

STÉPHANE DUCASSE

Senior Researcher (Directeur de recherche de première classe)
Inria Lille Nord Europe - Cristal laboratory University of Lille

48 years
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Keywords: Dynamically typed languages, Language Design and Security, Software Engineering, Object-Oriented Programming, Reflective Programming, Meta-Object Protocol, Meta-Modeling, Reengineering, Reverse Engineering, Program Understanding, Integrated Development Environments, Teaching Novices.

Indexes: According to Google Scholar, *H-index*: 53. Total 11691 citations. According to Microsoft: 335 papers for 6422 citations Erdős number 4: O. Nierstrasz - D. M. Jackson - E. Rodney Canfield - P. Erdős

Education and Titles

May 2002 PrivatDozent of the University of Bern.
Sep 2001 Habilitation à diriger des recherches of Université Pierre et Marie Curie (Paris 6).
1993/1996 Ph.D. Thesis of the Université de Nice-Sophia Antipolis (Laboratoire I3S).

Professional Employment History

2013 Promoted "Directeur de recherche première classe" (equivalent *first class* full Professor).
2011–14 Scientific depute (délégué scientifique) of the INRIA Lille Nord Europe research center. The role of the Scientific officer is to help the director of the center to take scientific decisions for the center and to manage the creation and evaluation of teams.
Sep 2007–... Senior Researcher (directeur de recherche) Inria Lille Nord Europe (eq. Full Professor). Leader of the RMOD INRIA team (7 permanent members and around 25 in total).
2005–2007 Full Professor of the Université de Savoie, Leader of the Software Engineering team.
May 2005 Professor at the University of Bern. Leader of the SNF project RECAST and co-responsible of the Software Composition Group directed by Pr. O. Nierstrasz.
1996–2002 Lecturer at the University of Bern in the Software Composition Group.

Awards

2012 Inria Prime d'excellence scientifique - Scientific Excellence Award.
2011 Distinguished Visiting Fellowship Award of the Royal Academy of Engineering.
2010 ESUG 2010 best Smalltalk book for *Dynamic Web Development with Seaside*, 2010.
2008 Best award paper of IEEE Working Conference on Reverse Engineering 2008.
2003 Best award paper of Joint Modular Language Conference 2003.

Selective Grants

Dec 2005 Recipient of the French "Agence Nationale de la Recherche" 2005 Jeune Chercheur programme. 20% acceptance rate. 130 KEuros.
Apr 2002 Recipient of the Swiss National Science Foundation 2002 Professorship programme. 18% acceptance rate. 500 KEuros allocated for 4 years. For this national programme, there were 233 candidates for 44 positions (18%) and 3 have been selected in Computer Sciences. This award funded the research project, RECAST, by providing four years of salary and infrastructure and 2 PhD positions.

Student Distinctions

2006	Award 2006 of the Denert Foundation for the Ph.D. of A. Bergel: Classboxes: Controlling Visibility of Class Extensions.
2003	Award 2003 of the Denert Foundation for the Ph.D. of M. Lanza: Object-Oriented Reverse Engineering - Coarse-grained, Fine-grained, and Evolutionary Software Visualization.
2009	Prize for the Ph.D. of M. Denker from the Faculty of Mathematics, University of Bern.
2008	DrGeoII - H. Fernandes - PhD student 2008 - ESUG Innovation Award (first).
2012	Oz - G. Polito - PhD student 2012 - ESUG Innovation Award (first).
2005	Pier - L. Renggli - Master student 2007 - ESUG Innovation Award (third).
2004	Smallwiki - L. Renggli - Master student - ESUG Innovation Award (third).

Publications

49 Internat. Journals	3 Trans. of Softw. Eng. (TSE), 1 Trans. of Progr. Lang. and Syst. (TOPLAS), 7 J. of Computer Lang., Syst. and Struc., 3 J. of Soft. Maint. and Evol. (JSME), 4 Infor. and Soft. Tech. (IST), SOSYM, IEEE Software, etc
99 Internat. Conferences	9 OOPSLA (18%), 3 ECOOP (16%), 1 PLDI (16%), 1 FSE (16%), 1 ASE (9%), 8 ICSM (21%-35%), 9 WCRE (25%-35%), 2 UML(25%), 6 TOOLS (25%)
Misc	4 Invited Papers, 3 Book Chapters, 3 National Journals, 8 Books
7 Books	<i>Une approche fonctionnelle et réursive avec Scheme 95</i> , <i>Programmation en Squeak</i> , 2002, <i>Object-Oriented Reengineering Patterns</i> , 2002. <i>Squeak by Example</i> , 2008, <i>Pharo by Example</i> , 2009. <i>Squeak: Learn Programming with Robots</i> , 2005. <i>Dynamic Web Development with Seaside</i> , 2010.

Professional Activities

8 Habilitation evaluation, 26 Ph.D. thesis evaluation
28 Ph.D. thesis supervisions - defended
6 International Conference General Chair: ESUG International Conference on Smalltalk (05, 06, 09, 10 - 150 participants), WCRE 2009 (90 ppts), LMO 2005 (60 ppts).
International Journal Steering Board: open-archive Journal of Object Technology (<http://www.jot.fm>)
40 International Conference Program Committee Participation
ECOOP Core A*, Models Core B, ICSM Core A, WCRE Core B, TOOLS Core B, CSMR Core B.
80 International Conference reviewer for OOPSLA, ECOOP, FSE/ESEC, ICSM, MODELS...
International Journal reviewer: Transaction on Software Engineering (Core A), Journal of Software Maintenance and Evolution: Research and Practice, Journal of Software and Systems Modeling, Information and Software Technology, Journal on Computer Programming (Core A),...*
Research Network Building: European Science Foundation Network: "RELEASE: Research Links to Explore and Advance Software Evolution" (02-05).

Software Artefacts

I value software development and building of communities around open-source software.

Since 1996, I'm co-developer of Moose an open-source software analysis platform — <http://moosetechnology.org> used by Université of Bern, Lugano, Annecy, Louvain-la-neuve, Lille, Bruxelles, Santiago. More than 250 publications are based on Moose.

Since 2008, I'm co-developer of Pharo: a new dynamic language and environment — <http://www.pharo.org>. Pharo is a fork from Squeak and we are rewriting large part of it. It is used by 50 companies, 30 universities and 16 research groups world-wide.

Keynotes and Invited Courses

<i>Conference</i>	Modularity 2017, Software Language Engineering 2015, Software Composition 2009, Smalltalks 2009
<i>Keynotes</i>	
<i>Invited Papers</i>	with O. Nierstrasz, Software Composition 2005, ESEC/FSE'05, Generative Programming and Component Engineering, 2005
<i>Invited Courses</i>	University of Cagliari (2 days), 2017 University of Lviv (7 days), 2016 University of Prague (5 days), 2016 Universitat Politècnica de Catalunya (5 days), 2010 Universidad de Buenos Aires (3 days), 2009 Università di Torino (5 days), 2007, 2008 Università di Torino Timisoara (5 days), 2002

Past Collaborative Research Projects

2 european projects	FAMOOS (96-99, Nokia, Daimler, Sema), PECOS (00-02, ABB, IBM)
6 swiss national projects	Recast (02-06), Fonds National de la Recherche Suisse (96-06)
5 french national projects	Jeune Chercheur ANR Cook (05-08 – 20% accept.), Squalo FUI (2008-2010), Cutter (2010-2013 – 18% accept.), Resilience (2012-2014), SafePython (2013-2015)
Microsoft Research Rotor	Trait in C# (16% accept.)

Collaborations

Switzerland	Software Composition Group - University of Bern (O. Nierstrasz)
Belgium	Soft (Prog) Lab - University of Brussels (T. D'Hondt)
USA	Portland University (A.P. Black)
France	URIA - Ecole des Mines de Douai (N. Bouraqadi)
Chile	Pleaid DCC - Santiago (A. Bergel/J. Fabry)

Scientific Reviewer

I act as reviewer for IST (Information Society Technology), SSF (Stiftelsen för Strategisk Forskning Sweden), EPSRC (UK), for the Fonds de Recherche sur la Nature et les Technologies of Quebec – Canada, NWO (Dutch National Research Council), NSERC (Natural Sciences and Engineering Research Council of Canada), and ANR (Agence Nationale de la Recherche), IWT-Flanders (Belgium), and SSF (Swedish Science Foundation).

Funding ID

2012-2015. SafePython - FUI Systematic - 120 Keuros
2011-2014. Resilience project - Security in Javascript - FUI Systematic - 240 Keuros
2010-2014. ANR Project Cutter - Reengineering (LIRMM + INRIA) - 150 Keuros (one Ph.D.)
2008-2010. Squalo project - Reengineering (AirFrance, Peugeot, Qualixo) - 260 Keuros (1 Ph.D. 1 postdoc)
2005-2008. ANR Project Recast - Reengineering - 130 Keuros (20% acceptance)
2002-2006. Swiss National Science Foundation 2002 Professorship - 500 Keuros (18% acceptance)

References

Prof. O. Nierstrasz, University of Bern, oscar@iam.unibe.ch
Prof. A. Black Portland State University black@cs.pdx.edu
Directeur de recherche CNRS **J.-P. Briot**, Laboratoire d'informatique de Paris 6, jean-pierre.briot@lip6.fr
Prof. T. D'Hondt, Head of the PROG Laboratory of the University of Brussels tjdhondt@vub.ac.be
Prof. J.-M. Jezequel, IRISA - Université de Rennes, jezequel@irisa.fr

Full list of Publications

<http://stephane.ducasse.free.fr/Publications.html>

Selection of Refereed Articles in International Journals

- C. Béra, E. Miranda, M. Denker and S. Ducasse, Practical Validation of Bytecode to Bytecode JIT Compiler Dynamic Deoptimization, *Journal of Object Technology*, 15, 1:1-26, 2016.
- V. Uquillas Gomez, S. Ducasse and A. Kellens, Supporting Streams of Changes during Branch Integration, *Journal of Science of Computer Programming*, 2014, 5-year impact factor (2012) 0.903.
- A. Lienhard, S. Ducasse and T. Gırba, Taking an Object-Centric View on Dynamic Information with Object Flow Analysis, In *Journal of Computer Languages, Systems and Structures*, Volume 35, Elsevier, pp. 63–79, 2009
- S. Ducasse and D. Pollet, Software Architecture Reconstruction: A Process-Oriented Taxonomy, In *IEEE Transactions on Software Engineering*, 2009
- S. Ducasse, T. Gırba, A. Kuhn and L. Renggli, Meta-Environment and Executable Meta-Language using Smalltalk: an Experience Report, In *Journal of Software and Systems Modeling (SOSYM)*, February, Volume 8, Springer Verlag, pp. 5–19, 2009
- D. Cassou, S. Ducasse and R. Wuyts, Traits at Work: the design of a new trait-based stream library, In *Journal of Computer Languages, Systems and Structures*, Volume 35, Elsevier, pp. 2–20, 2009
- A. Bergel, S. Ducasse, Oscar Nierstrasz and R. Wuyts, Stateful Traits and their Formalization, In *Journal of Computer Languages, Systems and Structures*, Volume 34, Elsevier, pp. 83–108, 2008
- S. Ducasse, A. Lienhard and L. Renggli, Seaside: A Flexible Environment for Building Dynamic Web Applications, In *IEEE Software*, Los Alamitos, CA, USA, Volume 24, IEEE Computer Society, pp. 56–63, 2007
- K. Gybels, R. Wuyts, S. Ducasse and M. D’Hondt, Inter-Language Reflection: A Conceptual Model and Its Implementation, In *Journal of Computer Languages, Systems and Structures*, July, Volume 32, Elsevier, pp. 109–124, 2006, SCI impact factor 0.467 (2005).
- S. Ducasse, O. Nierstrasz and M. Rieger, On the Effectiveness of Clone Detection by String Matching, In *Journal of Software Maintenance and Evolution: Research and Practice (JSME)*, January, Volume 18, pp. 37–58, 2006, SCI impact factor 0.457 (2005).
- S. Ducasse, O. Nierstrasz, N. Schaerli, R. Wuyts and A. Black, Traits: A Mechanism for fine-grained Reuse, In *ACM Transactions on Programming Languages and Systems (TOPLAS)*, March, Volume 28, pp. 331–388, 2006, SCI impact factor 1.404 (2005).
- S. Ducasse and M. Lanza, The Class Blueprint: Visually Supporting the Understanding of Classes, In *Transactions on Software Engineering (TSE)*, January, Volume 31, IEEE Computer Society, pp. 75–90, 2005, SCI impact factor 1.967, PDF , DOI
- A. Bergel, S. Ducasse and O. Nierstrasz, Analyzing Module Diversity, In *Journal of Universal Computer Science*, November, Volume 11, pp. 1613–1644, 2005, SCI impact factor 0.337
- A. Bergel, S. Ducasse, O. Nierstrasz and R. Wuyts, Classboxes: Controlling Visibility of Class Extensions, In *Journal of Computer Languages, Systems and Structures*, December, Volume 31, Elsevier, pp. 107–126, 2005, SCI impact factor 0.467.
- M. Lanza and S. Ducasse, Polymetric Views—A Lightweight Visual Approach to Reverse Engineering, In *Transactions on Software Engineering (TSE)*, September, Volume 29, IEEE Computer Society, pp. 782–795, 2003, SCI impact factor 1.73

Selected Refereed Articles in Top International Conferences

- S. Marr and S. Ducasse, Tracing vs. Partial Evaluation: Comparing Meta-Compilation Approaches for Self-Optimizing Interpreters, *OOPSLA’2015*, ACM, 2015, PDF.
- G. Santos, N. Anquetil, A. Etien, S. Ducasse and M. Tulio Valente, System Specific, Source Code Transformations, 31st IEEE International Conference on Software Maintenance and Evolution, , 2015, acceptance rate: 32/148 = 22%.
- A. Hora, R. Robbes, N. Anquetil, A. Etien, S. Ducasse and M Tulio Valente, How Do Developers React to API Evolution? The Pharo Ecosystem Case, *Proceedings of the 31st IEEE International Conference on Software Maintenance*, 2015, acceptance rate: 32/148 = 22%.
- S. Marr, C. Seaton and S. Ducasse, Zero-Overhead Metaprogramming: Reflection and Metaobject Protocols Fast and without Compromises, *PLDI - Proceedings of the 36th ACM SIGPLAN Conference on Programming Language Design and Implementation*, ACM, 2015.
- T. van Cutsem, A. Bergel, S. Ducasse and W. De Meuter, Adding State and Visibility Control to Traits using Lexical Nesting, In *Proceedings ECOOP 2009*, Lecture Notes in Computer Science, Springer, 2009.
- S. Ducasse, R. Wuyts, A. Bergel and O. Nierstrasz, User-Changeable Visibility: Resolving Unanticipated Name Clashes in Traits, In *Proceedings of 22nd International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA’07)*, New York, NY, USA, October, ACM Press, pp. 171–190, 2007, Acceptance rate: 33/156:21%.

- A. Lienhard, S. Ducasse and G. Arévalo, Identifying Traits with Formal Concept Analysis, In Proceedings of 20th Conference on Automated Software Engineering (ASE'05), November, IEEE Computer Society, pp. 66–75, 2005, acceptance rate: $28/291 = 9\%$.
- A. Bergel, S. Ducasse and O. Nierstrasz, Classbox/J: Controlling the Scope of Change in Java, In Proceedings of 20th International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'05), New York, NY, USA, ACM Press, pp. 177–189, 2005, acceptance rate: $25/142 = 17\%$.
- N. Schaerli, A. P. Black and S. Ducasse, Object-oriented Encapsulation for Dynamically Typed Languages, In Proceedings of 18th International Conference on Object-Oriented Programming Systems, Languages and Applications (OOPSLA'04), October, pp. 130–149, 2004, acceptance rate: $27/174 = 16\%$.
- N. Schaerli, S. Ducasse, O. Nierstrasz and R. Wuyts, Composable Encapsulation Policies, In Proceedings of European Conference on Object-Oriented Programming (ECOOP'04), June, LNCS, Volume 3086, Springer Verlag, pp. 26–50, 2004, acceptance rate: $25/132 = 19\%$.
- N. Schaerli, S. Ducasse, O. Nierstrasz and A. Black, Traits: Composable Units of Behavior, In Proceedings of European Conference on Object-Oriented Programming (ECOOP'03), July, LNCS, Volume 2743, Springer Verlag, pp. 248–274, 2003, acceptance rate: $18/88 = 20\%$.
- P. Mougín and S. Ducasse, OOPAL: Integrating Array Programming in Object-Oriented Programming, In Proceedings of 17th International Conference on Object-Oriented Programming Systems, Languages and Applications (OOPSLA'03), October, pp. 65–77, 2003, acceptance rate: $26/142 = 18\%$.
- A. P. Black, N. Schaerli and S. Ducasse, Applying Traits to the Smalltalk Collection Hierarchy, In Proceedings of 17th International Conference on Object-Oriented Programming Systems, Languages and Applications (OOPSLA'03), October, Volume 38, pp. 47–64, 2003, acceptance rate: $26/142 = 18\%$.
- M. Lanza and S. Ducasse, A Categorization of Classes based on the Visualization of their Internal Structure: the Class Blueprint, In Proceedings of 16th International Conference on Object-Oriented Programming Systems, Languages and Applications (OOPSLA '01), ACM Press, pp. 300–311, 2001, acceptance rate: $27/145 = 18\%$.
- S. Demeyer, S. Ducasse and O. Nierstrasz, Finding Refactorings via Change Metrics, In Proceedings of 15th International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA '00), New York NY, ACM Press, pp. 166–178, 2000, Also in ACM SIGPLAN Notices 35 (10), acceptance rate: $26/142 = 18\%$, SCI impact factor 0.190, ranked 66/77.