

CURRICULUM VITÆ

Nabil Sahli

1. Personal Details

Nabil Sahli, Ing., PhD.

Scientist researcher at Telematica Instituut, Enschede, The Netherlands www.telin.nl

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N. Sahli

Edisonstraat 20, Enschede 7533 CA, The Netherlands

Date & Place of Birth: 14/05/1976, Tunis, Tunisia.

Marital status: engaged (Wedding planned for August 3, 2008).

Citizenship: Tunisian & Canadian.

2. Education

September 2001- January 2006

PhD in Computer Science under the supervision of Pr. Bernard Moulin.

Department of Computer Science and Software Engineering, Laval University, Québec, Canada. www.ift.ulaval.ca

Topic: Agent-based Geosimulation: a support for real-world planning.

Congratulation of the Jury

September 1999 – May 2001

Master in Computer Science under the supervision of Dr. Bernard Moulin.

Department of Computer Science and Software Engineering, Laval University, Québec, Canada.

Topic: A new approach based on mobile agents for more interoperability in dynamic environments & application to the aeromedical evacuation case.

1996-1999

Engineer in Computer Science

National Engineer School of Computer Science and System Analysis, ENSIAS, Rabat, Morocco. <http://www.ensias.ma/>

Speciality: Networks and Communication.

1st class honours.

1994-1996

Preparatory class (intensive French system courses in mathematics, physics and chemistry)

Mohamed V School, Casablanca, Morocco.

1993-1994

French type of Baccalaureate in Sciences

Special School of Tunis, Tunisia.

3. Recent Experience in Research

August 2007- current

Scientist researcher at Telematica Instituut, a private research institute in The Netherlands which aims at making the bridge between research (in the universities and the institute) and industry (industrial Dutch and International companies, e.g. Nokia, Ericsson, Philips, DoComo, IBM, ABN AMRO, BMW).

January 2006- December 2006

Postdoctoral Position under the supervision of Dr. Bernard Moulin (Laboratory of Cognitive Computing, Department of Computer Science and Software Engineering, Laval University, Québec, Canada.)

4. Current Research Interests

- Artificial intelligence
- Context-awareness
- Virtual communities, recommender systems
- Trust and reputation
- Intelligent agents and multi-agent systems
- Multi-agent simulation, Multi-agent geo-simulation
- AI Planning and agent-based planning
- Geographic Information Systems (GIS) and spatial data manipulation and analysis
- E-Government
- Semantic Web
- Hazards Simulation.

5. Publications

A- Thesis

Agent-based Geosimulation: a support for real-word planning. Feb 2006. Department of Computer Science and Software Engineering, Laval University, Canada.

<http://www.theses.ulaval.ca/2006/23373/23373.html>

B- Journals

B-1 Published:

- 1- **N. Sahli**, B. Moulin, EKEMAS, an Agent-Based Geosimulation *Approach to Support Planning in the Real-Word. Applied Intelligence*, published online on March 2008 in Springer <http://www.springerlink.com/content/j82512rr9481373n/?p=c504fc767e014ff1b38082d3554f5fc7&pi=0> (will appear in volume 29).

- 2- **N. Sahli**, B. Moulin, La Géosimulation Multiagent : un support pour la planification dans un monde réel. *Revue d'Intelligence Artificielle*, Hermes Edition, vol 21 (2), pp 151-182, 2007.
- 3- Z. Maamar, **N. Sahli**, B. Moulin, P. Labbe (2002) A Software agent-based collaborative approach for humanitarian-assistance scenarios, *Information & Security: An International Journal*, Special issue on agent-based technologies, ProCon Ltd.Vol. 8, No. 2, pp 135-155.

B-2 Submitted/in preparation

- 4- **N. Sahli**. Survey: Agent-based Middlewares for Context Awareness. Special issue of *Electronic Communications of the EASST 2008* (submitted)
- 5- **N. Sahli**, S. Mellouli, B. Moulin. Towards a federated architecture: benchmarking and analysis. *International Journal of Electronic Government Research* (in preparation).
- 6- S. Mellouli, **N. Sahli**, B. Moulin. Technological challenges for better e-government. *Electronic Government, an International Journal* (in preparation).

C- Referred Conferences, Workshops, and book chapters

C-1 Published/accepted

- 1- **N. Sahli**, G. Lenzini, "Trustworthy Agent-Based Recommending System in a Mobile P2P Environment", Workshop Agents and P2P Computing, part of the International Conference AAMAS 2008, Estoril, Portugal (to appear in Springer)
- 2- G. Lenzini, **N. Sahli**, "Agent Selecting Trustworthy Recommendations in Mobile Virtual Communities", Workshop Trust in Agent Societies, part of the International Conference AAMAS 2008, Estoril, Portugal (to appear in Springer).
- 3- **N. Sahli**, M. Mekni, B. Moulin, "A Multi-Geosimulation Approach for the Identification of Risky Areas for Trains", Workshop Agents in Traffic and Transportation, part of the International Conference AAMAS 2008, Estoril, Portugal (to appear in Springer).
- 4- M. Mekni, **N. Sahli**, B. Moulin, "A Geosimulation Approach Involving Spatially-Aware Agents A Case Study on the Identification of Risky Areas for Trains", In Agent Directed Simulation (ADS) part of the International conference on Simulation SCS 2008, Ottawa, Canada.
- 5- H. Yahyaoui, Z. Maamar, J. Bentahar, **N. Sahli**, S. Elnaffar, and P. Thiran, "Vers une Classification des Communautés de Services Web à base de Réputation", NOTERE'08, June 23-27, 2008, Lyon, France (to appear in ACM Digital Library).
- 6- G. Lenzini, **N. Sahli**, J. Bentahar. Argumentation-based Trust in Recommender Systems. Special session: Trust in Pervasive Systems and Networks, at SECRYPT part of the ICETE - The International Joint Conference on e-Business and Telecommunications, Porto, Portugal 2008 (This paper was accepted as an invited paper).
- 7- **N. Sahli**, B. Moulin, Agent-based geo-simulation to support human planning and spatial cognition (Book chapter). J.S. Sichman and L. Antunes (Eds.): MABS 2005, Springer-Verlag Berlin Heidelberg LNAI 3891, pp. 115 – 132, 2006.

- 8- **N. Sahli**, B. Moulin, Agent-based geo-simulation to support human planning and spatial cognition. In proceedings of workshop *Multi-Agent-Based Simulation*, International Conference AAMAS'05. Utrecht, Holland.
- 9- **N. Sahli**, B. Moulin. "Real-World Pathfinding using Agent-Based Simulation". In proceedings of Agent-Directed Simulation Symposium Part of the 2005 Spring Simulation Multiconference.
- 10- **N. Sahli**, W. Ali, B. Moulin. La géosimulation : des centres commerciaux aux feux de forêts. In Proceedings of Geomatics 2004, Montreal.
- 11- **N. Sahli**, B. Moulin. La planification agent dans un environnement dynamique et distribué : entre la réalité et la simulation. J-P. Briot, K. Ghérída (edts.), *Déploiement des systèmes multi-agents*, Hermes (Paris), 115-128. (Book chapter)
- 12- **N. Sahli**, B. Moulin. "La planification agent dans un environnement dynamique et distribuée: entre la réalité et la simulation." In JFSMA'03. Hammamet. Tunisia 2003.
- 13- B. Moulin, **N. Sahli**, Software agents and Distributed Continual Planning: towards geospatial awareness, Proceedings of Autonomous Agents & Multi-Agents Systems (AAMAS02), Workshop Agentcities: Challenges in open agent environment, Bologna (Italy), 15 July 2002, pp. 164-167.
- 14- Z. Maamar, H. Yahyaoui and **N. Sahli** « Moving Code vs. Inviting Code: What Strategy Should Software Agents Follow? » Revue des organisations Suisses d'informatique 2002
<http://www.svifsi.ch/revue/pages/issues/n021/in021Mosaic.html#Maamar>
- 15- B. Moulin, **N. Sahli** & Z. Maamar. « Utilisation d'agents stationnaires et d'agents mobiles pour la planification d'itinéraires dans un environnement dynamique », Fondements des systèmes multi-agents - modèles, spécifications formelles et vérification. In proceedings of JFIADSMA'01 – published by Hermès, France, November 2001.
- 16- Z. Maamar., **N. Sahli**, B. Moulin, P. Labbé & D. Demers. « An Agent-based Approach to Achieve Interoperable and Adaptable Military Coalitions », in proceedings of the RTO/IST NATO Symposium: Information Management Challenges in achieving Coalition Interoperability, Quebec City, Canada, 28-30 May 2001
- 17- Z. Maamar, D. Kettani and **N. Sahli**. «Software Agents for Enterprise Application Integration ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications October 15-19, 2000 Minneapolis Convention Center, Minneapolis, Minnesota USA <http://jeffsutherland.com/oopsla2000/zakaria/zakaria.htm>
- C-2 Submitted:**
- 18- **N. Sahli**. Can the Agent Paradigm Really Boost Context Awareness? IADIS Multiconference on Computer Science and Information Systems, Amsterdam, The Netherlands, July 2008 (submitted).
- 19- **N. Sahli**. Survey: Agent-based Middlewares for Context Awareness. 1st International DisCoTec Workshop on Context-aware Adaptation Mechanisms for Pervasive and Ubiquitous Services, 2008 (submitted)

6. Honours and Awards

2006: Postdoctoral scholarship offered by ITIS (IT & Societies Institute) www.itis.ulaval.ca

2006: Postdoctoral scholarship offered by GEOmatics for Informed DEcisions (GEOIDE) <http://www.geoide.ulaval.ca/>

2006: Congratulation of the Jury for the excellence of the thesis presentation at Laval University, Department of Computer Science and Software Engineering, Québec, Canada.

2002-2005: Ph.D. Scholarship (GEOIDE) (Québec, Canada) (36000\$CAD).

2001-2005: Ph.D. Scholarship (Government of Tunisia) (Québec, Canada) (45000\$CAD).

1999-2001: Master. Scholarship (Government of Tunisia) (Québec, Canada) (30000\$CAD).

1999-2001: Ph.D. Scholarship (GEOIDE) (Québec, Canada) (9000\$CAD).

1999: Ranked 1st for the whole program in ENSIAS (National Engineer School of Computer Science and System Analysis, speciality: Networks and Communication), Rabat, Morocco.

1994-1999: Engineering. Scholarship (Government of Tunisia) (Morocco).

7. Research Projects

Context-awareness (Telematica Instituut, The Netherlands- until March 2008).

Role: Investigating the agent-based alternative for context-aware middlewares.

Trustworthy Virtual Communities: Building an agent-based virtual community for more trustworthy recommender systems (Telematica Instituut, The Netherlands- until April 2008).

Role: main investigator with G. Lenzini and H. Eertink.

Distributed Continual Planning approach in military context. (Laval University, Contract from Defence Research and Development Canada – Valcartier, summer 2001).

Role: Main investigator with Pr. Bernard Moulin.

Evaluation of the use of UXV (Unmanned X Vehicle) and the related planning approaches. (Laval University, Contract from Defence Research and Development Canada – Valcartier, winter 2004).

Role: Main investigator with Pr. Koné Mamadou.

eGovernment Quebec: towards a one-stop portal. Evaluation of existing portals (in Quebec, and outside Quebec) and proposition of an integrating portal architecture. (in progress)

Role: First investigation under contract with ITIS (*Institut Technologies de l'Information et Sociétés*).

Train Dynamic Project: Geosimulation of train derailments with multiagent systems. In collaboration with CN (Canada Rail), Canada Transport and Queen University. (in progress)

Role: First investigation with Pr. Bernard Moulin (under GEOIDE contract).

Crowd simulation project: Comparing and exploring the complementarities of two modeling paradigms in order to provide decision makers new ways to analyze situations involving crowds and military forces and to compare different intervention strategies to handle such situations, including the use of Non-Lethal Weapons (NLW).

Role: First investigation with Pr. Bernard Moulin (under Defence (DRDC) contract).

8. Collaboration

Telematica Instituut- The Netherlands

- Henk Eertink (researcher and group leader)
- Gabriele Lenzi (researcher)
- Johan Koolwaaij (researcher)
- Herma van Kranenburg (researcher)
- Kriens Martijn (Business Developer)

Defence Research and Development Canada – Valcartier

<http://www.valcartier.drdc-rddc.gc.ca>

- Zakaria Maamar (ex-researcher)
- Jean Berger (researcher)
- Luminita Stemate (researcher)
- Regine Lecocq (researcher)
- Anissa Frini (researcher)
- Simon Larochelle (researcher)

Zayed University – Dubai, UAE

- Zakaria Maamar (associate professor)

Concordia University – Montreal, Canada

- Jamal Bentahar (assistant professor)

Sharjah University - UAE

- Hamdi Yahyaoui (assistant professor)

Fire Science and Research Officer, Wildfire Policy and Business Planning, Forest Protection Division, Alberta Sustainable Resource Development Canada.

<http://www.srd.gov.ab.ca/>

- Cordy Tymstra (Supervisor and Prometheus project leader)

Société de protection des forêts contre le feu (SOPFEU) Canada (Fire protection)

http://www.sopfeu.qc.ca/index_en.php

- Francois Lefèvre (Firefighting expert)

- Gaétan Lemaire (Firefighting expert)

Laval University, Faculty of Administrative Sciences, Canada.

<http://english.fsa.ulaval.ca/>

- Sehl Mellouli (assistant professor)

Institut Technologies de l'information et Sociétés (ITIS), Canada.

<http://www.itis.ulaval.ca/>

- Michel Audet (Director)

Department of Geological Sciences, Queen's University, Canada.

<http://geog.queensu.ca/index.asp>

- Rob Harrap (Research coordinator)
- Jean Hutchinson (Professor)

Ministère des Services gouvernementaux, Québec, Canada.

<http://www.services.gouv.qc.ca/en/enligne/index.asp>

- Patrice Dimarcantonio (director)
- Sonia Roy (Business architect)

LORIA-INRIA (Institut national de recherche en automatique et en automatique.)

Lorraine, France

<http://www.loria.fr>

- Olivier Festor (Professor).

9. Teaching Experience (between 2000 and 2006)

- Models and database languages (Laval University, 2002-2005) (Teaching).
- Models and database languages (Laval University, 2003-2006) (Teaching Assistance).
- Analysis and design of information systems (Laval University, 2001-2004) (Teaching Assistance).
- Networks and Communication (*téléinformatique*) (Laval University, 2000-2001) (Teaching Assistance).
- Object-oriented design (Laval University, 2002-2003) (Teaching Assistance).
- Operating system (Laval University, 2002-2004) (Teaching Assistance).

10. Computer skills

Programming languages: C++ (4 years experience), java (2 years experience), Visual Basic (1 year experience), Lisp, Fortran, Prolog, Pascal, O2, etc.

Software: Microsoft Office, Dreamwaver (often used for personal websites), Gauss, Matlab, Rational Rose (teaching experience), etc.

Agent environments: JADE, JADEX, JACK.

Web : PHP, HTML, XML, JavaScript, ASP, CGI(Perl), VBScript, etc.

Database: SQL, PL/SQL and Oracle (teaching experience), Informix, Access, ODBC, JDBC, etc.

Methodologies: Merise, UML, DFD, OMT, SADT, AUML, EPAS, etc.

Network: Architecture & protocoles, OSI model, CMIS, Protocoles: TCP/IP, SNMP, Ethernet, FDDI, Token Ring, RNIS.

OS : Windows, Unix, Linux.

11. Other skills

Geomatics: theory and practise (ArcGIS, Geomedia, 3DMax, and AutoCad): often used in different projects since 2001.

Mathematics, physics and chemistry: strong background (2 years in *Preparatory class*: advanced level).

Business administration: 1 year experience in an e-government project (business administration issues).

12. Other activities

PC member for Innovations in Information Technology 2007

13. PhD Thesis

– **Title :** Agent-based Geosimulation: a support for real-word planning.

– **Diploma:** PhD in Computer Science.

– **Jury:**

1- Bernard Moulin, Laval University, Canada (Supervisor)

2- Alexis, UR GEODES 079, IRD, France.

3- Driss Kettani, Laval University, Canada.

4- School of Science and Engineering, Morocco

5- Jean-Pierre Muller, CIRAD TA 60/15, France.

– **Laboratory :** Cognitive Laboratory, Computer Science Department, Laval University.

– **Summary :**

Planning becomes complex when addressing uncertain situations. Accurate predictions remain a hard task for human planners. The problem is even more complex when considering spatial constraints. For example, when fighting a wildfire, dozers build a firebreak to stop fire propagation. They have to take into account not only the fire spread but also the terrain characteristics in order to move easily.

We propose an agent-based geosimulation approach to assist such planners with planning under strong spatial constraints in a real large-scale space. The approach consists in drawing a parallel between the Real Environment (i.e. a forest in fire) and the Simulated Environment based on GIS data. This virtual environment uses software agents which are aware of the space and equipped with advanced cognitive capabilities, in order to plan and coordinate operations within the real terrain.

Since plans in the studied case (forest fires) are mainly paths, we propose a new approach based on agent geosimulation to solve particular Pathfinding problems.

Finally, when applying our approach on firefighting, we use MAGS as a simulation platform and Prometheus as a fire simulator.

14. Master thesis

– **Title** : A new approach based on mobile agents for more interoperability in dynamic environments & application to the aeromedical evacuation case.

– **Diploma**: Master in Computer Science.

– **Jury**:

1- Bernard Moulin, Laval University, Canada (Supervisor)

2- Zakaria Maamar, Defence Research Establishment Valcartier, Canada (co-supervisor).

3- Nadir Belkhiter, Laval University, Canada.

4- Minh Duc Bui, Laval University, Canada.

– **Laboratory** : Cognitive Laboratory, Computer Science Department, Laval University.

– **Summary** :

In joint operations or in coalitions, it is well known in the military domain that guaranteeing interoperability and adaptability of applications, is a hard task. In fact, these applications are usually distributed and heterogeneous. In this context, we developed an approach called ADFUMA (*Approach for Distributing Functionalities Using Mobile Agents*). This approach is based on the use of several software agents, some of which are able to move through unreliable or low-bandwidth networks. These different agents are able to ensure interoperability for military applications by improving the management of available resources.

The ADFUMA approach focuses on the problem of planning in a dynamic world. In fact, this method is an improvement of the classic interleaving of planning and execution. In contrast to other works that plan and then execute plan portions, we propose a parallel interleaving (the planning and the execution occur simultaneously) ensured by particular agents called delegated agents. These agents contribute to the planner operation by planning a part of the proposed plan. This allows the planner to focus on carrying out parts of the plan that have already been planned. Such an interleaving provides more performance (parallelism) and more flexibility to planners

To illustrate the ADFUMA approach and particularly its application to planning, we chose the aeromedical evacuation as an application in the military field. This application presents a complex planning problem in a highly dynamic world. The results of the ADFUMA approach application in the evacuation domain are promising.

15. Engineer project

– **Title**: First applicative sever for cartographical visualisation of CMIS (Common Management Information Service) agents and a monitoring sever.

– **Diploma**:

Engineering diploma in Computer Science (speciality: Networks and communication)

– **Supervisors**:

○ Olivier Festor, Scientific Leader of the MADYNES Research Team LORIA-INRIA Lorraine, France.

○ Regragui B. National Engineer School of Computer Science and System Analysis, ENSIAS, Rabat, Morocco.

– **Laboratory:** LORIA-INRIA (Institut national de recherche en automatique et en automatique.) Lorraine, France.

– **Summary :**

Realisation of the first applicative sever for cartographical visualisation of CMIS (Common Management Information Service) agents and a monitoring sever.

Design and realisation of applicative services for monitoring (TMN) over CMISoverJava Interface. The product has been industrialized since June 2000.

16. Languages

- Arabic (native)
- French (fluent)
- English (fluent)
- Dutch (beginner)
- Italian & German (Basics)

17. Interests

- Sport: Brazilian Ju-Jitsu, Snowboarding, Volley-ball.
- Reading.

18. Referees

Prof. Bernard Moulin,

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Prof. Alexis Drogoul

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<http://www-poleia.lip6.fr/~drogoul/>