



Cassting

Deliverable D6.1

Minutes of the kick-off meeting

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Project	Cassting — Collective Adaptive Systems SynThesis with Non-zero-sum Games		
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1. INTRODUCTION

The kick-off meeting of the Cassting project was held in Paris on 11th and 12th of April 2013. This two-day seminar took place in the auditorium Alan Turing of University Paris-Diderot, and was attended by around 40 researchers and PhD students.

Partner, Country	Participant name
CNRS, FRANCE	Nicolas MARKEY Sophie VALETTE Claire BOULC'H Virgine GUÉNARD Benoît BARBOT Dietmar BERWANGER Patricia BOUYER-DECITRE Laurent DOYEN Erwin FANG Paul GASTIN Hugo GIMBERT Axel HADDAD François LAROUSSINIE Giuseppe LIPARI Benjamin MONMEGE Ocan SANKUR Stefan SCHWOON Daniel STAN
ULB, BELGIUM	Gilles GEERAERTS Guillermo PEREZ Jean-François RASKIN Mathieu SASSOLAS Pierre-Yves SCHOBENS Mahsa SHIRMOHAMMADI
UMONS, BELGIUM	Thomas BRIHAYE Aaron BOHY Pierre CARLIER Marc DUCOBU Julie DE PRIL Quentin HAUTEM Noémie MEUNIER Mickael RANDOUR Cédric RIVIÈRE
AAU, DENMARK	Kim G. LARSEN Alexandre DAVID Line JUHL Simon LAURSEN Axel LEGAY
RWTH AACHEN UNIVERSITY, GERMANY	Wolfgang THOMAS Benedikt BRÜTSCH Christof LÖDING
SELUXIT, DENMARK	Daniel LUX
ENORD, DENMARK	Excused

2. AGENDA

The agenda of the meeting was as follows:

THURSDAY		FRIDAY	
10:00 – 10:30	Coffee	9:00 – 9:45	Kim G. LARSEN Games, Statistical Model Checking and Smart Grid
10:30 – 11:00	Nicolas MARKEY Presentation of the project	9:45 – 10:30	Ocan SANKUR Robust Controller Synthesis in Timed Automata
11:00 – 12:30	Presentation of partners CNRS, ULB, UMONS, AAU+ENORD, AACHEN, SELUXIT	10:30 – 11:00	Coffee break
12:30 – 14:00	Lunch at Paris-Milan, 11 rue Elsa Morante	11:00 – 11:45	Stefan SCHWOON Parametrized Active Diagnosability
14:00 – 15:00	Thomas BRIHAYE Solution concepts from classical game theory and beyond	11:45 – 12:30	Jean-François RASKIN Doomsday Threatening Equilibria: Complexity and Algorithms
15:00 – 15:20	Hugo GIMBERT Regular languages of winning strategies	12:30 – 14:00	Lunch at CROUS Buffon, 17, rue Hélène Brion
15:20 – 16:00	Mathieu SASSOLAS The Complexity of Admissibility in Omega- Regular Games	14:00 – 14:30	Simon LAURSEN Action Investment Energy Games
16:00 – 16:30	Coffee break	14:30 – 15:15	Mickael RANDOUR Looking at Mean-Payoff and Total-Payoff through Windows
16:30 – 18:00	Governing board meeting (room 1007)	15:15 – 16:00	Mahsa SHIRMOHAMMADI Limit-sure eventually synchronization in MDPs
19:00 – 21:00	Cassting dinner at Bouillon Racine	16:00 – 16:30	Coffee

2. 1 PROJECT AND PARTNER PRESENTATIONS

The first morning was devoted to presentations of the main scientific aspects of the project, as well as presentations of all seven partners.

The presentation of the project was given by the coordinator, Nicolas MARKEY. He started with explaining the various steps that made the core partners to submit a proposal to the call on Fundamentals of Collective Adaptive Systems, and how this eventually led to the signed Grant Agreement. He also explained that together with six other related projects, **Cassting is part of the FoCAS coordination action**; the aim of FoCAS is to foster interactions between these projects which all focus on complex systems.

Nicolas then presented the main scientific topics on which the project will focus during its three years of existence: the three core workpackages will develop (1) new families of models and formalisms for modelling and reasoning about collective adaptive systems, (2) algorithms for efficiently verify and/or synthesise strategies in those settings, and (3) a practical framework for applying those advances on real cases. The fourth workpackage is there to demonstrate the effectiveness of the new approaches that the partners will set up, and to get feedback from the two industrial partners about future developments.

Following this presentation of the project, all partners gave an introduction of their teams, their main areas of expertise and their roles in the project:

- **CNRS** was presented by Nicolas MARKEY. CNRS is represented in the project by LSV, the computer-science laboratory of ENS Cachan, which is expert on quantitative analysis of systems (especially real-time systems), and on games (with recent interest in non-zero-sum games). **CNRS is the coordinator of the Cassting project.**
- **ULB** was introduced by Gilles GEERAERTS. The computer-science department of ULB has long-lived expertise in the development of efficient algorithms for verification (model checking) and synthesis (games). **ULB is the leader of Workpackage 2.**
- **UMONS** was presented by Thomas BRIHAYE. The Effective Mathematics Team of Mons University has recognised expertise in game theory. **UMONS will lead Workpackage 1.**
- **AACHEN** was introduced by Wolfgang THOMAS. The team of Prof. THOMAS is internationally renowned for its expertise in logics, automata and games, in particular in the setting of verification and synthesis. **AACHEN is the leader of Workpackage 3.**
- **AAU** was presented by Kim G. LARSEN. The computer science department of Aalborg is world-famous for the development of the tool Uppaal, which is a cutting-edge tool for checking various properties of timed automata and games. AAU also has a long experience of collaborations with numerous industrial partners, and **will thus lead Workpackage 4.**
- **ENORD** was also presented by Kim G. LARSEN, as no one from Energi Nord could make it to the kick-off meeting. The role of Energi Nord in the project is mainly **to provide access to various case studies, infrastructures and data** for evaluating the advances made in the course of the project.
- **SELUXIT** was introduced by Daniel LUX. Seluxit is a SME working on home automation and smart houses. **They will provide the Cassting partners with case studies in that area.**

2. 2 TECHNICAL CONTRIBUTIONS

The rest of the kick-off meeting was devoted to scientific talks contributed by members of the project. Related to workpackage 1, a detailed presentation of various solution concepts for non-zero-sum games was given by Thomas BRIHAYE, who raised several questions about the relevance of those concepts to computer science, and more precisely to the objectives of the Cassting project. This corresponds to one of the four tasks that workpackage 1 has to explore.

Several other talks were proposed in that workpackage: Mathieu SASSOLAS, from ULB, presented recently submitted results about admissible strategies, obtained by iteratively removing dominated strategies. Jean-François RASKIN, also from ULB, gave a talk on so-called Domsday equilibria, which correspond to profiles of strategies where all player wins but in which any deviation leads to all players losing. Finally, Hugo GIMBERT also proposed a short talk about possible directions of research in using tree-automata techniques for non-zero-sum games, possibly with imperfect information.

The programme also had a series of talks about games with quantitative aspects. Ocan SANKUR, from CNRS, presented recent results he obtained during his thesis about controller synthesis for timed systems in a perturbed setting, where the delays might be shifted by some amount of time. Simon LAURSEN, from AAU, proposed a talk about "action investment energy games", extending energy games with a first phase in which the players can invest part of their energy to enable some of the transitions of the system. Mickael RANDOUR, from UMONS, presented results about games with mean-payoff minimisation objectives, in which the mean-payoff is actually computed in a sliding window of a given width.

Kim G. LARSEN, from AAU, presented recent works on applying statistical model-checking techniques, and in particular the SMC-extension of Uppaal, to the case of smart houses. SMC provide a very powerful way of evaluating how various quantities evolve in a given model, thus offering a convenient way of measuring the performances of a given model or strategy. Finally, Stefan SCHWOON, from CNRS, and Mahsa SHIRMOHAMMADI, from ULB, proposed to talks in which game theory is applied to the settings of active diagnosis and synchronisation in Markov Decision Processes, respectively.



3. MINUTES OF THE GOVERNING BOARD MEETING

The kick-off meeting was also the occasion for the governing board to hold its first meeting, where the administrative and financial aspects of the project were recalled. The workplan for the first year of the project was also discussed, as well as the forthcoming events and meetings. More detailed minutes of the governing-board meeting are given below. **The next governing-board meeting will take place on the occasion of the next consortium meeting, to be hosted by AAU on September 30th and October 1st.**

LIST OF ATTENDEES

Partner n°	Partner, Country	Participant name
1	CNRS, FRANCE	Nicolas MARKEY Sophie VALETTE Claire BOULC'H Virgine GUENARD
2	ULB, BELGIUM	Gilles GEERAERTS
3	UMONS, BELGIUM	Thomas BRIHAYE
4	AAU, DENMARK	Kim G. LARSEN Alexandre DAVID
5	RWTH AACHEN UNIVERSITY, GERMANY	Wolfgang THOMAS
6	SELUXIT, DENMARK	Daniel LUX
7	ENORD, DENMARK	Excused

AGENDA

1. Administrative aspects of the project
 - A. Management structure
 - B. Financial management
 - C. Communication & Dissemination
2. Scientific workplan for the first year of the project
3. Future meetings

3.1 ADMINISTRATIVE ASPECTS OF THE PROJECT

A. Management structure (Presentation by Claire BOULC'H)

The Governance Structure of the project was reminded all partners.

- ✓ *The Project Management Board* consists of the Scientific Coordinator (Nicolas MARKEY) and the European Project Manager (EPM) (Sophie VALETTE). They are responsible for the day-to-day management, represent the project's members, but don't take decision. All messages to or from the European Commission (EC) go only via the project coordinators. Just to know: Béatrice MARQUEZ-GARRIDO is the Project Officer of the European Commission (DG CONNECT) dedicated to CASSTING project.

You can contact the Project Management Board at this address anytime you want:

cassting@lsv.ens-cachan.fr

- ✓ *The Governing Board (GB)* is composed of one representative of each partner and takes decisions. One representative equals one vote. It applies the voting rule of $2/3 = 66\%$.
- ✓ *The Executive Board* consists of the WP leaders. It makes proposals to the GB, is responsible for the proper execution and implementation of the project. *The partners* provide all information requested by the EU and carry out the work. Their participation at meetings is obligatory.

The contractual documents are the key documents of the project. Don't hesitate to consult them. Each partner can find them soon on the internal pages. The **Grant Agreement (GA)** represents the core contract signed by the Coordinator and the EC (Annex I & II & IV (form A)). The **Consortium Agreement (CA)** is signed between the partners and the coordinator (internal), but not with the EC.

B. Financial management (Presentation by Claire BOULC'H)

Each partner has to check with its own administration the local financial rules (timesheet, deadlines...), to identify its administrative contact point and to establish the modalities of collaboration during the project. The next payments are expected for the months 18 and 41. A first payment, called "Pre-financing", was transferred to all partners on the first month of the project.

Each partner must anticipate each reporting periods of the project: month 12 and month 36. There will be two types of reports: one scientific and one financial. The scientific report shouldn't be too technical because they probably will be read by non-specialists. Scientific reports have to be submitted via SESAM, the online project reporting tool, including deliverables (access via European Commission Authentication Service (ECAS)). The Form C (declaration of costs) has to be submitted on FORCE and sent by regular mail to the coordinator. The partners decided not to use electronic transmission of form C for the moment.

**Be careful: An audit of the EU can be possible until 5 years after the project.
Keep with you all supporting documents!!**

The coordinator & the EPM must be informed of any delay or deviation. Those have to be justified and explained in the Periodic report.

Costs are eligible from 1st April 2013. All costs claimed should be based on the actual costs incurred. They must be supported by proper documentation, linked to the funded project, neither budgeted, nor estimated amounts. Direct costs can be attributed directly to the project and are identified by the beneficiary as such, in accordance with its accounting principles and its usual internal rules: personnel costs, travel costs and subsistence, subcontracting.

C. Communication & Dissemination (Presentation by Sophie VALETTE)

External & internal communication and dissemination are very important for the project to facilitate cooperation between partners and to bring research to the attention of as many relevant people as possible.

All publications or any other dissemination relating to foreground shall include the following statement: **« The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n°601148 (CASSTING) »,** to indicate that said foreground was generated with the assistance of financial support from CASSTING.

CASSTING members should publish articles in national or european journals and conferences, communicate through press releases, towards researchers on smart energy grids for instance. Open access to all scientific results will be garanted by placing theses publications on the OpenAIRE website.

The Project Management Board will suggest to partners a visual identity for the project applying to a newsletter, brochures, booklets, flyers banners. The logo of the project has to be used for all communication and dissemination within the project.

The CASSTING website is entirely dedicated to the project, opened to scientific and industrial communities, and even further to a larger public. The EPM will update the website thanks to partners' contributions and ideas etc. After the end of the project, the website will be kept available and updated for at least two years. The website will be used like a platform for internal exchanges of data and results, too.

A biannual newsletter on the website will inform about the project's progress. Each partner will send every six months to the EPM a short abstract of the state of his research, his contributions & his activities links to the project. The newsletter will announce next important events in the same field of the project (like FOCAS) and illustrate the project (pictures, schema...).

3.2 SCIENTIFIC WORKPLAN FOR THE FIRST YEAR OF THE PROJECT

8 deliverables will be provided during the first year of the project:

- Minutes of the kick-off meeting (D6.1, CNRS, M1)
- CASSTING website (D5.1, CNRS, M3)
- Description of case studies (D4.1, CNRS, M6).
- Multi-player quantitative games (D1.1, ULB, M12)
- Solutions concepts for collective adaptive systems (D1.4, UMONS, M12)
- Robustness of collective adaptive systems (D3.1, CNRS, M12)
- Plan for Use and Dissemination of Foreground (D5.2, AAU, M12)
- Annual report for Year 1 (D 6.2, CNRS, M12)

Deliverables will be on the agenda of the next meeting in six months in Aalborg.

CASSTING partners discussed the procedure for preparing the deliverables. They proposed that each deliverable should be finished one month in advance in order to have time to read them. The Project Management Board will soon suggest templates to partners.

3.3 FUTURE MEETINGS

FoCAS EVENTS



The first FoCAS Inter-project meeting runs **from June 4th to 5th 2013** and will be held in Barcelona. 1st FoCAS Workshop on Fundamentals of Collective Systems will take place **on Tuesday, 3rd September 2013** at ECAL (European Conference on Artificial Life) 2013, at Taormina, in Sicily, in Italy.



FoCAS is a Future and Emerging Technologies Proactive Initiative funded by the European Commission under FP7



CASSTING'S NEXT MEETINGS

The next meeting will take place **from 30th September to 1st October 2013** at Aalborg in Denmark.

The date of the following meeting will be set in Aalborg. As it will be coupled with the review meeting, it could be held in Brussels at the end of May 2014.

The meeting in Dagstuhl must be organized well in advance. The format of the event has yet to be defined, including guests: usual seminar, closed meeting? The next submission deadline is set on 1st November 2013. Another option will be to organize in Dagstuhl the final conference of the CASSTING project.