

Report by Luca Maria Gambardella for the
“Dossier d’Habilitation à Diriger des Recherches de
IUniversité du Havre”,

Spécialité Informatique

Title: “Modélisation informatique de système à base
d'interactions et détection d'organisations.
Modèle du vivant.”

candidate Damien Olivier

This report starts with a positive evaluation of Damien Olivier research, management and organization activities and with a favorable advice for his habilitation. In the following each important topic concerning his activity is considered: research, teaching, collaborations, students supervision and exploitation of research results.

Teaching

Damien Olivier started his collaboration with the University of le Havre since 1987, when he was involved in the definition of the global informatics platform. In 1993 he was designated “Maitre de Conférence”, with the goal to develop a set of courses (2nd and 3rd cycle) post-DEUG and research activities in computer science. This activity included the definition of a professional master in the area of distributed systems (30 students per year). Next Damien Olivier was involved in the definition of a master in mathematics-informatics that started in 2004 and was the basis for a research master on modeling of complex systems. In this framework Damien Olivier was also involved for four years as vice-senior.

Damien Olivier has been involved in a number of teaching activities at different level from the first to the second cycles and to the master and master research level. In particular he has been involved in teaching Java Programming, Artificial Intelligence, object Oriented Programming, Distributed and Parallel Computer Science, Complex systems, Introduction to Scientific Programming, Artificial Life, Applications to SMA.

Research

Damien Olivier research career started with his PhD work in Paris (1987-1991) in the area of expert systems. In 1999 the

Havre Laboratory of Informatics (LIH) was officially recognized and for 3 years Damien Olivier was member of the LIH lab.

From 2002 to 2005 he was a permanent member of the Artificial Life group (Modèles Informatiques du Vivant) and from 2006 he is permanent member of the LITIS group (Traitement de l'Information et des Systèmes)

During his research activities his goal was to understand and simulate complex systems based on real life systems and to take inspiration from these systems to define new computational models.

In particular from 1999 he has concentrated his work in the modeling of estuaries ecosystems, using self-emerging methodologies based on collective intelligence.

An other interesting work is related to sequencing by hybridization.

Inside the European project TIM a multimodal platform has been designed to develop infant games. Following this line some research activities in the area of man-machine interaction has been performed in the GIS CRHIS project.

For recent activity we mention in 2006 a new research work in the area of collective taxi with the goal to reduce the total traveled distance for each single vehicle. We also mention an important research activity in the area of immune systems.

In summary, an important part of Damien Olivier researches is dedicated to nature-inspired methods for processing complex systems or graphs modeling complex systems. Among these works, the main part concerns ant algorithms, that is one of the most representative topic of his researches.

During these research activities Damien Olivier was responsible to direct research projects and research teams and to organize different workshops and sections in important conferences.

These activities have generated the following publications:

4 publications journals, 6 books chapter, 31 international conference publications and 6 national conference publications.

Collaborations

Damien Olivier is in contact with other European research groups. He has active collaborations with the French, Sweden and English groups in the framework of the European Project TIM. He has active collaboration with Rouen and Kiel. He is expert ORMES for the European Commission in the area of risk evaluation. Inside the project TEMPUS he had collaborations with American, German Spanish and French partners.

Thesis Supervision

Damien Olivier had the possibility to supervise and co-supervise) 14 DEA and Master research thesis in different domain, from artificial immune systems, to dynamic distribution

for ecosystems modeling. He was involved as co-supervisor in 6 Ph.D. thesis:

1999 P. Tranouez, Systèmes complexes adaptatifs - application aux ecosystems (discussed 2005)

2001 A. Dutot, Distribution dynamique adaptative dans le cadre de simulation (discussed 2005)

2002 G. Prevost, Modélisation de chaînes trophiques par SMA (discussed 2005)

2002 S. Lerebourg, Gestion dynamique du routage dans le cadre du trafic urbain par des mécanismes d'intelligence collective

2006 J. Franzolini, Diffusion d'information par réseau AdHoc en situation de crise

2006 M. Nabba, Modèle hybride de flux de population avec changement d'échelle

Exploitation of research results

Damien Olivier has been involved in a large number of conferences and program committees. In particular I'm positively impressed by the fact that he has organized the "International School on Computation Biology" in 2002. The school had 60 participants and 10 speakers coming from all over the world.

He was the co-organizer of the workshop Emergent Properties in Natural and Artificial Dynamical Systems in Paris in 2005 inside the European Conference on Complex Systems and he was Co-organizer of the European Simulation and Modelling Conference ESMC 2006. He is reviewers for many international journals.

General Considerations

Damien Olivier has done a number of important research, administration and teaching activities.

He has been able to actively contribute to the growing of the University of Havre.

To conclude I had a positive impression about Damien Olivier research activities and about his capability to direct thesis and projects. Therefore I give my favorable advice for his "Habilitation à Diriger des Recherches"