

Thomas L. Cottenier

Date of birth: 24th October, 1979
Place of birth: Charleroi, Belgium
Nationality: Belgium
U.S. Status: H-1B Visa
Marital Status: Single
Education: Ph.D. in Computer Science
M.S. in Computer Engineering
M.S. in Electrical Engineering
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Education

- **Doctor of Philosophy in Computer Science, Fall 2003- Fall 2007**
Department of Computer Science, Illinois Institute of Technology, Chicago, USA
Work partially supported by the National Science Foundation, CISE, grant No 0137743
Work performed in the Software and System Engineering Research Lab, Motorola, Schaumburg, USA
Cumulative GPA: 4.00/4.00
- **Master of Science in Computer Engineering, Software Systems, Fall 2002 – Spring 2003**
Department of Electrical and Computer Engineering, Illinois Institute of Technology, Chicago, USA
Work supported by the Herbert Hoover Fellowship - Belgian American Educational Foundation (BAEF)
Cumulative GPA: 4.00/4.00
- **Master of Science in Electrical Engineering, Telecom Systems, Fall 1997 – Spring 2002**
Ingénieur Civil Electricien, orientation technologies de l'information
Université Libre de Bruxelles, Ecole Polytechnique, Brussels, Belgium
Master Thesis: Development of a Control Software for a GPS Receptor in C++
Degree obtained with 'Grande Distinction': 1732/2000

Research Experience

Academic Research

- **Senior Research Associate, Computing Department, Lancaster University**
Industrial Applications of Aspect-Oriented Software Development, European Network of Excellence on Aspect-Oriented Software Development (<http://www.aosd-europe.net>), Lancaster, UK, March '08 – July '08
- **Research Assistant, Concurrent Programming Research Group, Illinois Institute of Technology**
Development of an Aspect-Oriented Orchestration framework for Service-Oriented Architectures, in partnership with Argonne National Lab, Department of Energy, (<http://www.iit.edu/~concur>), Chicago, USA

Industrial Research

- **Senior Software Engineer, Customer Experience Design, Mobile Devices, Motorola**
Design of a platform-independent product line architecture for mobile device user-interfaces, Libertyville, IL, USA, October'07 – February'08
- **Senior Software Engineer, Motorola Software Group, Motorola**
Deployment of the Motorola WEAVR tool for aspect-oriented modeling in UML within the Wireless Broadband division of the Networks Business Unit, Schaumburg, IL, USA, April'07 – September'07
- **Senior Software Engineer, Software and System Engineering Research Lab, Motorola**
Corporate research and technology transfer, WEAVR project for aspect-oriented modeling in UML (<http://www.iit.edu/~concur/weavr/>), Schaumburg, IL, USA, June'05 – April'07
- **Electrical Engineering Intern, Asea Brown Bovery**
Design of a network interface for an embedded power factor controller, Jumet, Belgium, August'01

Teaching Experience

- **Senior Software Engineer, Motorola Software Group, Motorola**
In charge of technology transfer from Motorola Labs to software engineers in the Wireless Broadband division of the Motorola Networks Business Unit. Organization of weekly courses and tutorials on Aspect-Oriented and Model-Driven Engineering. April'07 – September'07
- **Research Assistant in Computer Science.** Supervision of master thesis and independent studies related to Aspect-Oriented Software Development and Model-Driven Engineering, Computer Science Department, Illinois Institute of Technology, Chicago, USA, August '03 - May '07
- **Teaching Aid in Mathematics, Solvay Business School, Université Libre de Bruxelles**
Guidances en Mathématiques, Brussels, Belgium, September '99 - June '02
- **Teaching Aid in Mathematics, Ecole Polytechnique , Université Libre de Bruxelles**
Courses in Mathematics for high school students in preparation of the entrance exam of the Ecole Polytechnique, Brussels, Belgium, September '98 - June '02

Professional Activities

- Industrial Liaison Committee of the European Center of Excellence on Aspect-Oriented Software Development (AOSD-Europe: <http://www.aosd-europe.net>), 2007
- Industrial Liaison Committee of the European Union Framework 6 project on Aspect-Oriented, Model-Driven Product-Line Engineering
- (AMPLE: <http://www.comp.lancs.ac.uk/research/projects/project.php?pid=237>), 2007
- Program Committee of the Aspect-Oriented Modeling Workshop (AOM: <http://www.aspect-modeling.org/>), held annually at the International Conference on Aspect-Oriented Software Development and at the International Conference on Model Driven Engineering Languages and Systems 2005 – 2008
- Reviewer for Simulation and Modelling, Practice and Theory, International Journal of the Federation of European Simulation Societies (SIMPAT: <http://www.elsevier.com/locate/simpat>) – EUROSIM, Elsevier, 2007
- Reviewer for the 41st Annual Simulation Symposium, 2008 - Spring Simulation Multiconference (<http://www.scs.org/>), IEEE Computer Society, 2007

Languages

Fluent in

- English
- French
- Dutch

Publications

Journal Papers

- Weigert, T., Weil, F., Marth, K., van den Berg, A., Cottenier, T. *Practical Experiences in Using Model-Based Systems Engineering with UML*, submitted to the Journal of Software and Systems Modeling, Springer-Verlag, 2008 (accepted)
- Cottenier, T., van den Berg, A., Elrad, T. *Motorola WEAVR: Aspect-Oriented and Model-Driven Engineering*, Journal of Object Technology, Volume 6, Issue 7, ETH Zurich, 2007
- Zhang, J., Cottenier, T., van den Berg, A., Gray, J.: *Aspect Composition in the Motorola Aspect-Oriented Modeling Weaver*, in Journal of Object Technology, Volume 6, Issue 7, ETH Zurich, 2007

Invited Speaker

Cottenier, T., *Aspect-Oriented and Model-Driven Development of Telecom Infrastructure Control Software*, IDEALS Symposium on the Evolvability of Software-Intensive Systems, Embedded Systems Institute (ESI: <http://www.esi.nl/site/projects/ideals/symposia.asp>), Eindhoven, The Netherlands, December 2007

Conference Panel

Sotomayor, B., Hastings, S., Friese, T., Cottenier, T., *Development Tools for GT4 Service Programming*, GridWorld Conference (<http://www.gridworld.com/>), Washington DC, USA, September 2006

Conference Papers

- Cottenier, T., van den Berg, A., Elrad, T., *Joinpoint Inference from Behavioral Specification to Implementation*, In Proceedings of the 21st European Conference on Object-Oriented Programming (ECOOP'07), Berlin, Germany, LNCS 4609, Springer-Verlag, July 2007
- Cottenier, T., van den Berg, A., Elrad, T., *The Motorola WEAVR: Model Weaving in a Large Industrial Context*, In Proceedings of the Industry Track at the 6th International Conference on Aspect-Oriented Software Development (AOSD'07). March 2007
- Cottenier, T., van den Berg, A., Elrad, T., *Motorola WEAVR: An Add-In for Aspect-Oriented Modeling in TAU*, In Proceedings of the Telelogic User Group Conference, Denver, Colorado, USA, October 2006
- Akkawi, F., Cottenier, T., Fletcher, D., Alena, R., Duncavage, D., Elrad, T., *An Executable Choreography Framework for Dynamic Service-Oriented Architectures*. In Proceedings of the 2006 IEEE Aerospace Conference, Blue Sky, USA, IEEE Computer Society, March 2006
- Cottenier T., Van Den Berg A., Elrad T., *Modeling Aspect-Oriented Compositions*, In satellite proceedings of the 7th International Conference on Model Driven Engineering Languages and Systems (MoDELS'05), Montego Bay, Jamaica, LNCS 3844, pp. 100-109, Springer-Verlag, October 2005
- Cottenier T., Elrad T., *Dynamic and Distributed Service Composition with Aspect-Sensitive Services*, in proceedings of the 1st International Conference on Web Information Systems and Technologies (WEBIST'05), Miami, USA, pp. 56-63, INSTICC Press, May 2005
- Cottenier T., Elrad T., *Layers of Collaboration Aspects for Pervasive Computing*, in proceedings of the 5th Argentine Symposium in Software Engineering (ASSE'2004), Cordoba, Argentina, September 2004

Tutorials

- van den Berg, A., Cottenier, T. *Motorola WEAVR: Aspect-Oriented Modeling for Simulation and Code Generation*, presented at the 21st European Conference on Object-Oriented Programming (ECOOP'07), Berlin, Germany, July 2007
- Cottenier, T. *Motorola WEAVR: Aspect-Oriented Modeling for Simulation and Code Generation*, presented at the 6th International Conference on Aspect-Oriented Software Development (AOSD'07), Vancouver, Canada, March 2007

Tool Exhibitions and Formal Demonstrations

- Cottenier T., Elrad T, *Motorola WEAVR*, Tool Exhibition at the at the 9th International Conference on Model Driven Engineering Languages and Systems (MoDELS'06), Milan, Italy, October 2006
- Cottenier T., Elrad T, *Executable Choreography Framework*, demonstration presented at the 3rd International Conference on Service-Oriented Computing (ICSOC'05), Amsterdam, The Netherlands, December 2005
- Cottenier T., Elrad T, Prunicki, A, *Contextual Aspect-Sensitive Service*, demonstration presented at the 4th International conference on Aspect-Oriented Software Development (AOSD'05), Chicago, USA, March 2005

Workshop Papers

- van den Berg, A., Cottenier, T., Elrad, T, *Reducing Aspect-Base coupling through Model Refinement*, in Proceedings of the 3rd Workshop on Models and Aspects at the 21st European Conference on Object-Oriented Programming (ECOOP'07), July 2007
- Cottenier, T., van den Berg, A., Elrad, T, *Stateful Aspects: The Case for Aspect-Oriented Modeling*, in Proceedings of the 10th International Workshop on Aspect-Oriented Modeling at the 6th International Conference on Aspect-Oriented Software Development (AOSD'07), ACM Press, March 2007

- Cottenier, T., van den Berg, A., Elrad, T. *Model Weaving: Bridging the Divide between Translationists and Elaborationists*, in Proceedings of the 9th International Workshop on Aspect-Oriented Modeling at the 9th International Conference on Model Driven Engineering Languages and Systems (MoDELS'06), Milan, Italy, 2006
- Zhang, J., Cottenier, T., van den Berg, A., Gray, J., *Aspect Interference and Composition in the Motorola Aspect-Oriented Modeling Weaver*, in Proceedings of the 9th International Workshop on Aspect-Oriented Modeling at the 9th International Conference on Model Driven Engineering Languages and Systems (MoDELS'06), Milan, Italy, 2006
- Cottenier, T., Elrad, T., *Engineering Distributed Service Compositions*, In Proceedings of the First International Workshop on Engineering Service Compositions (WESC'05), Amsterdam, The Netherlands, IBM Research Report RC23821, pp. 51-58, IBM CyberDigest , December 2005
- Cottenier T., Van Den Berg A., Elrad T., *Modeling Aspect-Oriented Compositions*, 7th International Workshop on Aspect-Oriented Modeling, in the Satellite Proceedings of the 8th International Conference on Model Driven Engineering Languages and Systems (MoDELS'05), Montego Bay, Jamaica, LNCS 3844, pp. 100-109, Springer-Verlag., October 2005
- Cottenier T., Elrad T., *Adaptive Compositions across Organizational Boundaries*, OOPSLA'05 Doctoral Symposium, In the Companion Proceedings of the 20th annual ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications (OOPSLA'05), San Diego, USA, pp. 232-233, ACM Press, October 2005
- Cottenier T., Elrad T., *Adaptive Embedded Services for Pervasive Computing*, In Proceedings of the Workshop on Building Software for Pervasive Computing at the 20th annual ACM SIGPLAN conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'05), San Diego, USA, October 2005
- Cottenier, T., Elrad, T., *Contextual Pointcut Expressions for Dynamic Service Customization*, In Proceedings of the Second Dynamic Aspects Workshop (DAW05) at the 4th International Conference on Aspect-Oriented Software Development (AOSD'05) , Chicago, USA, Technical Report 05.01, pp. 87-92, Research Institute for Advanced Computer Science, NASA, March 2005
- Cottenier T., Elrad T., *Layers of Collaboration Aspects for Pervasive Computing*, In Proceedings of the Workshop on Building Software for Pervasive Computing at the 19th annual ACM SIGPLAN conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'04), Vancouver, Canada, October 2004
- Cottenier, T., Elrad, T., *ACL Support for the Validation of Aspect/Core Semantic Interactions*, In Proceedings of the Model Driven Architecture: Foundations and Applications Workshop (MDAFA'04), Linköping, Sweden, poster presentation, pp 253-253, Uwe Assmann (Ed.), June 2004
- Cottenier, T., Elrad, T., *Validation of Aspect-Oriented Adaptations to Components*, In Proceedings of the 9th International Workshop on Component-Oriented Programming at the 18th European Conference on Object-Oriented Programming (ECOOP'04), Oslo, Norway, June 2004
- Cottenier, T., Elrad, T., *Linguistic provisions for Aspect/Core semantic interactions*, In Proceedings of the Workshop on Software Engineering Properties of Languages for Aspect Technologies (SPLAT'04) at the 3rd International Conference on Aspect-Oriented Software Development (AOSD'04), Lancaster, UK, March 2004

Talks and Presentations

- Cottenier T., *Model-Based Specification of Aspect-Oriented Compositions*, Missouri University of Science and Technology, Computer Science Department, Rolla, MO, USA, March 2008
- Cottenier T., *Model-Driven Software Development and Aspect-Oriented Modeling*, Doctoral Symposium in Computer Science, Illinois Institute of Technology, Chicago, IL, USA, January 2007
- van den Berg, A., Cottenier, T., *Aspect-Oriented Modeling*, presented at the Workshop on Agile, Testing, Aspects and Status, Motorola Software, Systems and Simulation Symposium, Itasca, USA, September 2006
- Cottenier, T., van den Berg, A., *Aspect-Oriented Programming with AspectJ*, presented at the Workshop on Java@Motorola – Mobile, Embedded and Enterprise Solutions, Motorola Software, Systems and Simulation Symposium, Itasca, USA, September 2006
- Cottenier, T., *Modularization of Grid Middleware Concerns with Aspect-Oriented Programming*, presented at the Mathematics and Computer Science Divisional Seminar, Argonne National Lab, Argonne, IL, USA, May 2006
- Elrad, T., Bader, A., Cottenier, T., Almajali, S., Akkawi, F., *Evolution of Aspect-Oriented Software Development* presented at the Chicago chapter of the ACM, Chicago, IL, USA, November 2005
- Cottenier, T., *Aspect-Oriented Model Compositions with TAU G2*, presented at the Workshop on Meta-modeling, UML Profiles and Domain Specific Languages, Motorola Software, Systems and Simulation Symposium, Itasca, IL, USA, September 2005

Grants and Awards

- 30,000.00 USD Herbert Hoover Fellowship, Belgian American Educational Foundation (BAEF), August 2002 – May 2003
- 850.00 USD Microsoft Research Europe Grant, to attend the International Conference on Coordination Models and Languages (Coordination'05), Namur, Belgium, April 2005
- 600.00 USD travel grant to attend the 20th annual ACM SIGPLAN conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'05), San Diego, USA, October 2005
- Best Paper award at the 7th International Workshop on Aspect-Oriented Modeling, in conjunction with the 8th International Conference on Model Driven Engineering Languages and Systems (MoDELS'05), Montego Bay, Jamaica, October 2005
- MS in Electrical Engineering obtained with 'Great Distinction' (1732/2000), Universite Libre de Bruxelles, Brussels, Belgium, July 2002

Employment and Skill Summary

- Motorola Inc., Libertyville, IL, USA, Customer Experience Design, October '07 - present
- Motorola Inc., Schaumburg, IL, USA, Motorola Software Group, April '07 – October '07
- Motorola Inc., Schaumburg, IL, USA, Software and System Engineering Research Lab, October '05 - April '07
- Motorola Inc., Schaumburg, IL, USA, Software and System Engineering Research Lab, Intern, June '05 - August '05
- Manpower Inc., Brussels, Belgium, Network Administrator, July, August and December 2004
- IPGlobal Inc., Evere, Belgium, Helpdesk, July '03
- Asea Brown Boveri Inc., Jumet, Belgium, Internship, August '01
- Sony IT Europe, Evere, Belgium, Software Tester, August '00
- Joseph Bracops Medical Institute, Anderlecht, Belgium, Medical Analysis Laboratory, Intern, July and September '99

Model-Driven Software Development

- Software architecture, design and modeling, code generation technologies, generative programming, aspect-oriented software development , UML, SDL, MSC.
- Model checking, temporal logic, program synthesis from Specifications

Computer Programming

- Extensive system and server side programming skills in Java, C/C++, Perl, PHP, Tcl and Javascript
- Experience with Lisp, ML, Scheme, ADA, Python, Basic, C#, Pascal, Ruby, Oz, Assembly
- Databases, MySQL

Distributed Computing, Parallel Computing, Middleware and Networks

- Parallel Computing, MPI, FORTRAN
- Concurrent Programming, asynchronous distributed systems, SDL, telecom networks, CSP
- Middleware: J2EE/EJB, Spring, CORBA, Java RMI, Service-Oriented Architectures, Web Service protocols, Globus Toolkit, Grid Platforms
- Network protocols, network simulator OPNET, programming and configuration experience with various network infrastructure devices

Embedded Systems

- Operating systems, Linux, Windows NT, Windows Mobile, QNX, Symbian
- Mobile Device Platforms, UIQ on Symbian, OpenMoko and Google Android on Linux
- Embedded system programming, telecommunication devices, diverse microcontrollers and digital signal processors
- Electronics, telecommunication devices, RF, communication protocols and technologies

Web Programming

Web 2.0, Web Services, AJAX, Ruby on Rails, Second Life scripting, Facebook platform

Special Interests

- Modeling and Simulation
- Model Checking and Program Synthesis
- Aspect-Oriented Software Development
- Model-Driven Software Development
- Distributed Computing and Embedded Systems