	9	1						
Suggestions, improvements etc.	One participant wanted more coding. I.e. he thought that our current set-up was too much copy-pasting							

Figure 3.1: Screenshot of the 3rd Early Adopters Evaluation Tutorial survey form.



### 3.5.3 4th Early Adopters Tutorial

The **4th Early Adopters Tutorial** was held in Beijing, China, on November 13th, 2010. Approximately 90 participants attended the tutorial. Two introductions, four hands-on sessions, as well as use case demos from Urban computing were presented. The tutorial was bi-lingual (English and Chinese), with most of the talks translated in real-time to the audience.

The participants agreed that LarKC is easy to use as a pluggable platform for Web-scale reasoning. The participants already provided some direct feedback of the tutorial on the LarKC Chinese forum at <http://bbs.w3china.org/dispbbs.asp?boardID=80&ID=87740>.

The aim of this tutorial was to enable participants to get access to early research results and technologies from the LarKC project. Having completed this tutorial participants have the basic skills required to develop their own plug-ins for the LarKC platform and run their own experiments on the LarKC platform. The tutorial ran as a full day event, with presentations from LarKC experts and a series of hands-on exercises designed to introduce the participants to the different aspects of the platform. The agenda for the second tutorial was as follows:

<b>09:00 - 09:30</b>	Introducing the Large Knowledge Collider (LarKC)
<b>09:30 - 10:00</b>	<b>Coffee Break</b>
<b>10:00 - 10:30</b>	The Architecture of the LarKC Platform
<b>10:30 - 11:00</b>	Hands-on 1: Setting up the Platform within Eclipse and run the simple Workflow
<b>11:00 - 12:00</b>	Hands-on 2: Extending the simple workflow by adding additional plug-ins
<b>12:00 - 13:30</b>	<b>Lunch</b>
<b>13:30 - 14:30</b>	Hands-on 3: Making a new plug-in and adding it to the Workflow
<b>14:30 - 15:00</b>	<b>Coffee Break</b>
<b>15:00 - 15:20</b>	Introduction to Distributed Processing in LarKC
<b>15:20 - 16:15</b>	Hands-on 4: Speeding things up: extending the Workflow with Hadoop
<b>16:15 - 16:30</b>	Urban Computing Demo
<b>16:30 - 17:00</b>	Closing and Open Discussion

### 3.5.4 Plan for Early Adopters Tutorials and Workshops

We plan to organize another tutorial for SemTech2011 in San Francisco.

## 3.6 LarKC Developer Forum

The LarKC Developer Forum provides a forum to early adopters and developers for the discussion of issues related to the LarKC platform. The developer forum is currently hosted on the GForge system at <https://gforge.hlr.de/projects/larkc/>. It provides a number of different ways in which developers can discuss issues and raise problems related to the LarKC platform to the development team.



- **Forums:** Two different forums are provided where open discussions regarding the larKC platform can occur. The **LarKC-developers forum** is used primarily by internal and external developers to discuss issues related to the development of the LarKC platform. The **LarKC-users forum** is used by those developing plug-ins or those building new LarKC workflows from existing plug-ins to discuss issues related to their development efforts.
- **Trackers:** The trackers at the LarKC developer forum provide a structured way for developers and users to raise issues against different parts of the platform, and particular plug-ins or workflows. The **bug tracker** is used to raise issues in the case of finding errors in the way in which these components operate. The **feature request tracker** is used to request new features in the platform, a particular plugin, or a certain workflow. The **patches tracker** is used to provide information, either from developers to users or from users to developers on patches that work around certain existing issues in the larKC platform. Finally the **support tracker** is used for raising technical support tickets so that users can request help in identifying if a particular issue is a bug, a missing feature, or just an error in using the platform.
- **Mailing Lists:** Three mailing lists are provided that provide a means of communication between developers and users, without having to resort to the web portal. The **larKC-commits** mailing list is populated by automatic messages whenever new the larKC source code is updated. This provides a means for developers and users to track when changes of the codebase occur and by whom. The **larKC-dev-support** and **larKC-user support** provide mailing list for communication between platform developers and plugin and workflow writers respectively. Each of these mailing lists is regularly checked by members of the LarKC development team in order to quickly give feedback to early adopters. Each of the mailing lists also have an archive such that developers and users can check out older messages for solutions to current problems.
- **Releases:** This area of the developer forum provides a download section from which the latest versions of the LarKC platform can be retrieved. Developers and users can register for notifications of when new files are added to this download area, such that they can stay up to date with the latest version of the platform.

GForge is currently based on the same software as the popular open source development web site [Sourceforge.net](http://Sourceforge.net). To improve the visibility of the LarKC development effort the LarKC project is currently in the process of migrating to the Sourceforge web site. This will also mean that the developer forum will also migrate to this new location; however, as both systems are based on the same underlying technology no change will occur to the functionality available to developers. A screenshot of the current LarKC developer forum in the GForge system is shown in Figure 3.3.

Software development is an important aspect of the LarKC project. LarKC has always striven to achieve the highest standards of the open source software development process, offering the developers, adopters and end-users a reliable environment for the development and maintenance of the software solutions. Guided by the user feedback and considering the growing number of both external and internal contributors to the LarKC developments, a Forge-based collaborative development environment was set



up and hosted by the SourceForge.net service. The new LarKC@SourceForge.net development environment is not limited on the number of external users, as before, and allows sharing the LarKC innovative technologies with the global audience. To the main LarKC@SourceForge.net's features can be referred the following:

- subversion-based version control system for accessing and management of the source code (available at <https://larkc.svn.sourceforge.net/svnroot/larkc>)
- file release system for easy downloading the released software (<https://larkc.svn.sourceforge.net/svnroot/larkc>)
- powerful user and developer support system, including the user support forum and mailing list (a more detail description is provided at <http://wiki.larkc.eu/LarkcProject/WP5/LarKC-SourceForge>).

The only requirement for getting started at LarKC@SourceForge.net is to have a valid account at the **SourceForge.net**. A new account can be purchased at <http://sourceforge.net/account/registration>. For accessing the new software repository, the account should be approved by the project administrator. The new repository contains the revision 759 of the older repository. The users who have any updates to this revision, should commit them directly to the new repository, following the same procedure as for the previous repository.

### 3.7 Chinese LarKC Developer Forum

Following the release of the Chinese LarKC web site (<http://cn.larkc.eu>) and several LarKC-related documents in Chinese (including a translated user manual, introduction paper, slides, etc.), the LarKC project provides a LarKC Chinese Forum (<http://www.w3china.org/larkc>) for Chinese semantic web researchers, developers, and users.

The forum is located on the W3China website, i.e., the most influential Chinese WWW developer website devoted to promote W3C related technologies. We are grateful to W3China for providing the special forum on their website. LarKC members are available for answering LarKC related questions and many up-to-date LarKC news and documents will be shared by means of this forum.



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SourceForge.net > Find Software > Large Knowledge Collider

## Large Knowledge Collider Alpha

by [axeltenschert](#), [bradeskojest](#), [czink](#), [hpcassel](#), [hpcochep](#)

Summary Files Support Develop

This is the official collaborative development environment of the Large Knowledge Collider (LarkC), a platform for massive distributed reasoning that aims to remove the scalability barriers of currently existing reasoning systems for the Semantic Web

**Download Now!** LarkC.zip (71.3 MB) OR [View all files](#)

<http://www.larkc.eu> EDIT

[Show project details](#)

### Ratings and Reviews

Show:

**100%** of 5 users recommend this project

Thumbs up: 5  
Thumbs down: 0

Could very well be the only game in town aiming at web-scale reasoning.  
posted by [urlwolf](#) 251 days ago If you'd like to rate this review, please [log in](#).

The LarkC project is building a plug-in oriented inference system capable of reasoning at the scale of the web. Based, in part, on the inference engine from the famous Cyc project, and funded by the European Union under FP7. LarkC enables the [\(more\)](#)

Figure 3.2: The LarkC Platform at SourceForge.

A screenshot of the LarkKC developer forum page on GForge. The page has a dark blue header with the "FORGE" logo and navigation links like "Home", "My Page", "Project Tree", "Code Snippets", "Project Openings", and "LarKC". Below the header is a search bar and a "Log In / New Account" link. The main content area is divided into a "Summary" section and a "Developer Info" sidebar. The "Summary" section contains a paragraph about the project's aim, a bulleted list of project details (Development Status: 3 - Alpha, Intended Audience: Developers, License: Apache Software License, Natural Language: English, Programming Language: Java, Topic: Scientific/Engineering), and registration/activity statistics. The "Developer Info" sidebar lists project administrators and developers, including names like Axel Tenschert, Bastian Koller, Georgina Gallizo, and many others.

**FORGE** Search the entire project  Search **Advanced search** [Log In](#) [New Account](#)

[Home](#) [My Page](#) [Project Tree](#) [Code Snippets](#) [Project Openings](#) [LarKC](#)

[Summary](#) [Forums](#) [Tracker](#) [Lists](#) [Tasks](#) [Docs](#) [Surveys](#) [News](#) [SCM](#) [Files](#) [Wiki](#)

The aim of the EU FP7 Large-Scale Integrating Project LarKC is to develop the Large Knowledge Collider, a platform for masive distributed incomplete reasoning that will remove the scalability barriers of existing reasoning systems for the Semantic Web.

- Development Status: [3 - Alpha](#)
- Intended Audience: [Developers](#)
- License: [Apache Software License](#)
- Natural Language: [English](#)
- Programming Language: [Java](#)
- Topic: [Scientific/Engineering](#)

Registered: 2008-06-04 11:49  
Activity Percentile: 42.85%  
View project activity [statistics](#).  
View list of [RSS feeds](#) available for this project

**Developer Info**

Project Admins:  
[Axel Tenschert](#)  
[Bastian Koller](#)  
[Georgina Gallizo](#)  
[Matthias Assel](#)  
[Sabine Roller](#)

Developers:  
[Alexey Cheptsov](#)  
[Angus Roberts](#)  
[Barry Bishop](#)  
[Blaz Fortuna](#)  
[Christoph Fuchs](#)  
[Damyan Ognyanov](#)  
[Danica Damljanovic](#)  
[Daniele Dell'Aglio](#)  
[Dan Richner](#)  
[Davide Barbieri](#)  
[Delia Rusu](#)  
[Emanuele Della Valle](#)  
[Eyal Oren](#)  
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[Frank van Harmelen](#)  
[Gaston Tagni](#)  
[hamish cunningham](#)  
[Irene Celino](#)  
[Ivan Peikov](#)  
[Jaroslaw Bak](#)  
[Jia Hu](#)  
[Jose Quesada](#)  
[Kono Kim](#)

Figure 3.3: The LarKC developer forum at GForge.



## 4. Concluding Remarks

In this document, we have reported the current status of the internal and external training activities within the LarKC project. The internal training activities included nine internal meetings and workshop on various training issues, ranging from plug-in development to platform coding. The external training activities included two Early Adopters workshops. In this document, we have also reported the PhD and researcher exchange activities and two PhD Symposiums organized by the LarKC consortium. Future internal and external training activities will be regularly reported in subsequent versions of this document.