Thomas Degueule

Laboratoire Bordelais de Recherche en Informatique (LaBRI)
Software Engineering Group
Office 211. 351, cours de la Libération F-33405 Talence Cedex.

Updated: January, 2020
thomas.degueule@labri.fr
https://tdegueul.github.io

Academic Positions

Research Scientist, CNRS

Laboratoire Bordelais de Recherche en Informatique (LaBRI)   *January 2020 – current*

Full-time tenured research-only position.

Postdoctoral Researcher

Centrum Wiskunde & Informatica (CWI)   *January 2017 – December 2019*

Post-doctoral researcher in the *Software Analysis and Transformation* group (SWAT) led by Jurgen Vinju (Professor, Eindhoven University of Technology & Researcher, CWI), in the context of the EU's H2020 project CROSSMINER and the associate team CWI–Inria *Agile Language Engineering*.

Doctoral Researcher & Teaching Assistant

Inria – University of Rennes (IRISA)   *October 2013 – December 2016*

"*Composition and Interoperability for External Domain-Specific Language Engineering*" [24]
Advisors:
— Pr. Olivier Barais, University of Rennes 1, France
— Dr. Arnaud Blouin, INSA Rennes, France
Jury:
— Pr. Mark van den Brand – Eindhoven University of Technology, Netherlands – *Reviewer*
— Pr. Richard Paige – University of York, United Kingdom – *Reviewer*
— Pr. Sandrine Blazy – University of Rennes 1, France – *Chair*
— Dr. Benoit Combemale – University of Rennes 1, France – *Examiner*
— Pr. Ralf Lämmel – University of Koblenz-Landau, Germany – *Examiner*
— Pr. Bernhard Rumpe – RWTH Aachen University, Germany – *Examiner*
— Pr. Olivier Barais – University of Rennes 1, France – *Director*
— Dr. Arnaud Blouin – INSA Rennes, France – *Co-director*
Defense date: December 12, 2016

Research Intern

University of Nantes   *January – July 2013*

"*Automatic Generation of Test Models for Model Transformations using Mutation Analysis*" [25]
Advisors: Dr. Jean-Marie Mottu, Dr. Gerson Sunyé

Education

University of Rennes 1	RENNES, FRANCE
PhD degree in Computer Science	*2013 – 2016*
University of Nantes	NANTES, FRANCE
Master's degree in Computer Science	*2011 – 2013*
University of La Rochelle	LA ROCHELLE, FRANCE
Bachelor's degree in Computer Science	*2009 – 2011*
University Institute of Technology of La Rochelle	LA ROCHELLE, FRANCE
University degree of technology in Computer Science	*2007 – 2009*

Awards

ACM Student Research Competition

2nd place in the International ACM SRC Grand Finals 2016

Title: *"Interoperability and Composition of DSLs with Melange"* [26]

Distinguished Papers

Distinguished Paper Award   *2018*
"Shape-Diverse DSLs: Languages without Borders (Vision Paper)" [16]
Fabien Coulon, Thomas Degueule, Tijs van der Storm, Benoit Combemale
11th *International Conference on Software Language Engineering* (SLE'18)

Distinguished Artifact Award   *2018*
"Modular Language Composition for the Masses" [10]
Manuel Leduc, Thomas Degueule, Benoit Combemale
11th *International Conference on Software Language Engineering* (SLE'18)

Best Software Engineering Technology Paper   *2018*
"Constraint-based Run-time State Migration for Live Modeling" [14]
Ulyana Tikhonova, Jouke Stoel, Tijs van der Storm, Thomas Degueule
11th *International Conference on Software Language Engineering* (SLE'18)
Awarded by VERSEN (Dutch National Association for Software Engineering)

Services

— PhD Jury:
>   Manuel Leduc. *On Modularity and Performance of External Domain-specific Language Implementations*, University of Rennes 1, 12 december 2019. Invited member.

— Co-organizer of the IPA Fall Days 2019 (21 invited speakers)
— Organizer of the Software Engineering Meetings (SEM) at CWI (2017 – 2019)
— Co-chair of the Artifact Evaluation Committee for:
>   ⋆ *21st International Conference on Model-Driven Engineering Languages and Systems* (MODELS'18)

— Program Committee member for:
>   ⋆ *19th International Conference on Generative Programming: Concepts & Experiences* (GPCE'20)
>   ⋆ *23th International Conference on Model Driven Engineering Languages and Systems* (MODELS'20)
>   - Tutorials track
>   - Tools & Demo track
>   - ACM Student Research Competition Track
>   ⋆ *1st International Workshop on Data for MDE* (Data4MDE@STAF'20)
>   ⋆ *Challenges of the French Programming and Software Engineering Research Community 2020*
>   ⋆ *12th International Conference on Software Language Engineering* (SLE'19)
>   ⋆ *22th International Conference on Model Driven Engineering Languages and Systems* (MODELS'19)
>   - Tutorials track
>   - Posters track
>   ⋆ *International Workshop on Modeling Language Engineering and Execution* (MLE@MODELS'19)
>   ⋆ *18th International Conference on Generative Programming: Concepts & Experiences* (GPCE'19)
>   ⋆ *11th International Conference on Software Language Engineering* (SLE'18)
>   ⋆ *21th International Conference on Model Driven Engineering Languages and Systems* (MODELS'18)
>   - Tools and Demos track
>   - Poster Track
>   ⋆ *Software Language Engineering Body of Knowledge Workshop* (SLEBoK@SLE'18)
>   ⋆ *4th International Workshop on Executable Modeling* (EXE@MODELS'18)
>   ⋆ *3rd International Workshop on Executable Modeling* (EXE@MODELS'17)

— Artifact Evaluation Committee member for:
>   ⋆ *10th International Conference on Software Language Engineering* (SLE'17)
>   ⋆ *9th International Conference on Software Language Engineering* (SLE'16)

— Session chair for:
>   ⋆ *11th International Conference on Software Language Engineering* (SLE'18)

— Reviewer for:
>   ⋆ *Software & Systems Modeling* (SoSyM)

- ★ *Journal of Computer Languages* (COLA)
- ★ *Computer Languages, Systems and Structures* (COMLAN)
- ★ *The Journal of Object Technology* (JOT)
- ★ *Computer Standards & Interfaces* (CSI)
- ★ *IET Software*
— External Reviewer for:
- ★ Journals
  - • *Software & Systems Modeling* (SoSyM)
  - • *The Art, Science, and Engineering of Programming* (‹Programming›)
- ★ Conferences
  - • *20th International Conference on Model-Driven Engineering Languages and Systems* (MODELS'17)
  - • *9th International Conference on Model Transformation* (ICMT'16)
  - • *12th European Conference on Modelling Foundations and Applications* (ECMFA'16)
  - • *37th International Conference on Software Engineering* (ICSE'15)
  - • *8th International Conference on Software Language Engineering* (SLE'15)
  - • *7th International Conference on Software Language Engineering* (SLE'14)
  - • *13th International Conference on Generative Programming: Concepts & Experience* (GPCE'14)
  - • *17th International Conference on Model-Driven Engineering Languages and Systems* (MODELS'14)
  - • *10th European Conference on Modelling Foundations and Applications* (ECMFA'14)
  - • *21st Asia-Pacific Software Engineering Conference* (APSEC'14)
  - • *17th International Conference on Model-Driven Engineering Languages and Systems* (MODELS'14)
- ★ Workshops
  - • *8th International Workshop on Modeling in Software Engineering* (MiSE@ICSE'16)
  - • *1st International Workshop on Executable Modeling* (EXE@MODELS'15)
  - • *6th International Workshop on Modeling in Software Engineering* (MiSE@ICSE'14)

Invitations to Workshops

— SLEBOK: The Software Language Engineering Body of Knowledge
Dagstuhl Seminar #17342
5 days – Germany – 2017
— 1ˢᵗ Workshop on Language Reuse
McGill's Bellairs Research Institute
7 days – Barbados – 2017
— Globalizing Domain-Specific Languages
Dagstuhl Seminar #14412
5 days – Germany – 2014

Research Projects

— CWI–Inria Agile Language Engineering (ALE) associate team
2017 – 2022
Associate research team between the DiverSE team at Inria and the SWAT team at CWI
http://gemoc.org/ale/
— CROSSMINER: Developer-Centric Knowledge Mining from Large Open-Source Software Repositories
2017 – 2019
European Union's Horizon 2020 Research and Innovation Programme, project No. 732223
Work Package Leader (WP2: Mining Source Code)
http://www.crossminer.org
— Clarity: Ecosystem for the Model-based Systems Engineering Solution Capella
2014 – 2017

LEOC Project
http://www.clarity-se.org/
— GEMOC: A Generic Framework for Model Execution and Dynamic Analysis
2012 – 2016
ANR French Project, Program INS
http://gemoc.org/ins/
— MERgE: Multi-Concerns Interactions System Engineering
2013 – 2016
ITEA2 European Project
http://www.merge-project.eu/

Teaching

During my PhD, I was a teaching assistant at the University of Rennes 1 (ISTIC) and École Supérieure d'Ingénieurs de Rennes (ESIR) where I taught software engineering courses and supervised labwork and student projects. Table 1 sums up my teaching activity.

Course name	Institute	Level	CM	TD	TP	Total
Model-Driven Engineering (IMTQL)	ESIR	Master 2	4	4	18	26
Model-Driven Engineering (IDM)	ISTIC	Master 2	-	-	24	24
Object-Oriented Analysis and Design (ACO)	ISTIC	Master 1	-	-	22	22
Object-Oriented Architectures (AOC)	ISTIC	Master 2	-	-	10	10
Distributed Information Systems (SIR)	ISTIC	Master 1	2	2	10	14
			6	6	84	96

Table 1: Teaching activity (in hours) – CM = Lectures, TD = Seminars, TP = Practical sessions

Alongside my teaching activity, I was also invited to review, take part in the jury, and grade several master's theses.

Academic Software Development

— Eclipse Scava
https://eclipse.org/scava/
— Maracas
https://github.com/crossminer/maracas
— The Melange language workbench [27]
http://melange-lang.org
— The Action Language for Ecore (ALE)
http://gemoc.org/ale-lang/
— The K3 meta-language
http://www.kermeta.org
— The Eclipse GEMOC Studio
https://eclipse.org/gemoc/
— KCVL
https://diverse-project.github.io/kcvl/
— Alex
https://diverse-project.github.io/alex/

Publications

Refereed Journal Articles

[1] Vincent Aranega, Jean-Marie Mottu, Anne Etien, Thomas Degueule, Benoit Baudry, and Jean-Luc Dekeyser. "Towards an automation of the mutation analysis dedicated to model transformation". In: *Software Testing, Verification and Reliability* 25.5-7 (2015), pp. 653–683. ISSN: 1099-1689. DOI: `10.1002/stvr.1532`.

[2] Benoit Combemale et al. "Concern-Oriented Language Development (COLD): Fostering Reuse in Language Engineering". In: *Computer Languages, Systems & Structures* 54 (2018), pp. 139–155. ISSN: 1477-8424. DOI: `10.1016/j.cl.2018.05.004`.

[3] Thomas Degueule, Benoit Combemale, Arnaud Blouin, Olivier Barais, and Jean-Marc Jézéquel. "Safe Model Polymorphism for Flexible Modeling". In: *Computer Languages, Systems & Structures* 49 (2016), pp. 176–195. ISSN: 1477-8424. DOI: `10.1016/j.cl.2016.09.001`.

[4] Manuel Leduc, Gwendal Jouneaux, Thomas Degueule, Gurvan Le Guernic, Olivier Barais, and Benoit Combemale. "Automatic Generation of Truffle-based Interpreters for Domain-Specific Languages". In: *The Journal of Object Technology* (*ECMFA'20 papers*) (2020). Accepted, to be published.

[5] David Méndez-Acuña, José A. Galindo, Thomas Degueule, Benoit Combemale, and Benoit Baudry. "Leveraging Software Product Lines Engineering in the Development of External DSLs: A Systematic Literature Review". In: *Computer Languages, Systems & Structures* 46 (2016), pp. 206–235. ISSN: 1477-8424. DOI: `10.1016/j.cl.2016.09.004`.

Book Chapters

[6] Betty H. C. Cheng, Thomas Degueule, Colin Atkinson, Siobhán Clarke, Ulrich Frank, Pieter J. Mosterman, and Janos Sztipanovits. "Motivating Use Cases for the Globalization of DSLs". In: *Globalizing Domain-Specific Languages*. Ed. by Benoit Combemale, Betty H. C. Cheng, Robert B. France, Jean-Marc Jézéquel, and Bernhard Rumpe. Springer International Publishing, 2015, pp. 21–42. DOI: `10.1007/978-3-319-26172-0_3`.

[7] Thomas Degueule, Benoit Combemale, and Jean-Marc Jézéquel. "On Language Interfaces". In: *Present and Ulterior Software Engineering*. Ed. by Manuel Mazzara and Bertrand Meyer. Springer International Publishing, 2017, pp. 65–75. DOI: `10.1007/978-3-319-67425-4_5`.

Refereed Conference Papers

[8] Thomas Degueule, Benoit Combemale, Arnaud Blouin, Olivier Barais, and Jean-Marc Jézéquel. "Melange: a meta-language for modular and reusable development of DSLs". In: *Proceedings of the 2015 ACM SIGPLAN International Conference on Software Language Engineering*. Pittsburgh, PA, USA: ACM, 2015, pp. 25–36. DOI: `10.1145/2814251.2814252`.

[9] Jean-Marc Jézéquel, David Méndez-Acuña, Thomas Degueule, and Benoit Combemale and Olivier Barais. "When Systems Engineering Meets Software Language Engineering". In: *Proceedings of the Fifth International Conference on Complex Systems Design & Management* (*CSD&M 2014*), *Paris, France, November 12-14, 2014*. 2014, pp. 1–13. DOI: `10.1007/978-3-319-11617-4_1`.

[10] Manuel Leduc, Thomas Degueule, and Benoit Combemale. "Modular Language Composition for the Masses". In: *Proceedings of the 11th ACM SIGPLAN International Conference on Software Language Engineering*. Distinguished Artifact Award. Boston, MA, USA: ACM, 2018, pp. 47–59. DOI: `10.1145/3276604.3276622`.

[11] Manuel Leduc, Thomas Degueule, Benoit Combemale, Tijs van der Storm, and Olivier Barais. "Revisiting Visitors for Modular Extension of Executable DSMLs". In: *20th ACM/IEEE International Conference on Model Driven Engineering Languages and Systems, MODELS 2017, Austin, TX, USA, September 17-22, 2017*. 2017, pp. 112–122. DOI: `10.1109/MODELS.2017.23`.

[12] Phuong T. Nguyen, Juri Di Rocco, Davide Di Ruscio, Lina Ochoa, Thomas Degueule, and Massimiliano Di Penta. "FOCUS: A Recommender System for Mining API Function Calls and Usage Patterns". In: *Proceedings of the 41th International Conference on Software Engineering*. Montréal, QC, Canada: IEEE, 2019, pp. 1050–1060. DOI: `10.1109/ICSE.2019.00109`.

[13] Lina Ochoa, Thomas Degueule, and Jurgen J. Vinju. "An Empirical Evaluation of OSGi Dependencies Best Practices in the Eclipse IDE". In: *Proceedings of the 15th International Conference on Mining Software Repositories, MSR 2018, Gothenburg, Sweden, May 28-29, 2018*. 2018, pp. 170–180. DOI: `10.1145/3196398.3196416`.

[14] Ulyana Tikhonova, Jouke Stoel, Tijs van der Storm, and Thomas Degueule. "Constraint-based Run-time State Migration for Live Modeling". In: *Proceedings of the 11th ACM SIGPLAN International Conference on Software Language Engineering*. Boston, MA, USA: ACM, 2018, pp. 108–120. DOI: 10.1145/3276604.3276611.

Refereed Conference Short Papers

[15] Erwan Bousse, Thomas Degueule, Didier Vojtisek, Tanja Mayerhofer, Julien Deantoni, and Benoit Combemale. "Execution Framework of the GEMOC Studio (Tool Demo)". In: *Proceedings of the 2016 ACM SIGPLAN International Conference on Software Language Engineering*. Amsterdam, Netherlands: ACM, 2016, pp. 84–89. DOI: 10.1145/2997364.2997384.

[16] Fabien Coulon, Thomas Degueule, Tijs van der Storm, and Benoit Combemale. "Shape-Diverse DSLs: Languages without Borders". In: *Proceedings of the 11th ACM SIGPLAN International Conference on Software Language Engineering*. Distinguished Vision Paper Award. Boston, MA, USA: ACM, 2018, pp. 215–219. DOI: 10.1145/3276604.3276623.

[17] Thomas Degueule, João Bosco Ferreira Filho, Olivier Barais, Mathieu Acher, Jérôme Le Noir, Sébastien Madelénat, Grégory Gailliard, Godefroy Burlot, and Olivier Constant. "Tooling support for variability and architectural patterns in systems engineering". In: *Proceedings of the 19th International Conference on Software Product Line, SPLC 2015, Nashville, TN, USA, July 20-24, 2015*. Tool demonstration. 2015, pp. 361–364. DOI: 10.1145/2791060.2791097.

[18] Manuel Leduc, Thomas Degueule, Eric van Wyk, and Benoit Combemale. "The Software Language Extension Problem". In: *Software & Systems Modeling* (2019). Expert's Voice, pp. 1–5. ISSN: 1619-1374. DOI: 10.1007/s10270-019-00772-7.

Refereed Workshop Papers

[19] Benoit Combemale, Julien DeAntoni, Olivier Barais, Cédric Brun, Arnaud Blouin, Thomas Degueule, Erwan Bousse, and Didier Vojtisek. "A Solution to the TTC'15 Model Execution Case Using the GEMOC Studio". In: *Proceedings of the 8th Transformation Tool Contest, a part of the Software Technologies: Applications and Foundations (STAF 2015) federation of conferences, L'Aquila, Italy, July 24, 2015*. 2015, pp. 19–26. URL: http://ceur-ws.org/Vol-1524/paper12.pdf.

[20] Thomas Degueule, Benoit Combemale, Arnaud Blouin, and Olivier Barais. "Reusing legacy DSLs with Melange". In: *Proceedings of the 15th Workshop on Domain-Specific Modeling, DSM@SPLASH 2015, Pittsburgh, PA, USA, October 27, 2015*. 2015, pp. 45–46. DOI: 10.1145/2846696.2846697.

[21] Thomas Degueule, Tanja Mayerhofer, and Andreas Wortmann. "Engineering a ROVER Language in GEMOC STUDIO & MONTICORE: A Comparison of Language Reuse Support". In: *Proceedings of MODELS 2017 Satellite Event co-located with ACM/IEEE 20th International Conference on Model Driven Engineering Languages and Systems (MODELS 2017), Austin, TX, USA, September, 17, 2017*. 2017, pp. 349–354.

[22] Olivier Finot, Jean-Marie Mottu, Gerson Sunyé, and Thomas Degueule. "Using Meta-model Coverage to Qualify Test Oracles". In: *Proceedings of the Second Workshop on the Analysis of Model Transformations (AMT 2013), Miami, FL, USA, September 29, 2013*. 2013. URL: http://ceur-ws.org/Vol-1077/amt13_submission_3.pdf.

Refereed National Workshop Papers

[23] Thomas Degueule, Joao Bosco Ferreira Filho, Jérôme Le Noir, Olivier Barais, Mathieu Acher, Grégory Gailliard, Godefroy Burlot, Olivier Constant, and Sébastien Madelénat. "Variability and Patterns in Safety/Security Systems Engineering: An Overview". In: *Journée Lignes de Produits 2014*. National French Symposium. 2014.

Technical Reports / Others

[24] Thomas Degueule. "Composition and Interoperability for External Domain-Specific Language Engineering". PhD thesis. Université de Rennes 1, Dec. 2016. URL: https://hal.inria.fr/tel-01427009.

[25] Thomas Degueule. "Génération automatique de modèles de test pour les transformations de modèles en exploitant l'analyse de mutation". In French. MA thesis. University of Nantes, 2013.

[26] Thomas Degueule. *Interoperability and Composition of DSLs with Melange*. Tech. rep. Submission to the ACM Student Research Competition Grand Finals. Inria, 2016.

[27]   Inria DiverSE Team. *The Melange Language Workbench*. Version 0.2.1. Jan. 11, 2018. URL: http://melange-lang.org.