CoLogNET Newsletter

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Editorial

Welcome to the eighth issue of the CoLogNET newsletter, the official newsletter of the Network of Excellence of Computational Logic.

In this issue you will come across reports on European activities and projects, postgraduate student programs and upcoming meetings. Of particular interest is the report on the new FET- Open Scheme that supports new ideas related to information society technologies.

Finally, the newsletter provides calendar information about upcoming events related to the network.❖

Antonis Kakas and Marinos Georgiades
University of Cyprus

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The CP-04 Workshop on CSP Techniques with Immediate Application (CSPIA)

Constraint Logic

Roman Barták
Charles University, Prague

The CP-04 Workshop on CSP Techniques with Immediate Application (CSPIA) follows the tradition started with The CP-03 Workshop on Immediate Applications of Constraint Programming held in Cork, Ireland in 2003. The main theme and vision of this new series of workshops is to promote constraint satisfaction technology in solving real-life problems. In particular, the workshops serve as a forum for sharing and exchanging information on practical applications of constraint technology and on modeling and solving techniques that are directly applicable to real-life problems.

The CSPIA-04 workshop was organized together with the Tenth International Conference on Principles and Practice of Constraint Programming (CP) held in September/October 2004 in Toronto, Canada. Seven contributed papers were presented during the workshop, preceded by an invited talk, and followed by a panel discussion. Themes of the papers ranged from privacy issues and search techniques to real-life applications like interactive configuration, checking

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Executive Council Meetings & Reviews, 2003-2004

The majority of activities in the network from December 2003 to January 2004 were related to the preparation of the second review which was scheduled for January 2004 in Brussels. In collaboration with the European Commission the second review meeting was held on 26 January in Brussels. Jutta Eusterbrock (GER), Manuel J. Fernandez Iglesias (ES) and Marie Redmond (IRL, rapporteur) were invited to review the progress of CoLogNET. The reviewers and the Commission described the overall appraisal of the project as follows: The project has been working for the past year on a range of activities designed to consolidate and enhance the network and as well as the education activities. Extensive time and resources have been spent on developing the portal web site and to publicising and promoting links with industry in order to encourage technology transfer.

- Among the main achievements of the second year of the project the reviewers listed:

- Success in the promotion of a network on Formal Methods in industry (ForTIA).

- Promotion of computational logic among researchers through workshops.

- Organization of a publication scheme with the participation of major publishers (Springer, Kluwer, North Holland, OUP.)

- Organization of a trans-national educational programme on computational logic.

However, the second review report objected to the network's implementation of the portal of computational logic. Despite the consortium's believe to be in line with the recommendations set out in the first review report, the Commission and the reviewers strongly recommended a re-design of the website in the second review. "The portal web site www.colognet.org needs to be re-designed and re-launched. This aspect of the project is critical to the overall success of the project as it will be instrumental in building a community of practitioners and researchers in Computational Logic in Europe and worldwide." This criticism appeared to be justified and the consortium started immediately to implement their recommendations. In view of appropriate steps to be taken for the implementation, a website task force was set up and two EC meetings were organized. The website task force meeting was organized in Saarbrücken and London was chosen as a convenient destination for easy travel arrangements. A plan of action approved at the website task force meeting in Saarbrücken was presented the consortium in April 2004 in London. In addition to the website discussion and a new chairman for the future network of CoLogNET was elected and some first discussions about future activities of a future project were initiated The second London meeting was scheduled for June to run the final check of the re-designed network and area websites. The third online review took place on 22 July 2004 and the third review report released in August reflected the overall positive appraisal of the re-design of the website and the implementation of the recommendations stated in the second review report. A CoLogNET future meeting was organised at ECAI 2004 in Valencia. A preliminary set of workpackages and related services were defined and the structure of the future consortium was discussed and approved.

Amendment

The consortium agreed to submit a formal request of extension for the CoLogNET contract to the Commission. The request for a eight months contract extension was approved by the Commission and is in the stage of being processed at the time of writing.

CoLogNET Portal

Upon receipt of the second review report and the rejection of the main deliverable of the networks website, vivid discussions about the implementation of an information architecture started. The opinions about the portal were divided and so were the different proposals for improvement. This is why a website task force was set up to decide on the information architecture and a complete re-design to comply with the web accessibility guidelines of the World Wide Web Consortium (W3C). The website task force (WTF) consisted of Jörg Siekmann (DFKI GmbH Saarbrücken) Francesca Rossi (University of Padova), Odinaldo Rodriguez (King's College, London), Vesna Sabljakovic (TU Vienna), Daniel Kurushin (TU Vienna), Vincent Jacobs (University of Utrecht), Daniel Cabeza Gras (UPM, Madrid) and Heike Scheuerpflug (DFKI GmbH Saarbrücken). The WTF reported to the Executive Council of CoLogNET. A website task force meeting was held on 25 and 26 March in Saarbrücken.

Proposals for a re-design were presented by EURICE Saarbrücken, SMART Design NY, LIXTO Vienna. The different proposals were discussed and evaluated at the meeting. The WTF opted for the approach of TU Vienna and the Lixto technology to realize the data integration, implementation of the search facilities & re-design.

In a joint effort the consortium synchronized it's web presence and displays it's information across the nine areas in an integrated and structured manner. The response to the corrective actions proposed by the reviewers was reflected by each area in a short report submitted to the coordinator. A summary report which describes the general organizational process of the website's re-design and the actions of the consortium to implement the recommendations of the second review report was submitted to the Commission and the reviewers. In addition, a technical report which describes the information architecture and the technology used for the set up of the two portals was submitted. The consortium agreed to set up two different portals to satisfy two different needs:

The Portal of Computational Logic (CL Portal) is oriented towards a broader community and serves as the gateway to all computational logic related information, as a web-based knowledge platform for students, academia and industry.

The CoLogNET Portal (CoLogNET Portal) serves the network as the project's website and contains all information directly related to the internal needs of the network. It can be regarded as the network's backbone.

However, the inter-relations and the distinction between the two portals are clearly visible, not only from the content point of view but also graphically. The CL Portal's web presence is blue whereas the CoLogNET Portal's information is represented in greenish grey. The two portals fully comply with the W3C guidelines of the world wide web consortium, http://www.w3.org/.

Education & Training

The cooperation programme Erasmus Mundus

The Erasmus Mundus (http://europa.eu.int/comm/education/programmes/mundus/index_en.html) was launched by the Commission to encourage exchanges between students and academics from all over the world and the European Union. The Commission has selected the first 19 Erasmus Mundus masters. Of the 19 courses chosen for a period of five years, 14 will come into operation fully this academic year, while the other 5 will have the status of a preparatory year. The European Master's Program in Computational Logic initiated by Prof. Steffen Hölldobler and Prof. Luís Moniz Pereira is among the 14 selected study programmes to start this year. "Erasmus Mundus aims to restore Europe to a leading position on the international university scene," said Viviane Reding, European Commissioner for Education and Culture. 82 European universities in 17 countries are participating in the courses selected. The countries most prominently represented are Germany (13 universities), France (12), Italy (10) and the United Kingdom (8).

Relations with other projects and networks

Relations with FOLLI

In October 2003 FOLLI started coordinating a task on E-learning in Computational Logic – called the **Living Book**. The University of Amsterdam worked on developing an infrastructure for accesssing an archive of teaching materials used at the annual European Summer Schools in Logic, Language and Information (ESSLLIs). A Lucene-based search engine was set up at <http://esslli.science.uva.nl/archive/welcome>, and under-the-hood indexing and data-transformation tools were developed to enable the inclusion of additional teaching materials into the archive. Based on the infrastructure set up in the course of 2004, "old" teaching material was converted into the archive's infrastructure. In parallel, work is ongoing on additional search and browsing facilities for the archive; this task will be complete by the end of February 2005.

Relations with REWERSE

There is a joint agreement, including the CoLogNet sponsored MSc in Computational Logic, on a cooperation between the Networks of Excellence REWERSE and KnowledgeWeb in three areas:

- Using a common learning unit repository to avoid having a duplicate infrastructure
- Sharing the collected learning units between both Networks of Excellence
- Supporting the Virtual Institute for Semantic Web Education (VISWE) in managing and running the repository.

A close cooperation of the education areas of both Networks of Excellence enables significant synergies and a durable impact on spreading knowledge on the Semantic Web. An example for an already successfully established cooperation involving members of both Networks of Excellence is the new distributed European Master of Computational Logics, which is also supported by Erasmus Mundus

(cf. http://www.cl.inf.tu-dresden.de/compulog/prospective/EurMaster.html). Cooperation between VISWE and this MSc will further empower the two NoEs, by providing an additional audience with the necessary background for the educational material. Moreover, the MSc students are likely potential human resources for project development by the industrial partners.

Relations with CBSEnet

CBSENET invited Kung-Kiu Lau to give a talk on Trusted Components at their workshop in Budapest in April 2003. This led to a joint CologNet and CBSENET workshop in Cyprus in September 2003, where a book that surveys the state of the art in CBSE was proposed and discussed. Subsequently, Kung-Kiu Lau attended a CBSENET meeting in Brussels in March 2004, where the proposed book chapters were discussed in detail. The outcome was that the book will be published by World Scientific soon, with a chapter on Trusted Components contributed by Kung-Kiu Lau.

Relations with ForTIA

A major event at the joint FME-CoLogNET industrial day at FME'03 in Pisa was the formal founding of ForTIA, the Formal Techniques Industry Association. ForTIA is an association of industrial companies, comprising both suppliers and users, of formal techniques.. ForTIA should actively work to ensure that good tools and techniques are researched, developed and deployed. The objectives of the association are:

- to raise awareness of the possibilities of formal techniques amongst potential developers and end-users, including in European Community R&D programmes
- to raise awareness of the possibilities of formal techniques amongst standardisation and other regional and international trade and professional bodies and influence them accordingly.
- to create a climate of trust and establish the reputation and reliability of software and systems houses offering formal methods services, of higher education formal methods curricula, of individual engineers with formal methods expertise, and of software packages and services that have been developed using formal techniques.

to address the expectations of higher education courses in formal aspects of computing and influence them to meet the needs of industry. ❖

CLIMA VI - Sixth workshop on computational logic in multi-agent systems

Multi-agent Systems

Francesca Toni

Imperial College London

Introduction

Multi-agent systems are communities of problem-solving entities that can perceive and act upon their environments to achieve their individual goals as well as joint goals. the work on such systems integrates many technologies and concepts in artificial intelligence and other areas of computing. for this reason, over recent years, the agent paradigm gained popularity in many sub-fields of computer science. a full spectrum of multi-agent systems applications have been and are being developed; from search engines to educational aids to electronic commerce and trade, e-procurement, recommendation systems, simulation and routing, to cite only some.

Although commonly implemented by means of imperative languages, mainly for reasons of efficiency, the agent concept has recently increased its influence in the research and development of computational logic based systems.

Computational logic provides a well-defined, general, and rigorous framework for studying syntax, semantics and procedures, for attending implementations, environments, tools, and standards, and for linking together specification and verification of properties of computational systems.

The purpose of this workshop is to discuss techniques, based on computational logic, for representing, programming and reasoning about multi-agent systems in a formal way.

Call for papers

We solicit unpublished papers that address formal approaches to multi-agent systems. The approaches as well as being formal must make a significant contribution to the practice of multi-agent systems. Relevant techniques include, but are not limited to, the following:

- logical foundations of multi-agent systems
- knowledge and belief representation and updates in multi-agent systems
- agent and multi-agent hypothetical reasoning and learning
- extensions of logic programming for multi-agent systems
- non-monotonic reasoning in multi-agent systems
- theory and practice of argumentation for agent reasoning and interaction
- operational semantics and execution agent models
- model checking algorithms, tools, and applications for multi-agent logics
- semantics of interaction and agent communication languages
- distributed constraint satisfaction in multi-agent systems
- temporal reasoning for multi-agent systems
- modal logic approaches to multi-agent systems
- logic based programming languages for multi-agent systems
- distributed theorem proving for multi-agent systems
- logic based implementations of multi-agent systems
- decision theory for multi-agent systems
- specification and verification of formal properties of agent systems

Important dates

- Submission: April 7, 2005
- Notification: May 6, 2005
- Camera-Ready: May 27, 2005
- CLIMA VI: June 27-29, 2005

CLIMA VI will be held at City University of London.

For more information, please visit
http://clima.deis.unibo.it/ ❖

PhD Position

Logic Programming and Programming Languages

Santiago Escobar
Technical University of Valencia

The group ELP "Automated Software Engineering, Logic Programming and Programming Languages" of the Technical University of Valencia (UPV) has an open position for a PhD student for 2 years (which can be extended to 4 years) funded by the Spanish Ministry of Education and Scientific Research, to work in the project "SELF: Software Engineering and Lightweight Formalisms", Project coordinator: Maria Alpuente (http://www.dsic.upv.es/~alpuente).

The goal of the project is to investigate on analysis, specification, verification, debugging, testing, learning, certification, transformation & optimization techniques for (multiparadigm) programs.

The candidate must have an adequate theoretical background in computer science with some knowledge of mathematical logic. Knowledge of logic programming or functional/equational programming is not required but will be an asset.

Salary for a first year PhD student is around 1100 Euros/month with an incremental raise for each subsequent year. Besides the salary, health insurance is provided.

How to apply
First, register your intention to apply immediately using the electronic application form on the WWW via http://213.229.161.10/becasfpi

- The full application should contain:

A signed, printed copy of the Web application form, where the project SELF must be explicitly chosen (from the projects list)

- A passport photocopy
- Attested copies of degrees and other certificates, including the complete list of courses, grades, and dates. An explanation of the corresponding evaluation system (min and max. qualification to pass) is also required
- A certification, granted by an Spanish university, that the undergraduate degree is valid for admission in its PhD program. This can be obtained from UPV if document 3 above is timely provided.
- Curriculum Vitae

For further information on how to apply please consult our website: http://www.dsic.upv.es/users/elp

Send your application (paper mail), to arrive before February 4th, 2005 to:

Salvador Lucas (slucas@dsic.upv.es)
Departamento de Sistemas Informaticos y Computacion
Universidad Politecnica de Valencia
Camino de Vera s/n
E-46022 Valencia (Spain)
Phone +34 96 387 7007 (ext. 73531)
http://www.dsic.upv.es/~slucas ❖

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UML class diagrams, and DNA sequencing. The diversity of papers showed that the constraint technology is growing to new application areas but the follow-up discussion also highlighted some difficulties of the technology.

The workshop started by an invited talk entitled "Three Research Collaborations with the Transportation Industry" given by Mark Wallace from Monash University, Australia. Mark was talking about his experience with the application design during his stay in IC-Parc, London. In particular, he described three case studies: logistics with depots (Wincanton Transport), patrol dispatcher (Royal Automobile Club), and flight schedule retimer (British Airways).

The first technical session started with a paper by Marius C. Silaghi, Markus Zanker, and Roman Barták proposing a new Distributed CSP framework for modeling and solving problems with privacy of constraints. In particular, the authors described an application solving desk-mates placing problems where the students have secret preferences among their classmates. The second paper by Mats Carlsson and Nicolas Beldiceanu proposed a constraint model for a multiplex dispensation order generation problem, a real-life combinatorial problem in the context of analyzing of large numbers of short to medium length DNA sequences.

The second technical session consisted of three papers. The first paper by Barry O'Sullivan, Alex Ferguson, and Eugene C. Freuder proposed an approach of using decision trees to improve efficiency of search by giving a new variable ordering and imposing additional constraints. The decision trees learn a structure of the solution set using information about a small number of known solutions. The technique was motivated by solving configuration problems. The second paper by Venkata Praveen Guddeti and Berthe Y. Choueiry studied restart strategies for randomized backtrack search. The authors proposed a technique of dynamic adaptation of the cutoff limit based on the results of so-far search process. This technique has been applied to solving course assignment problems. The third paper by Marco Cadoli and colleagues proposed a constraint-based approach to checking finiteness of UML class diagrams.

The common topic of papers in the last technical session was interactive configuration. Firstly, Sathiamoorthy Subbarayan and his colleagues argued for using Binary Decision Diagrams to capture the solution set of the configuration problem. Their empirically compared this approach to a technique of finding all solutions using a straightforward constraint model for the same problem. Finally, Erik van der Meer and Henrik Reif Anderson presented semantics of a new modular language for modeling interactive configuration problems and they showed how this language can be compiled into an executable form.

The workshop was concluded by a panel discussion moderated by Jean-Charles Régin with main contributions from Mark Wallace and Barry O'Sullivan. The topic of the panel was "What is the market for applications with CSPs?" There was a general agreement that CP is a useful technology for solving real-life problems but the question "Why is not CP as widespread as predicted couple of years ago?" remained open. A possible answer could be increasing complexity of the technology that complicates its practical applicability for non-expert users. The follow-up CSPIA meetings should try to address this open issue.

The proceedings of the CSPIA-04 workshop are available on-line from the workshop web pages.

The CP-04 Workshop on CSP Techniques with Immediate Application
August 27, 2004
Toronto, Canada

Organized by:
Roman Barták, Charles University
Ulrich Junker, ILOG S.A.
Marius-Calin Silaghi, Florida Institute of Technology
Markus Zanker, University Klagenfurt

Website:http://www.ifi.uni-klu.ac.at/Conferences/cp04cspia

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CMSRA-IV - Fourth International Workshop on Computational Models of Scientific Reasoning and Applications

Computational Reasoning

Luis Moniz Pereira

The New University of Lisbon

Purpose

The CMSRA workshops are an international forum for researchers from the fields of Logic & Decision, Knowledge Representation & Reasoning, Formal Epistemology, Computational Logic and Cognitive Science to discuss recent work in computational models of scientific reasoning.

Scope & Motivation

The CMSRA workshops are designed to promote research of high-level cognitive reasoning that addresses both the logico-philosophical issues surrounding high-level cognitive notions such as 'knowledge', 'belief' and 'rationality' among others, and also addresses the computational issues involved in constructing practical working models of such reasoning.

Research in this area is being driven by practical concerns and purely theoretical concerns. From a practical point of view, distributed computing and autonomous robotic agents offer two examples of research areas where there is increased interest in improving the capabilities of agents (or distributed processes) to reason about what each 'knows'. From a logico-philosophical point of view, the natural emphasis on formal semantics *and* syntax that computational modeling demands is generating new formal studies of concepts and relations that have been traditionally studied by philosophical logics, opening promising new lines of research.

Topics

Topics include:

Knowledge Representation & Formal Epistemology

- KR&R Ontologies, Concept Formation
- Theory Formation
- Confirmation Theory, Evidence
- Rational Acceptance, Belief
- The Anchoring Problem, Perception
- Experimental Design

Decision & Inference

- Probability, Logic and Uncertainty Frameworks
- Higher Order and Non-classical, Pure & Applied Logics
- Computational Models of Reasoning (Analogical, Inductive, Abductive & Statistical Reasoning; Causal & Explanatory Reasoning; Hypothetical & Counterfactual Reasoning; Evidential & Defeasible Reasoning; Discovery, Investigation & Inquiry; Theory change, Belief Revision/Updates; Learning)

Distributed/Social Agents

- Argumentation
- Negotiation
- Semantic web
- Social Choice
- Cooperation & Team Behavior
- Distributed Scientific Reasoning
- Computational Models of agent behavior in terms of (i) Multi-agent Modal epistemic logic; (ii) Update/ Conditional Logics; (iii) Logic Programming; (iv) Game Theory.

Applications

- New Information Technologies
- Computational Theories in the Sciences
- Probabilistic Proof Procedures
- Intelligent Data Mining - Agent-Based Scientific Discovery
- Models of Agreement
- Bioinformatics Knowledge Processing

Important Dates

- Paper Deadline: May 20, 2005
- Notification of Acceptance: June 30, 2005
- Camera-Ready Papers: July 15, 2005
- Early Registration Deadline: TBA
- Conference: September 21-23, 2005 ❖

1st International Workshop on Automated Specification and Verification of Web Sites (WWV'05)

March 14-15 2005, Valencia, SPAIN
Automated Specification and Verification

Santiago Escobar

Technical University of Valencia, Spain

Scope

The increased complexity of Web sites and the explosive growth of Web-based applications have turned their design and construction into a challenging problem. Nowadays, many companies have diverted their Web sites into interactive, completely-automated, Web-based applications (such as Amazon, on-line banking, or travel agencies) with a high complexity that requires appropriate specification and verification techniques and tools. Systematic, formal approaches to the analysis and verification can address the problems of this particular domain with automated and reliable tools that also incorporate semantic aspects. We solicit papers on formal methods and techniques applied to Web sites, Web services or Web-based applications, such as:

- rule-based approaches to Web site analysis, certification, specification, verification, and optimization
- formal models for describing and reasoning about Web sites
- model-checking, synthesis and debugging of Web sites
- abstract interpretation and program transformation applied to the semantic Web.

WWV'05 provides a forum for researchers from the communities of Rule-based programming, Automated Software Engineering, and Web-oriented research to facilitate the cross-fertilization and the advancement of hybrid methods that combine the three areas.

Participants are encouraged to present work in progress, overviews of more extensive work, position papers and reports of practical experiences.

Location

WWV'05 will be held in Valencia, Spain (http://www.turisvalencia.es), at the Department of Information Systems and Computation of the Technical University of Valencia (http://www.dsic.upv.es).

Submission procedure

Submission will be web-based via the conference web-site http://www.dsic.upv.es/workshops/wwv05. Submissions must be received by January 10, 2005. In addition, an ASCII version of the title and abstract must be submitted by January 4, 2005. These are strict deadlines.

- Submitted papers can fit into one of these categories:
  - Regular contribution (15 pages maximum)
  - System demonstration / Report of practical experiences / Work in progress (4 pages maximum)
  - Position paper / Overview of more extensive work (15 pages maximum)
- Submitted papers should be written using the Electronic Notes in Theoretical Computer Science (ENTCS) style available at the conference web-site (http://www.dsic.upv.es/workshops/wwv05).
- Submitted papers should include an abstract and the author's information. See the author's instructions of ENTCS style at http://math.tulane.edu/~entcs.

Publication

Accepted papers will be published in a preliminary proceedings volume, which will be available during the workshop. After the workshop, the final proceedings will be published in the Elsevier series Electronic Notes in Theoretical Computer Science (ENTCS). Accepted papers of categories (1) and (2) will be published in the ENTCS final proceedings. However, ENTCS publication of papers in category (3) will be decided on the basis of their original contents.

Invited Speakers

- Shriram Krishnamurthi, Brown University, USA
- Anthony Finkelstein,University College London, UK

Important Dates

- Abstract Submission - 4 January 2005 (strict)
- Full Paper Submission - 10 January 2005 (strict)
- Acceptance Notification - 19 February 2005
- Camera Ready - 3 March 2005
- Workshop - 14-15 March 2005 ❖

European Master Degree in Computational Logic

European News

Luis Moniz Pereira
U. Nova de Lisboa, Portugal

The five european universities: U. Nova de Lisboa - Portugal, TU Dresden - Germany, UP Madrid - Spain, TU Vienna - Austria, FU Bolzano – Italy, award this official European degree, supported by the new Erasmus Mundus program.

Grants are available for the European Master in Computational Logic.

Check out the various deadlines. Erasmus Mundus grants, internal deadline Feb 15, 2005.

Program Objectives

This objective of the program is to impart to the student the profound theoretical and practical knowledge required for professional practice in the field, to give him a survey of the individual disciplines of Computational Logic and to develop his ability to work according to scientific methods. In addition, the student is given the opportunity to plan his studies to fit a particular practical application. To acquire practice-oriented knowledge he may choose appropriate combinations of modules. By means of visits abroad and English as the language of instruction, the student is to be prepared for the increasing internationalism of science, commerce and industry.

The focus of instruction lies in the following areas: mathematical logic, logic programming, deduction systems, knowledge representation, artificial intelligence, methods of formal specification and verification, inference techniques, syntax-directed semantics, and the relationship between theoretical computer science and logic.

The further qualification for professional practice and research obtained by the European Master Program in Computational Logic is determined by the Master's examination. The examination provides a means to determine whether the candidate has a scientific overview of his field, whether he has acquired the technical knowledge and skills required for professional practice and whether he is capable of applying knowledge and scientific methods independently. On successful completion of the examination, both the visiting universities award a master degree. The certificates indicate that the degree was obtained in the European Master Program in Computational Logic.

Students will be prepared for a future PhD; they will come into contact with the international research community and will be integrated into ongoing research projects. They will develop competence in foreign languages and international relationships, thereby improving their social skills.

Course Structure and Syllabus

The course structure is 42 ECTS of common foundational modules, 48 ECTS specific advanced modules plus a project, and 30 ECTS master thesis. This results in a 2-year program of 120 ECTS credit points.

The foundation modules are offered in the first year by all partner institutions with the common aim of bringing the students to an equivalent level of skills and knowledge. Especially designed bridging courses integrated into the foundation modules offered in the first semester shall help 3rd country students in their adaptation to a Master Course of European educational level.

The student's specialization (advanced modules, project and master's thesis) during the second year can also be pursued with all partner institutions, but varies from place to place according to local strengths in teaching and research.

In the final master's thesis the candidate should demonstrate his capability to solve independently a problem in Computational Logic or its applications using scientific methods.

Study Requirements

Applicants for the European Master Program in Computational Logic must satisfy the following study requirements:

- Proof of a minimum knowledge of English such as a TOEFL (> 550/213) or an IELTS (> 6.0) certificate or equivalent.
- Bachelor's degree in Computer Science or equivalent
- Proof of extensive knowledge in the areas of

- Foundations of mathematical logic;
- Foundations of artificial intelligence; and
- Declarative Programming

is required with a grade equivalent of "good" or "very good".

The requirements stated in point 3 can be demonstrated by certificates, examination records or other written academic performance records. The fulfillment of the requirements mentioned in Paragraph 1 is decided by the Examination Board. Students are registered in accordance with the regulations of the participating universities.

Commencement and Duration of Study

The program normally commences in the winter semester. The regular period of study including preparation and defense of the Master's thesis comprises four semesters.

The course consists of Foundation units, selected advanced units, a Project, and a Master thesis. All participating universities will offer the foundation units. The advanced units will be different and depend on the participating university.

The student has to study Computational Logic in one of the local Master Programs or to study in two of them with the aim to obtain a double Master degree from the two respective universities. In this case the students are required to study one year each at two participating universities. They are jointly monitored by two lecturers (tutors), one from each university.

Examinations and ECTS Point System

The course of study is completed by the Master examination. The Master examination consists of two parts, the module examinations and the Master thesis together with its defense. Module examinations are taken in the form of examinations that take place throughout the period of study. The grading of module examinations is performed according to the ECTS scale.

ECTS points are issued if a module examination has been passed. The ECTS point system offers a unified framework for the assessment of studies carried out abroad.

Application

The students are requested to select two universities and to acquire at least 30 % of the overall required credit points at each of them. Mutual recognition of credits is on the basis of modules, the project and the Master thesis. Successful participants will receive a master degree from both selected universities.

Costs of study

Costs of study in the European Master Program in Computational Logic are 5000 EUR per year.

Funding Possibilities

See for instance our grants' information web page. We are also receiving grants from the Erasmus Mundus Program of the European Union.

For more information on the study programs involved in the European Master Program in Computational Logic - and about the advanced modules in particular - consult http://ssdi.di.fct.unl.pt/masters/mcl/. ❖

FET Proactive Initiatives – Call 5: Simulating Emergent Properties in Complex Systems

European News – Complex Systems

FET: http://www.cordis.lu/ist/fet/home.html

Understanding the properties of 'complex systems' with a large number of highly interconnected heterogeneous elements poses today a grand challenge for system research. Examples of such systems include the Internet, critical infrastructures -like computer networks or power grids - and signaling and regulatory networks in biology. For such systems we can design components and their connections but the problem remains of how to guide them to achieve desired global behaviors, like dependability and adaptability, and how to predict and avoid undesired behaviors, like cascading failures in interconnected infrastructures. In the life sciences, novel data acquisition techniques provide a wealth of data on living systems but we lack sufficient means to infer models from these data. We lack a framework of mathematical and computational techniques for simulation and modeling of complex systems in the context of complex systems in engineering and science.

The objective is therefore to develop scalable computational modeling and inference tools and scalable simulation techniques for complex systems and in particular to:

- Infer system models - the dynamic laws governing the components and their interactions - from high volume, possible incomplete or uncertain data.
- Develop models of emergence of aggregate behavior that will permit the formulation of design strategies for systems with a specified aggregate behavior

Focus

One or more of the following research issues encountered across many applications should be addressed:

- Multi-scale simulations: Develop methods for the effective computation of systems acting/described on

Specific Targeted Research Projects (STREP)

Aims and Objectives:	Specific Targeted Research Projects aim at improving: – European competitiveness or; – Meeting the needs of society or Community policies They can take the following forms: – An RTD project designed to gain knowledge or improve existing products, processes or services. – A demonstration project designed to prove the viability of new technologies but which cannot be commercialized directly.
Number of participants:	Minimum of three partners from three different Member States or Associated States, of which two must be Member States or Associated Candidate Countries. Some calls may specify a higher minimum number of participated.
Duration:	Typically between 2 to 3 years, but may in exceptional cases be extended beyond 3 years.
Type of funding:	Funding will be the form of a grant with a ceiling for EC contribution
Projects Management:	IPs will require overall management and coordination of the consortium.
URL:	http://www.cordis.lu/fp6/instr_strp.htm

different levels of aggregation. Underlying issues include:

  - Model embedding: How to link simulations on different scales
  - Formal languages to model systems in a modular and compositional way.
  - Hierarchical structures from aggregation: emergence of higher level behaviour.

- Simulation in presence of uncertainty: Develop computational tools that take into account the fact that the models themselves as well as the parameters that they use may be uncertain

- Reconstruction of system models from incomplete, missing or inconsistent sets of data. In many fields experiments to back up simulation are not always possible and we need to validate data by combining them with simulation results and complementary data.

- Integrated modeling and simulation environments: Matching large amounts of data against models - to tune and validate them - imposes integration of simulation modules and high-throughput sources of experimental data.

Projects should lead to breakthroughs in one of the following application areas: critical information infrastructures, bioinformatics, or systems engineering.

Instruments

The initiative will be implemented through 'Specifically Targeted Research Projects' (STREPs) comprising multidisciplinary teams with the necessary expertise in modelling and in application areas. Download the work programme text at ftp://ftp.cordis.lu/pub/ist/docs/fet/co-11.pdf.

Timetable

- Call open: May 2005
- FET Infoday: early June 2005, Brussels
- Deadline submission proposals: 21 September 2005
- Evaluation planned: end October 2005
- Start of projects: beginning 2006

Events

- Review of Integrated Projects, Budapest (HU), March 7-11, 2005
- Infoday Brussels (BE), early June 2005
- 2nd European Conference on Complex Systems - November, 2005
- 1st European Conference on Complex Systems - Report available -Torino (IT), December 5-8, 2004

Contacts

For further information please feel free to contact:

Ralph Dum
Tel.: +32-2-29-96434 ❖

Open Scheme in 6th Framework Program

European News

FET: http://www.cordis.lu/ist/fet/home.html

This scheme is open to the widest possible spectrum of research opportunities that relate to information society technologies as these arise bottom-up. It supports: research on new ideas involving high risk; embryonic research and proof-of-concept; and high quality long term research of a foundational nature. Such research is implemented through Specific Targeted Research Projects (STREPs).

FET-Open also supports the shaping, consolidation, or emergence of research communities and the coordination of national research programs or activities in any IST-relevant area of advanced and longer term research. Such activities are implemented through coordination actions (CA) and specific support measures (SSA).

FET is open to...

The widest possible spectrum of research opportunities

The evolution of the information society involves the interplay of a range of technological, social and economic elements. IS technologies do not exist in a vacuum - they co-evolve in a complex manner with other societal and economic factors. It is a quickly moving field with many inter-relationships. Keeping the door open to the latest ideas as they arise from the roots, and allowing the best of these to be realised, helps aim funding at leading developments. For these reasons FET is open to any idea related to information society technologies. It not only includes the development of new technologies, but also encompasses new ways of doing things as well as creating new roles for technology. Proposals are receivable at any time, for practically the whole duration of the program.

Bold ideas that would involve high risks

In reality many breakthroughs have depended on sparks of the imagination that resulted in leaps and bounds that were inherently unpredictable. Sometimes new ideas can seem to be 'crazy', or impractical; yet,

FET Open Scheme: Supported Type of Activities

The FET Open Scheme supports two main kinds of activities: Research & Support.

Research is implemented through Specific Targeted Research Projects (STREP). FET-Open also *supports* the structuring, consolidation, or emergence of research communities and the coordination of national research programmes or activities in any IST-relevant area of advanced and longer term research. Such activities are implemented through Coordination Actions (CA) and Specific Support Actions (SSA). Support actions also have to address the FET-OPEN objectives (c.f. scope)

STREPs

They are multi-partner research, demonstration or innovation projects with the following objectives:

- They are an evolved form of the shared-cost RTD projects and demonstration projects used in FP5.
- Their purpose is to support research, technological development and demonstration or innovation activities of a more limited scope and ambition than IPs.
- The Community contribution may range from hundreds of thousands of Euros to a few millions of Euros and is paid as a grant to the budget (percentage of total costs of the project).
- The typical duration is 24 - 36 months.
- There must be a minimum of three participants from three different Member States or Associated States of which at least two are from Member States or Associated Candidate States.

COORDINATION ACTIONS (CAs)

They support the coordination and networking activities aiming at improving research community building and integration. As a reference, FP5 Thematic Networks (FP5 networks of excellence and most working groups) would now be carried out with CA initiatives. Coordination actions will address at least one of the following objectives:

- stimulate the emergence of ideas for new long-term and visionary IST-related research areas, which might become future FET proactive initiatives or provide a definitive added value to FET activities;
- identify the research challenges, assess Europe's research position and potential, and derive strategic roadmaps and implementation routes for long term research

trying out what seems to be risky can often materialise into 'new things', or 'new ways of doings things' that can ultimately become trend-setting. For this reason, it is important to have an environment within which invention and creativity can thrive. Therefore, FET is open to considering bold ideas whose realisation would involve high risks. The philosophy is to let people try things out - even if these things are only based on a dream, or a hunch, with the promise of really leading to something in the future. In this context there is no distinction of how far or how close to the market an idea might be - the important issue is the potential that it has for leading to a breakthrough.

Longer term research with sound objectives

At the same time it would be wrong to think that it is only 'wild' ideas that lead to major advances. Good, sound ideas can often take a long time and a lot of research in order to come to fruition - they too lead to major advances in the longer term. This is often the case for research work of a generic nature that could ultimately underpin a wide range of application areas. It is also true that one idea leads to another and that progress sometimes comes from the accumulation of many small innovations (for example, innovative superefficient algorithms). Many ideas may thus have matured past the 'wild phase' and been tested and proved valid to some degree, but still need persistent and long term work in order to take them to levels acceptable for industrial or commercial take-up.

Proposal submission and evaluation modalities

It is expected that the call for proposals for FET-Open will be open throughout the 6th framework program (continuous submission).

Proposals for STREPs have to be submitted in two stages: first a short proposal with a technical description of maximum 5 pages is submitted, at any time, describing the key objectives and motivation for the proposed work. Short proposals are evaluated anonymously as they come in with the help of remote evaluators. The proposers are informed of the results of the evaluation normally within 6 weeks of the proposal's reception. If the short proposal is successful, they are invited to submit a full proposal by a specified cut-off date. Proposers of successful short proposals will be given at least 2 months for preparing full proposals.

driven by visionary scenarios, in particular for the preparation of FP7;

- structure and support emerging multi-disciplinary communities in the relevant areas. For established communities, CAs will become a platform for a critical assessment of their role in FET and their evolution into new/visionary fields of research.

FET may also ask for the submission of CAs for the co-ordination of national research programmes or activities in any IST-relevant area of advanced and longer term research (ERA co-ordination); as support to a running proactive initiative (in case where there is no supporting Network of Excellence); and, for INCO support activities.

SPECIFIC SUPPORT ACTIONS (SSAs)

They will be used to implement activities to support and prepare the FET policy and activities like studies, impact measure reports, roadmapping of future research areas, conferences, workshops and expert meetings for defining FET future activities, etc. FET may ask for SSAs to fulfill particular and well-defined tasks that may be relevant to FET activities.

To increase the impact of FET on the innovation potential of Europe, proposers having specific background in the field are encouraged to submit Specific Support Actions which could actively promote and disseminate the results of IST-FET projects and initiatives (over and above the standard diffusion and exploitation activities of individual projects).

Objectives may include:

- Raising awareness of FET projects and FET itself through wide and targeted diffusion of results, success stories and notable experiences achieved in FET projects to the broader scientific and technical community, as well as to decision makers and the wider public. This entails the production of high-level PR material on the work of FET projects and initiatives: images, photos, videos, reports, press releases and other dissemination and awareness materials.

- Contacting and stimulating research groups, potentially interested constituencies and the European public at large to diffuse new ideas emerging from FET projects and initiatives, in particular in the new Member States, the Associated Candidate Countries and the target countries for International Cooperation, where the organisation of appropriate events can be envisaged (except for information exchange initiatives that would take place anyway without Commission support).

Proposals for CAs and SSAs are submitted in one stage, i.e. full proposals are submitted directly, at any time.

There are two to three cut-off dates per year for the submission of full proposals – either STREPs or CAs and SSAs: Proposals that have been received by a given cut-off date are evaluated at a session that is normally organised within a month of that cut-off date.

In order to preserve continuity between FP5 and FP6, assessment projects contracted under FP5 that have been successful, but that did not have the opportunity to submit a follow-up full proposal within FP5, will be invited to submit directly a full proposal to FET-Open in FP6.

The evaluation of full proposals is carried out through a combination of remote evaluation and panels of experts that convene in Brussels to consolidate the referees' individual assessments of full proposals and recommend a proposal ranking.

Closing Date(s)

20 September 2005 at 17.00 (Brussels local time) for CA, SSA proposals and for short STREP proposals. The final cut-off date for submission of full STREP proposals, following a successful short proposal, is 14 February 2006. ❖

CP-AI-OR

2005 MAY 30 - JUNE 1, PRAGUE, CZECH

The aim of the conference is to bring together interested researchers from AI and OR, and to give them the opportunity to show how the integration of techniques from AI and OR can lead to interesting results on large scale and complex problems. We explicitly welcome new ideas and methods for integrating OR and AI techniques that have arisen from real-world applications.

CP-AI-OR is intended primarily as a forum to focus on the integration and hybridization of the approaches of CP, AI, and OR technologies. A secondary aim is to provide an opportunity for researchers in one area to learn about techniques in others. Therefore, papers that actively combine, integrate or contrast approaches from more than one of the areas are solicited. High quality pure papers from a single area are eligible provided that they are of interest to other communities involved.

Prague Castle and Charles Bridge -

IMPORTANT DATES

Abstracts:	January 10, 2005
Submission:	January 16, 2005
Notification:	February 21, 2005
Final paper:	March 7, 2005
CP-AI-OR'05:	May 30-June 1, 2005

19th Workshop on (Constraint) Logic Programming

Constraint Logic Programming
University Ulm, Germany,
February 21 – 23, 2005

The workshop on (constraint) logic programming is the annual meeting of the Society of Logic Programming (GLP e.V.) and brings together researchers interested in logic programming, constraint programming, and related areas like databases and artificial intelligence. Previous workshops have been held in Germany, Austria, and Switzerland. In 2005 the workshop will be organized in order to promote the cross-fertilizing exchange of ideas and experiences among practitioners, researchers, and students from the different communities interested in the foundations, applications, and combinations of high-level declarative programming languages and related areas. The technical program of the workshop will include invited talks, presentations of refereed papers, and demo presentations.

Contributions are welcome on all theoretical, experimental, and application aspects of constraint programming (CP) and logic programming (LP), including, but not limited to (the order does not reflect priorities):

- Foundations of Constraint/Logic Programming
- Constraint Solving and Optimisation
- Extensions: Functional Logic Programming, Object-oriented Programming
- Deductive Databases, Data Mining
- Non-monotonic Reasoning
- Dynamics, Updates, States, Transactions
- Interaction of CP/LP with other formalisms like Agents, XML, JAVA
- Program Analysis, Program Transformation, Program Verification, Meta Programming
- Parallelism and Concurrency
- Rule-based Systems
- Implementation Techniques
- Software Techniques (e.g., Types, Modularity, Design Patterns)
- Applications (e.g., in Production, Management, Environment, Education, Medicine, Internet)
- Constraint/Logic Programming for Semantic Web Systems and Applications
- Reasoning on the Semantic Web
- Data Modelling for the Web, Semistructured Data, and Web Query Languages

The primary focus is on new and original research results but submissions describing innovative products, prototypes under development or interesting experiments (e.g., benchmarks) are also encouraged.

Submission

Submission is closed.

Registration

The registration for the workshop is open. Please, use the online W(C)LP 2005 registration form and follow the instruction therein. The deadline for regular registration is February, 16, 2005.

Publication

All accepted papers will be published as a technical report. In addition, it is planned to publish selected papers in form of post-conference proceedings in Springer Lecture Notes in Artificial Intelligence (LNAI)

series.

Important Dates

Registration:	Deadline 4th February 2005
Submission of Papers:	14th November 2004
Notification of Acceptance:	15th December 2004
Camera-ready Versions:	21th January 2005

Contact

Fraunhofer Institute for Computer Architecture and Software Technology FIRST
Planning Technology PlanT
Kekuléstraße 7
12489 Berlin
Germany

Dr. Armin Wolf

phone: +49 (0) 30 / 63 92 – 18 64 or – 1800

fax: +49 (0) 30 / 63 92 – 18 05

e-mail: armin.wolf@first.fraunhofer.de

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TIME - 12th International Symposium on Temporal Representation and Reasoning

Burlington, Vermont, USA

The 12th International Symposium on Temporal Representation and Reasoning will be held on June 23-25, 2005 in Burlington, Vermont, USA. The purpose of this **symposium** is to bring together active researchers from distinct research areas involving the representation of and reasoning about temporal phenomena. As with previous meetings in this unique and well established series, one of the main goals of the TIME symposium will be to bridge the gap between theoretical and applied research in temporal representation and reasoning.

The special emphasis of TIME 2005 is on *New Directions in Time Research*, for example: querying data streams and moving objects, temporal data mining, and temporal aspects of agents and policies.

There are three tracks in the symposium with a single program committee. The conference is planned as a two-and-a-half-day event, and will be organised as a combination of technical paper presentations, a poster session, and two keynote talks.

The program committee for TIME 2005 has been formed. The first call for papers has been made, and we will steadily add more relevant content to our web pages. Please check back for the latest information on the conference web site.

Call for Papers

We especially encourage submissions concerning temporal issues within areas such as Artificial Intelligence, Temporal/Spatial Databases and Applications of Temporal Logic in Computer Science, in order to achieve a multi-disciplinary perspective on the topic and to benefit from cross-fertilization of ideas.

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Track 1: Temporal Representation and Reasoning in AI

- temporal aspects of agent- and policy-based systems
- temporal constraint reasoning
- reasoning about actions and change
- temporal languages for planning
- temporal languages and architectures
- ontologies of time and space-time
- expressive power versus tractability
- belief and uncertainty in temporal knowledge
- temporal learning and discovery
- time and nonmonotonicity
- time in problem solving (e.g. diagnosis, scheduling,...)
- time in human-machine interaction
- spatio-temporal reasoning
- temporal information extraction
- time in natural language processing

Track 2: Time Management in Databases

- temporal data models
- temporal query languages
- indexing of temporal/spatio-temporal data
- temporal database systems
- spatio-temporal databases
- moving objects databases
- constraint databases
- temporal data mining
- time in multimedia databases
- time in e-services and web applications
- time in federated and heterogeneous systems
- time in workflow and ECA systems
- querying time series databases
- querying data streams
- time-dependent security policies

Track 3: Temporal Logic in Computer Science

- specification and verification of systems
- synthesis and execution
- model checking algorithms
- verification of infinite-state systems
- reasoning about transition systems
- temporal architectures
- temporal logics for distributed systems
- temporal logics of knowledge
- hybrid systems and real-time logics
- tools and practical systems
- temporal issues in security

Paper Submission

Submitted papers should describe original, previously unpublished, research, should be written in English, and should not be simultaneously submitted for publication elsewhere. The authors of submitted papers are encouraged to reference relevant earlier TIME papers.

As usual within the TIME series, proceedings will be published by IEEE Computer Society Press and will be subject to IEEE Copyright. Accepted papers will be invited for full presentation or poster presentation. One author of each accepted paper has to register for the symposium and present the paper. Camera ready papers will be produced with the author kits sent by IEEE Computer Society Press. It is also our intention to organise a special issue of a leading journal, containing extended versions of selected papers from the symposium.

Submissions must not exceed the length of 11 pages; font size must be 11pt or larger. The papers should be submitted as PDF files. It is strongly suggested to use the LaTeX article style. Over length submissions will be rejected without review. Please indicate the track and topic(s) on the first page of the paper. Papers should

be electronically submitted via the form available at the TIME 2005 web site (http://time2005.cse.buffalo.edu/). All submissions must be received by January 29, 2005.

Important Dates

- Paper Submission Deadline: January 29, 2005
- Notification of Acceptance: March 14, 2005 (REVISED DATE)
- Camera Ready Copy Due: April 1, 2005
- TIME 2005 Symposium: June 23-25, 2005

Contacts

If you have any questions please write to time2005@cse.buffalo.edu ❖

Calendar of Events

19th Workshop on (Constraint) Logic Programming

Ulm, Germany
2005, February 21-23
http://www.first.fraunhofer.de/

The workshop on (constraint) logic programming is the annual meeting of the Society of Logic Programming (GLP e.V.) and brings together researchers interested in logic programming, constraint programming, and related areas like databases and artificial intelligence

1st International Workshop on Automated Specification and Verification of Web Sites (WWV'05)

Valencia, SPAIN
2005, March 14-15
http://www.dsic.upv.es/workshops/wwv05

WWV'05 provides a forum for researchers from the communities of Rule-based programming, Automated Software Engineering, and Web-oriented research to facilitate the cross-fertilization and the advancement of hybrid methods in the areas of Web sites, Web services or Web-based applications.

10th International Conference on Artificial Intelligence and Law (ICAIL-05)

Bologna, Italy
2005, May 23-28
ICAIL provides a forum for the presentation and discussion of the latest research results and practical applications and stimulates interdisciplinary and international collaboration. Previous ICAIL conferences have taken place in Oxford (1991), Amsterdam (1993), College Park, Maryland (1995), Melbourne (1997), Oslo (1999), St. Louis (2001), and Edinburgh (2003).

CP-AI-OR

2005 May 30 - June 1, Prague, Czech
http://cpaior05.mff.cuni.cz/index.html

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CLIMA VI

London, UK
2005, June 27- 29
http://clima.deis.unibo.it/

The purpose of this workshop is to discuss techniques, based on computational logic, for representing, programming and reasoning about multi-agent systems in a formal way.

CMSRA-IV

Lisbon, Portugal
2005, September 21-23
centria.di.fct.unl.pt/~greg/conf/CMSRA-IV.html

The CMSRA workshops are an international forum for researchers from the fields of Logic & Decision, Knowledge Representation & Reasoning, Formal Epistemology, Computational Logic and Cognitive Science to discuss recent work in computational models of scientific reasoning.

7th Augustus de Morgan Workshop on Games and Logic

London, UK
2005, November
Game theory has become increasingly applicable in logic, argumentation and in theoretical computer science. This conference is intended to explore the potential of the interdisciplinary connections not only with the above areas but with decision theory as well.