

Frédéric GERVAIS Ph.D.

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Associate Professor in Computer Science, Member of the LACL research lab

SHORT BIO

Frédéric Gervais is an Associate Professor in computer science at Université Paris-Est Créteil (UPEC) and a member of the LACL research laboratory since 2007. He is the Head of the Department of Computer Science, at IUT Sénart Fontainebleau, since 2010. Frédéric Gervais earned a Ph.D. in computer science from the Conservatoire National des Arts et Métiers in France and from the Université de Sherbrooke (Québec) in Canada in 2006. His main research interests are in the field of information systems and formal methods. Special interests are coupling and refinement of formal languages for the analysis and design of information systems. He has been mainly involved in two research projects on the specification of secure web services: EB3sec (NSERC strategic project, 2008-2011) and SELKIS (ANR ARPEGE project, 2009-2012). Since 2007, Frederic Gervais teaches at the Department of Computer Science, at IUT Sénart Fontainebleau. His primary courses are "Computer organization and design" and "User-machine interfaces". He also teaches UML modelling and the B method.

ACADEMIC BACKGROUND

1999	B.Sc. in Mathematics
2001	M.Sc. in Mathematics Master's thesis: <i>Study of hysteresis: parameter identification in the model of Bouc Wen</i> Research lab: LAMI, Ecole Nationale des Ponts et Chaussées, Marne-la-Vallée, France
2002	M.Sc. in Computer Science Master's thesis: <i>Reuse of specification patterns in B</i> Research lab: CEDRIC, Institut d'Informatique d'Entreprise, Evry, France
2006	Ph.D. in Computer Science Ph.D. thesis: <i>Coupling of formal specifications for modelling information systems</i> Conservatoire National des Arts et Métiers (CNAM), France Université de Sherbrooke (Québec), Canada

ACADEMIC AND RESEARCH EXPERIENCE

Position held	Organization	Period
Teaching Assistant	Ecole Centrale Paris, Châtenay-Malabry, France	from September 2000 to August 2002
Teaching Assistant	Institut d'Informatique d'Entreprise, Evry, France	from September 2002 to August 2005
Research Assistant	CNAM, Paris, France & Université de Sherbrooke (Québec), Canada	from January 2003 to December 2006
Assistant Professor	Université Paris 12, Créteil, France (Faculty of science and technology)	from September 2005 to August 2007
Invited Professor	Université de Sherbrooke (Québec), Canada	since September 2007
Associate Professor	Université Paris-Est Créteil, France : <ul style="list-style-type: none">• IUT Sénart Fontainebleau (teaching)• LACL (research)	since September 2007
Head of the Department	Department of Computer Science, IUT Sénart Fontainebleau, France	since September 2010

TEACHING ACTIVITIES

Department: Department of Computer Science, IUT Sénart Fontainebleau

Main lectures:

- Computer organization and design
- UML modelling
- User-machine interfaces
- Formal methods

Other activities:

- Responsible for Students Monitoring (2008-2010)
- Member of the Department Council (2009-2010)
- President of C.I.bleau Association (since 2008)
- Head of the Department (since 2010)

RESEARCH ACTIVITIES

Research lab: Université Paris-Est, LACL

Funded research projects membership:

- **POLUX:** POLicy Unified eXpression, ANR SETIN project, member only for the last year in 2010. Coordinator: F. Cuppens (TELECOM Bretagne). Participants: TELECOM Bretagne, Supélec Rennes Team SSIR, GRIL (Université de Sherbrooke), LACL (Université Paris-Est).

- **EB3sec:** specification and implementation of secure web systems, NSERC strategic project, 2008-2011. Coordinator: M. Frappier (Université de Sherbrooke). Participants: GRIL (Université de Sherbrooke), LACL (Université Paris-Est), National Bank Financial Group.
- **SELKIS:** a development method of secure health care networks information systems – from requirements engineering to implementation, ANR ARPEGE project, 2009-2012. Coordinator: R. Laleau (Université Paris-Est). Participants: LACL (Université Paris-Est), CEDRIC (CNAM), LIG, IFREMMONT, TELECOM Bretagne, SWID, MED.e.COM, CHU Brest.

Students supervision:

- Panawé Batanado, M.Sc. student, co-supervised with M. Frappier (2005)
- Ahmed Gater, M.Sc. Student (2008)
- Hajer Jaziri, M.Sc. student, co-supervised with A. Mammar (2009)
- Abderrahman Matoussi, Ph.D. student, co-supervised with R. Laleau (2007-2011)
- Jérémy Milhau, Ph.D. student, co-supervised with R. Laleau and M. Frappier (2008-2011)
- Michel Embé Jiague, Ph.D. student, co-supervised with R. Laleau and R. St-Denis (2008-...)
- Dimitris Vekris, Ph.D. student, co-supervised with R. Laleau and C. Dima (2009-...)

Reviewing activities and PC membership:

- Reviewer for the following conferences:
 - *International Conference on Formal Engineering Methods (ICFEM)* in 2003, 2004, and 2005
 - *Approches Formelles dans l'Assistance au Développement de Logiciels (AFADL)* in 2004
 - *International Conference of B and Z Users* in 2005
 - *Colloque Africain sur la Recherche en Informatique (CARI)* in 2008
 - *International Conference on Advanced Information Systems Engineering (CAiSE)* in 2008, 2009, and 2012
 - *International Conference ABZ* in 2008 and 2012
 - *Congrès INFORSID* in 2009 and 2011
 - *International Conference on Tests and Proofs (TAP)* in 2009
 - *International Symposium on Formal Methods (FM)* in 2011
- Reviewer for the following international journals:
 - *Information and Software Technology*
 - *Theoretical Computer Science*
 - *Formal Aspects of Computing*
 - *Science of Computer Programming*
- Member of the program committee:
 - *B Track of the ABZ 2010 Conference*, in Orford, Québec, Canada, 23-25 February 2010
 - *International Workshop on Modelling and Detection of Vulnerabilities*, in Paris, 10 April 2010
 - *28^{ème} Congrès INFORSID*, in Marseille, France, 25-28 May 2010
 - *10^{ème} Journées Francophones Internationales sur les Approches Formelles dans l'Assistance au Développement de Logiciels (AFADL 2010)*, in Poitiers, France, 9-11 June 2010
 - *4th IEEE International Workshop UML and Formal Methods (UML&FM 2011)*, in Limerick, Ireland, 20 June 2011
 - *11^{ème} Journées Francophones Internationales sur les Approches Formelles dans l'Assistance au Développement de Logiciels (AFADL 2012)*, in Grenoble, France, 11-13 January 2012
 - *Congrès SPECIF*, in Toulouse, France, 1-3 February 2012
 - *5th International Workshop UML and Formal Methods (UML&FM 2012)*, in Paris, France, 27 August 2012

Conference organization:

- Session chair at the *8th International Conference on Enterprise Information Systems (ICEIS 2006)*, in Paphos, Cyprus, 24-27 May 2006
- Member of the organization committee:
 - *26^{ème} Congrès INFORSID*, in Fontainebleau, France, 27-30 May 2008
 - *ABZ 2010 International Conference*, in Orford, Québec, Canada, 22-25 February 2010
 - *12th International Conference on Membrane Computing (CMC12)*, in Fontainebleau, France, 23-26 August 2011
- Organizer of the *Workshop on Tool Building in Formal Methods (WS-TBFM 2010)*, in Orford, Québec, Canada, 22 February 2010

Association membership:

- Member of ANDÈS (a French Community of Ph.D.s) since 2006
- Member of the Board of SPECIF (a French Society for Education and Research in Computer Science) since 2011

International collaborations:

- Invited professor, Université de Sherbrooke (Québec), Canada, starting from September 2007
- Visitor, DNIPRO project, Faculty of Cybernetics, Kiev University, Ukraine, 15-21 November 2008

Distinction:

- Honour List 2007, Faculty of Sciences, Université de Sherbrooke (Québec), Canada

RESEARCH INTERESTS

Main topics:

- Formal specification languages (in particular, B and EB³)
- Refinement
- Specification and verification of dynamic properties of information systems
- Reuse of specification patterns
- Security of information systems

Most significant contributions:

- Reuse of specification patterns
- Coupling of formal specifications for modelling information systems
- Security in information systems
- Relationships between requirements goals and formal specification

PUBLICATIONS

Referred journals (4)

- [FG1] F. Gervais: EB⁴, vers une méthode de spécification formelle des SI. *Ingénierie des Systèmes d'Information*, Vol. 12, n°4, special issue « Conception des systèmes d'information : patrons et spécifications formelles », pp. 69-93, Hermès, 2007.
- [FG2] M. Frappier, F. Gervais, R. Laleau, B. Fraikin, R. St-Denis: Extending Statecharts with process algebra operators. *Innovations in Systems and Software Engineering*, Vol. 4, n°3, pp. 285-292, Springer-Verlag, 2008.
- [FG3] F. Gervais, M. Frappier, R. Laleau: Generating Relational Database Transactions from EB³ Attribute Definitions. *Software and Systems Modeling*, Vol. 8, n°3, pp. 423-445, Springer-Verlag, 2009.
- [FG4] M. Embe Jiague, M. Frappier, F. Gervais, R. Laleau, R. St-Denis: Enforcing ASTD Access-control Policies with WS-BPEL Processes in SOA Environments. *International Journal of Systems and Service-Oriented Engineering*, Vol. 2, n° 2, pp. 37-59, IGI Publishing, 2011.

Referred conferences (22)

- [FG5] S. Blazy, F. Gervais, R. Laleau: Une démarche outillée pour spécifier formellement des patrons de conception réutilisables. In *Workshop Objets, Composants et Modèles dans l'Ingénierie des SI (OCM-SI 2003)*, Nancy, France, 3 June. INFORSID, pp. 5-9, 2003.
- [FG6] S. Blazy, F. Gervais, R. Laleau: Reuse of specification patterns with the B method. In *ZB2003: Formal Specification and Development in Z and B, 3rd International Conference of B and Z Users*, Turku, Finland, 4-6 June. Springer-Verlag, LNCS 2651, pp. 40-57, 2003.
- [FG7] F. Gervais, M. Frappier, R. Laleau: How to synthesize relational database transactions from EB³ attribute definitions? In *3rd International Workshop on Modelling, Simulation, Verification and Validation of Enterprise Information Systems (MSVVEIS 2005)*, Miami, Florida, USA, 24-25 May. INSTICC Press, pp. 83-88, 2005.
- [FG8] F. Gervais, M. Frappier, R. Laleau: Generating relational database transactions from recursive functions defined on EB³ traces. In *3rd IEEE International Conference on Software Engineering and Formal Methods (SEFM 2005)*, Koblenz, Germany, 7-9 September. IEEE Computer Society Press, pp. 117-126, 2005.
- [FG9] F. Gervais, M. Frappier, R. Laleau: Synthesizing B specifications from EB³ attribute definitions. In *5th International Conference on Integrated Formal Methods (IFM 2005)*, Eindhoven, The Netherlands, 29 November to 2 December. Springer-Verlag, LNCS 3771, pp. 207-226, 2005.
- [FG10] F. Gervais, P. Batanado, M. Frappier, R. Laleau: Génération automatique de transactions de base de données relationnelle à partir de définitions d'attributs EB³. In *Atelier Approches Formelles dans l'Assistance au Développement de Logiciels (AFADL 2006)*, Paris, France, 15-17 March. ENST, pp. 25-39, 2006.

- [FG11] F. Gervais, P. Batanado, M. Frappier, R. Laleau: EB³TG: A tool synthesizing relational database transactions from EB³ attribute definitions. In *8th International Conference on Enterprise Information Systems (ICEIS 2006)*, Paphos, Cyprus, 24-27 May. INSTICC Press, Volume *Information Systems Analysis and Specification*, pp. 44-51, 2006.
- [FG12] F. Gervais: EB⁴ : Vers une méthode de spécification formelle des SI. In *24^{ème} Congrès INFORSID*, Hammamet, Tunisie, 1-3 June. INFORSID, Volume II, pp. 561-576, 2006.
- [FG13] A. Mammar, F. Gervais, R. Laleau: Systematic identification of preconditions from set-based integrity constraints. In *24^{ème} Congrès INFORSID*, Hammamet, Tunisie, 1-3 June. INFORSID, Volume II, pp. 595-610, 2006.
- [FG14] F. Gervais, M. Frappier, R. Laleau: Refinement of EB³ process patterns into B specifications. In *7th International B Conference (B 2007)*, Besançon, France, 17-19 January. Springer-Verlag, LNCS 4355, pp. 201-215, 2007.
- [FG15] M. Frappier, B. Fraikin, F. Gervais, R. Laleau, M. Richard: Synthesizing information systems: the APIS project. In *1st International Conference on Research Challenges in Information Science (RCIS 2007)*, Ouarzazate, Morocco, 23-26 April. C. Rolland, O. Pastor, J.-L. Cavarero (editors), pp. 73-84, 2007.
- [FG16] A. Matoussi, F. Gervais, R. Laleau: A First Attempt to Express KAOS Refinement Patterns with Event B. In *International Conference ABZ 2008*, London, United Kingdom, 16-18 September 2008 (short paper).
- [FG17] A. Matoussi, F. Gervais, R. Laleau: De KAOS vers Event-B: approche dirigée par les buts. In *Approches Formelles dans l'Assistance au Développement de Logiciels (AFADL 2009)*, Toulouse, France, 26-28 January. Actes AFADL, pp. 71-86, 2009.
- [FG18] D. Michel, F. Gervais, P. Valarcher: B-ASM: Specification of ASM à la B. In *International Conference ABZ 2010*, Orford, Québec, Canada, 23-25 February 2010 (short paper).
- [FG19] K. Salabert, J. Milhau, B. Fraikin, M. Frappier, F. Gervais, and R. Laleau: iASTD : un interpréteur pour les ASTD. In *Approches Formelles dans l'Assistance au Développement de Logiciels (AFADL 2010)*, Poitiers, France, 9-11 June. Actes AFADL, pp. 3-6, 2010.
- [FG20] M. Embe Jiague, M. Frappier, F. Gervais, P. Konopacki, R. Laleau, J. Milhau, R. St-Denis: Model-driven engineering of functional security policies. In *12th International Conference on Enterprise Information Systems (ICEIS 2010)*, Funchal, Madeira, Portugal, 8-12 June. INSTICC Press, Volume *Information Systems Analysis and Specification*, pp. 374-379, 2010.
- [FG21] J. Milhau, M. Frappier, F. Gervais, R. Laleau: Systematic translation rules from ASTD to Event-B. In *8th International Conference on Integrated Formal Methods (IFM 2010)*, Nancy, France, 12-14 October. Springer-Verlag, LNCS 6396, pp. 245-259, 2010.
- [FG22] A. Matoussi, F. Gervais, R. Laleau: Specification of a localization component driven by a goal-based approach: some lessons we learned. In *13th Brazilian Symposium on Formal Methods (SBMF 2010)*, Natal, Rio Grande do Norte, Brazil, 8-12 November 2010. Springer-Verlag, LNCS 6527, pp. 177-193, 2011.
- [FG23] M. Embe Jiague, M. Frappier, F. Gervais, R. Laleau, R. St-Denis: From ASTD access control policies to WS-BPEL processes deployed in a SOA environment. In *1st International Symposium on Web Intelligent Systems & Services (WISS 2010)*, Hong Kong, China, 12-14 December 2010. Springer-Verlag, LNCS 6724, pp. 126-141, 2011.

- [FG24] A. Matoussi, F. Gervais, R. Laleau: A goal-based approach to guide the design of an abstract Event-B specification. In *16th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS 2011)*, Las Vegas, Nevada, USA, 27-29 April. IEEE Computer Society Press, pp. 139-148, 2011.
- [FG25] M. Embe Jiague, M. Frappier, F. Gervais, R. Laleau, R. St-Denis: A metamodel for the design of access-control policy enforcement managers: work in progress. In *4th MITACS Workshop on Foundations & Practice of Security (FPS 2011)*, Paris, France, 12-13 May. Springer-Verlag, LNCS 6888, pp. 218-226, 2011.
- [FG26] M. Embe Jiague, M. Frappier, F. Gervais, P. Konopacki, R. Laleau, J. Milhau, R. St-Denis: A four-concern-oriented secure IS development approach. In *8th International Joint Conference on e-Business and Telecommunications (ICETE 2011)*, Seville, Spain, 18-21 July. INSTICC Press, Volume *SECRYPT 2011*, pp. 464-471, 2011.

Guest editor (1)

- [FG27] F. Gervais, B. Fraikin (Eds): Tool Building in Formal Methods – Extended Papers from WS-TBFM 2010. *Software: Practice and Experience*, Vol. 41, n°2, John Wiley & Sons, pp. 131-208, 2011.

Book chapter (1)

- [FG28] F. Gervais, M. Frappier, R. St-Denis: EB³. In *Software Specification Methods*. Hermès Science Publishing, ISTE, ISBN : 1-905209-34-7, chapter 14, pp. 259-274, 2006.

M.Sc. and Ph.D. theses (2)

- [FG29] F. Gervais: *Réutilisation de composants de spécification en B*. M.Sc. Thesis, DEA Informatique, July 2002 (119 pages).
- [FG30] F. Gervais: *Combinaison de spécifications formelles pour la modélisation des systèmes d'information*. Ph.D. Thesis, December 2006 (248 pages).

Updated on February 21, 2012