



Dear project partners and interested stakeholders,

Welcome to the fourth edition of our newsletter, which now reaches over 100 subscribers, without including several other redistribution lists!

After a successful project review in June, EternalS is steady on its course through the second year. An important achievement for the project was the organization of the first EternalS workshop, as reported in the "Activities" section.

As you prepare to adapt to the somewhat slower pace of the summer, we hope you will find the time to follow up the many interesting activities organized by the coordinated projects (CONNECT, HATS, LivingKnowledge, SecureChange) and the EternalS Task Forces. This newsletter will be back to you in October 2011. Till then, we wish you a relaxing holiday!

Have a good time,
The EternalS Team

Updates from the EternalS Task Forces

Task Force 1 "Diversity Awareness and Management" is preparing a special section in the [STTT journal](#) initiated by the special section editors Ina Schaefer, Rick Rabiser and Dave Clarke. The special section will focus on the management of software diversity in all phases of the software development process. Starting with an introductory overview of the state-of-the-art in diverse system development, the special section will comprise contributed articles by key players in the area focusing on particular aspects of diverse software development, such as requirements analysis, design, implementation and quality assurance techniques. The publication of the special section is planned for Spring 2012.

Task Force 2 "Time Awareness and Management" prepares a journal paper on change-driven software engineering to which several members of the task force contribute. Additionally, a cooperation with the other task forces to employ machine learning techniques for improving diversity and evolution management is under discussion.

Task Force 3 "Self-adaptation and Evolution by Learning" has initiated a number of cross-project collaborations aiming at applying machine learning methods to software engineering problems. In addition, following the successful compilation of a survey of the state of the art in machine learning and its application in software-related problem areas, the task force is planning the expansion of this survey into a journal article or book. Finally, the task force is preparing contacts with similar projects in the intersection of the applied machine learning and software-related research areas.



Eternals Activities

1st International Workshop on Eternal Systems (Eternals'11)

The [first workshop on Eternal Systems](#) was co-located with the [European Future Technologies Conference and Exhibition \(FET11\)](#) in Budapest, Hungary on May 3.

The workshop aimed at creating the conditions for mutual awareness and cross-fertilization among broad ICT areas such as: Learning Systems for Knowledge Management and Representation, Software Systems, Networked Systems and Secure Systems.

The workshop has been organized by Alessandro Moschitti (University of Trento, Italy) and Riccardo Scandariato (Katholieke Universiteit Leuven, Belgium).

The workshop has been attended by over 30 participants. In total, 15 submissions have been received, of which 10 have been accepted for publication. The workshop also hosted a panel session about "Writing a roadmap for Eternals systems" chaired by Jesse Kielthy (Waterford Institute of Technology). Panel members were: Reiner Hähnle (Task force coordinator), Ina Schaefer (TF1 leader), Michael Felderer (TF2 leader), Richard Johansson (TF3 leader).

Eternals Session at CONNECT Summer School

CONNECT successfully organized [SFM-11:CONNECT - The 11th International School on Formal Methods for the Design of Computer, Communication and Software Systems: Connectors for Eternal Networked Software Systems](#), on 13-18 June 2011 in Bertinoro, Italy. Lectures are published in Lecture Notes in Computer Science 6659, Springer. Presentations will also be released at the [CONNECT training Web page](#).

Eternals sponsored a session organized by Valerie Issarny (INRIA), with talks by:

- Dave Clarke et al., Modeling Spatial and Temporal Variability with the HATS Abstract Behavioral Modeling Language
- Alessandro Moschitti, Kernel-Based Machines for Abstract and Easy Modeling of Automatic Learning
- Jan Jürjens, et al., Modelling Secure Systems Evolution: Abstract and Concrete Change Specifications

Eternals Poster Session at SACMAT 2011

Eternals sponsored a poster session at the 16th ACM Symposium on Access Control Models and Technologies (SACMAT) on June 16, 2011 in Innsbruck, Austria. The session has been organized by Riccardo Scandariato (K.U.Leuven) and Ruth Breu (U. Innsbruck). This was the first time a poster session was organized at SACMAT and we received positive feedback by the PC Chairs and the attendees. In total, 6 posters have been accepted, including two posters presenting the Eternals and SecureChange projects. The research posters included:

- Massacci, Nguyen, Neuhaus, The distribution of vulnerabilities
- Yskout, Ben David, Baudry, Co-evolution for access control
- Montrieux, Wermelinger, Yu, Model-Driven Verification and Evolution of RBAC properties
- Craß, Joskowicz, Kühn, Winkler, Implementing Enterprise Security via a Room Model

Eternals supported events

TextGraph-6 workshop. Eternals contributed to the organization of [TextGraphs 6: workshop on Graph-based Methods for Natural Language Processing](#). The workshop had an attendance of about of 50 people with a pick of about 80 attendees during the invited talk.

Machine Learning training school. Eternals supported the organization a [training school in Machine Learning](#) for PhD students. In addition to prof. Alessandro Moschitti and prof. Farid Melgani (from UNITN), prof. Hal Daumé III of the University of Maryland (US), gave interesting lectures on structure predictions.



News from the coordinated projects

CONNECT

CONNECT drops interoperability barriers by synthesizing on the fly the connectors via which networked systems communicate. The synthesis process is based on a formal foundation for connectors, which allows learning, reasoning about and adapting the interaction behavior of networked systems at run-time. Synthesized connectors are concrete emergent system entities that are dependable, unobtrusive, and evolvable, while not compromising the quality of software applications. To learn more about CONNECT, please visit [the website](#).

CONNECT publications. CONNECT publications are available on the [project's website](#). These include the project's 2nd year deliverables that were all accepted at the successful 2nd project review, which was held in March.

CONNECT training. CONNECT has released training material in the various disciplines being studied. Material is available at the [CONNECT training Web page](#).

CONNECT tools. CONNECT tools are now available from [the CONNECT software page](#).

Winner of Zulu challenge. Work by the Technical University of Dortmund on automata learning won the [ZULU challenge](#).

HATS

The core of the HATS project is the design of an executable abstract modeling language intended for modeling and analysis of software product families called Abstract Behavioral Specification (ABS). HATS ABS has a uniform, formal semantics, as well as an integrated assertion and contract language.

Prototype of HATS Tool Suite as Available Eclipse Plugin. The ABS language is supported by a [Tool Suite](#) consisting of parser, type checker, editors, compiler, code generators as well as a variety of analysis tools. A first prototype of the HATS ABS Tool Suite is now available as an Eclipse plugin from our [update site](#). On the [HATS Tools Page](#) you find instructions for installation and usage, including a short video.

Second Year Review Passed Successfully. We had a successful project review in late March with very encouraging feedback from the reviewers. All second year deliverables were accepted. These are all public and available from the [HATS website](#). They give a comprehensive overview of the project results.

HATS at ECOOP 2011 Research Project Symposium. HATS participates in the [Research Project Symposium](#) of the [25th European Conference on Object-Oriented Programming \(ECOOP\)](#) on 27 July 2011 as one of three projects featured at ECOOP.

Workshop on Formal Methods and Analysis in Software Product Line Engineering. Members of the HATS consortium are organizing the [2nd International Workshop on Formal Methods and Analysis in Software Product Line Engineering \(FMSPLE\)](#), co-located with the [Software Product Line Conference \(SPLC\)](#) on 26th August 2011 in Munich.



News from the coordinated projects

LivingKnowledge

The [LivingKnowledge project](#) is now in its third year and has produced major output in the area of published research results, innovative system components and dissemination activities such as the organization of a WWW Panel and Workshops. In this summer two major events are on the LivingKnowledge schedule for the end of August: the release of the technology testbed - the "Diversity Engine" and the organization of the LivingKnowledge summer school.

Summer school. The LivingKnowledge summer school will be organized in collaboration with the [ESSIR 2011 summer school](#) in Koblenz, Germany from August 29 to September 2 for researchers and developers interested in diversity-aware technology.

Release of testbed. The Diversity Engine testbed makes the diversity-related technology developed in the LivingKnowledge project available in an integrated, extensible, pipeline-based fashion. The [Diversity Engine](#) will become available in the end of August.

EternalS is supporting the summer schools organized by LivingKnowledge and the testbed activities.

SecureChange

Successful Second Year Review. The project passed the project review in March.

ESSoS'12 Symposium. The 4th International Symposium on Engineering Secure Software and Systems will be held in Eindhoven, The Netherlands, on February 16-17 2012. Members of the SecureChange consortium are actively involved in the organization.

Papers in the spotlight. The following new publications have been accepted to A-rated conferences and journals:

- J. Jürjens and B. Nuseibeh, Software Engineering for Secure Systems, 33rd International Conference on Software Engineering (ICSE 2011)
- B. Jacobs and F. Piessens, Expressive modular fine-grained concurrency specification, Principles of Programming Languages (POPL 2011)
- F. Paci, M. Mecella, M. Ouzzani and E. Bertino, ACConv-An access control model for conversational Web services, To appear on ACM Transactions on the Web
- X. Peng, Y. Yu and W. Zhao, Analyzing Evolution of Variability in a Software Product Line: from Contexts and Requirements to Features, Information and Software Technology, 53(7), July 2011
- J. Julliard, P. Masson, R. Tissot and P. Bué, Generating Tests from B Specifications and Dynamic Selection Criteria, Formal Aspects of Computing, 23(1), 2011

