INRIA - INTERNATIONAL AFFAIRS DEPARTMENT

"Associate Teams" Program

THE ASSOCIATE TEAM PROJECT : VANAWEB

Webpage/URL of the Associate team (compulsory) (http://...) :
http://www.loria.fr/~ringeiss/CHILI/vanaweb

INRIA TEAM INVOLVED

Main INRIA project team

INRIA project-team :	**CASSIS**
INRIA Research Center :	INRIA Nancy - Grand Est
Domaine :	Algorithmique, programmation, logiciels et architectures
Topic :	Programmation, vérification et preuves

Coordinator contact information

Name :	**Christophe Ringeissen**
Postal address :	INRIA Nancy Grand Est, 615 rue du Jardin Botanique, 54602 Villers-lès-Nancy France
Telephone number :	03 83 59 30 53
Email :	Christophe.Ringeissen@loria.fr

Other possible INRIA project team

INRIA project-team :
INRIA Research Center :
Domaine :
Topic :

Contact information

Name :
Postal address :
Telephone number :
Email :

INTERNATIONAL PARTNER

Main international partner

Country :	**Chili**
Home Intitution :	UTFSM, Valparaiso
Department or lab :	Department of Computer Science
Main research field :	

Coordinator contact information

Name :	**Carlos Castro**
Postal address :	UTFSM, Avenida Espana 1680, Casilla 110-V, Valparaiso, Chile
Telephone number :	(56) 32 2654242
Email :	Carlos.Castro@inf.utfsm.cl

Other possible international partner

Country :
Home Intitution :
Department or lab :

Main research field :

Contact information

Name :
Postal address :
Telephone number :
Email :

Other possible international partner

Country :
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Department or lab :
Main research field :

Contact information

Name :
Postal address :
Telephone number :
Email :

1. DESCRIPTION OF THE PROJECT

Title describing the Associate Team :
Hybrid and autonomous constraint solving and applications to composition problems for the Web

1.1. Summary of the research project :
We are interested in constraint modeling and in the development of constraint solvers based on the combination of complete methods, incomplete methods and autonomous exploration strategies. Our originality relies on a hybrid and autonomous approach that allows us to enhance both the expressiveness and the efficiency of solvers, to obtain better solutions, to solve distributed systems, and to ease the development of solvers since less expertise is needed. In this context, we investigate on different topics: formal frameworks, rule languages (controlled by strategies), cooperation techniques, interoperability and dynamic control of solvers. We are targeting some applications related to composition problems for the Web. We are focusing on the composition of Web services and the composition of documents, where our hybrid, autonomous, and multi-criteria constraint solving techniques seem very useful.

1.2. Description of the research project
The scientific goals and the methods to be employed to reach these goals :
See pdf document, Section 2.

View the uploaded PDF file (when applicable): vanaweb-ra10.pdf

2. TEAMS INVOLVED

2.1. Provide a short resume of the INRIA Coordinator :
Christophe Ringeissen
PhD in Computer Science from the University of Nancy (1993). Advisor: H. Kirchner.
Habilitation in Computer Science from the University of Nancy (2009).

His research interests are: automated deduction, rewriting, constraint solving, combination methods, rule-based programming, constraint (logic) programming, verification.

Researcher at INRIA since 1995.
Member of the PROTHEO INRIA project: 1993-2005.
Member of the CASSIS INRIA team-project: since 2005.

1. Eric Monfroy and Christophe Ringeissen. An Open Automated Framework for Constraint Solver Extension: the SoleX Approach. Fundamenta Informaticae, 39(1-2):167-187, Jul 1999.

2. Carlos Castro, Eric Monfroy, and Christophe Ringeissen. A Rule Language for Interaction. In Krzysztof R. Apt, François Fages, Francesca Rossi, Péter Szeredi, and József Váncza, editors, Recent Advances in Constraints, volume 3010 of Lecture Notes in Artificial Intelligence, pages 154-170. Springer-Verlag, May 2004.

3. Monfroy, E., Perrin, O., and Ringeissen, C. (2008a). Dynamic Web Services Provisioning with Constraints. In Proc of 16th International Conference on Cooperative Information Systems, OTM Conferences, volume 5331 of LNCS, pages 26?43. Springer.

2.2. List the INRIA participants, including students :
Tassadit Amghar (U. Angers): autonomous search and constraint optimisation for the composition of documents sous contraintes

Horatiu Cirstea (PAREO): rule-based modeling

Arnaud Lallouet (U. Caen): reasoning with quantified constraints

Pierre-Etienne Moreau (PAREO): rule-based modeling

Olivier Perrin (SCORE, LORIA): web service composition

Christophe Ringeissen (CASSIS): adaptative strategies applied to decision procedures, constraint-based service composition

Frédéric Saubion (U. Angers): metaheuristics, autonomous search, constraint optimisation

Laurent Vigneron (CASSIS): protocol verification, composition of security policies

Mention the thesis under joint supervision :

2.3. Provide a short resume of the partner Coordinator :
Carlos Castro
professor at UTFSM, Chile. PhD in Computer Science from the University of Nancy (1998). Advisor: C. Kirchner
His research interests are: constraint satisfaction problems, local search, hybrid methods, rule-based programming.Head of the Computer Science Department, UTFSM.

1. C. Castro and E. Monfroy. Basic Operators for Solving Constraints via Collaboration of Solvers. In J. A. Campbell and E. Roanes-Lozano, editors, Proceedings of the 5th International Conference on Artificial Intelligence and Symbolic Computation (AISC'2000), volume 1930 of Lecture Notes in Artificial Intelligence, pages 142-146, Madrid, Spain, 2001. Springer.

2. Carlos Castro, Eric Monfroy, and Christophe Ringeissen. A Rule Language for Interaction. In Krzysztof R. Apt, François Fages, Francesca Rossi, Péter Szeredi, and József Váncza, editors, Recent Advances in Constraints, volume 3010 of Lecture Notes in Artificial Intelligence, pages 154-170. Springer-Verlag, May 2004.

3. Lardeux, F., Monfroy, E., Saubion, F., Crawford, B., and Castro, C. (2009b). Sat encoding and csp reduction for interconnected alldiff constraints. In Proceedings of the 8th Mexican International Conference on Artificial Intelligence (MICAI 2009), Lecture Notes in Artificial Intelligence, Guanajuato, Mexico. Springer. In Press.

2.4. List the participants from the partner institution, including students :
Carlos Castro (UTFSM): hybrid methods, constraint programming, adaptative strategies

Eric Monfroy (UTFSM): hybrid methods, solver collaboration, adaptative strategies, constraint reasoning applied to service composition, raisoning with quantified constraints

Maria-Cristina Riff (UTFSM): constraint optimisation, local search techniques

Broderick Crawford (student, UTFSM): integration of constraint programming and metaheuristics

2.5. Brief history of the collaboration between the teams :
The project is the continuation of a well-established collaboration: Carlos Castro, Eric Monfroy, Olivier Perrin, Christophe Ringeissen, Laurent Vigneron did their PhD theses at CRIN-INRIA (Nancy) in the 90's, and share a common research interest on constraint and rule technologies. When Carlos Castro came back to Chile, we started a collaboration on constraints, rules, and strategies. A major side-effect of this collaboration is that Eric Monfroy, who was professor at Nantes, has moved to Valparaíso, to work with Carlos Castro at UTFSM. Our collaboration has been successively supported by different INRIA-CONICYT projects, namely COCARS, VANANAA and CoreWeb. In the last years, the collaboration has been extended

to French colleagues working on hybrid methods (Frédéric Saubion, prof. univ. Angers) and quantified constraint satisfaction problems (Arnaud Lallouet, prof. univ. Caen).

3. ADDED VALUE OF THE COLLABORATION FOR EACH PARTNER

Outline how the teams involved complement each other :
The aim of the proposed project is to develop new constraint solving methods and to study composition problems for the Web as application domain.The project relies on the following skills:
Constraint technology:
- Autonomous search, hybrid methods, quantified constraints, programming with rules and contraints (UTFSM)
- Autonomous search, metaheuristics, constraint optimisation (U. Angers)

- Quantified constraints (U. Caen)

- Constraint-based verification (INRIA)

- Programming with rules and constraints (INRIA)

Composition problems:
- Composition of documents (U. Angers)
- Composition of services (INRIA)

The group in Nancy includes also Olivier Perrin whose main research interests are Semantic Web Services, Service Oriented Architectures (SOA), particularly Web services composition, and Web services monitoring.

4. SCIENTIFIC WORK PROGRAM FOR NEXT YEAR

Describe the scientific tasks planned for this year :
See pdf document, Section 3.4.

View the uploaded PDF file (when applicable) : vanaweb-ra10.pdf

5. EXCHANGES PROGRAM FOR NEXT YEAR

5.1. From INRIA to the partner institution :
3 visits:

Christophe Ringeissen

Frédéric Saubion

Olivier Perrin/Laurent Vigneron/Horatiu Cirstea/Pierre-Etienne Moreau/Arnaud Lallouet

5.2. From the partner institution to INRIA :
3 visits:

Eric Monfroy: 2 visits

Carlos Castro: 1 visit

6. EXPECTED COST OF THE EXCHANGES FOR NEXT YEAR

6.1. Visits of inria researchers to partners

Number of persons

Senior researcher	Postdoctoral fellow	PhD student	Intern	Other	Total
3	0	0	0	0	3

Estimated total cost (€)

Senior researcher	Postdoctoral fellow	PhD student	Intern	Other	Total
6700.00	0.00	0.00	0.00	0.00	6700.00

6.2. Invitation of partner researchers to inria

Number of persons

Senior researcher	Postdoctoral fellow	PhD student	Intern	Other	Total
3	0	0	0	0	3

Estimated total cost (€)

Senior researcher	Postdoctoral fellow	PhD student	Intern	Other	Total
7100.00	0.00	0.00	0.00	0	7100

7. FINANCIAL PLAN FOR NEXT YEAR

7.1. Financial contribution from the international partner to the exchange program :

We expect a funding of our INRIA-CONICYT project CoreWeb.

For 2009, we got a CoreWeb funding of 2 visits France -> Chile and 2 visits Chile -> France. The INRIA part was funded by the Associate Team.

Please indicate the amount of funding expected from the partner and from external resources :

3800.00

7.2. Associate Team budget proposal for next year (automated) :

Global cost of the collaboration project :	**13800.00**
External resources (other than Associate Team program) :	**3800.00**
Funding from the Associate Team program :	**10000.00**