

- Msc. Robert S. Myers, from Imperial College London, United Kingdom (1 day visit, October 2010).
- Dr. Ana Sokolova, from the University of Salzburg, Austria (6 day visit, August 2010).
- Dr. Stefan Milius, from the University of Braunschweig, Germany (4 day visit, March 2010).
- Prof. Dr. B. König and M. Hülsbusch, from the University of Duisburg, Germany (2 day visit, September 2009).
- G. Caltais and E. Goriac, master students at the University of Iasi, Romania (2 week visit, July 2009).
- Prof. Dr. D. Lucanu and E. Goriac, from the University of Iasi, Romania, for the first Arco meeting (2 day visit, January 2009).

## Publications

For an up-to-date list of my publications, I refer to my [scholar page](#).

## Theses

- [1] Alexandra Silva. Kleene Coalgebra. PhD Thesis. Radboud University Nijmegen. *Cum laude*. Supervisors: Prof. Dr. J. Rutten and Dr. M. Bonsangue.
- [2] Alexandra Silva. Strong Types for Relational Data Stored in Databases or Spreadsheets. Final dissertation *Licenciatura em Matemática e Ciências de Computação* (equivalent of a master thesis). Supervisors: Prof. Dr. J.N.Oliveira and Dr. J. Visser.

## Edited books and special issues of international journals

- [3] I. Lanese, M. Carbone, A. Silva and A. Sokolova, editors. Special issue with selected contributions of the 5th Interaction and Concurrency Experience. *Science of Computer Programming* 100, 2015.
- [4] B. Jacobs, A. Silva, S. Staton, editors. Proceedings of the 30th conference on Mathematical Foundations of Programming Semantics. *Electronic Notes in Theoretical Computer Science*, 2014.
- [5] I. Lanese, M. Carbone, A. Silva and A. Sokolova, editors. Proceedings of the 5th Interaction and Concurrency Experience. *Electronic Proceedings in Theoretical Computer Science*, Vol. 104, 2012.
- [6] S. Bliudze, R. Bruni, M. Carbone and A. Silva, editors. Special issue with selected contributions of the 4th Interaction and Concurrency Experience. *Scientific Annals of Computer Science*, vol. XXIII, 2012.
- [7] R. Constable and A. Silva, editors. Logic and Program Semantics - Essays Dedicated to Dexter Kozen on the Occasion of His 60th Birthday. *Lecture Notes in Computer Science*, vol. 7230, Springer, 2012.
- [8] S. Bliudze, R. Bruni, M. Carbone and A. Silva, editors. Proceedings of the 4th Interaction and Concurrency Experience. *Electronic Proceedings in Theoretical Computer Science*, Vol. 59, 2011.
- [9] B. Jacobs, M. Niqui, J. Rutten and A. Silva, editors. Special issue with selected contributions of the 10th International Workshop on Coalgebraic Methods in Computer Science. *Theoretical Computer Science*, vol. 412(38), pp. 4967-5110, 2011.
- [10] S. Ben Mokhtar, S. Bliudze, R. Bruni, A. Silva and A. Troina, editors. Special issue with selected contributions of the 3rd Interaction and Concurrency Experience. *Scientific Annals of Computer Science*, vol. XXI, 2011.
- [11] S. Bliudze, R. Bruni, D. Grohmann and A. Silva, editors. Proceedings of the 3rd Interaction and Concurrency Experience. *Electronic Proceedings in Theoretical Computer Science*, Vol. 38, 2010.
- [12] B. Jacobs, M. Niqui, J. Rutten and A. Silva, editors. Proceedings of the 10th International Workshop on Coalgebraic Methods in Computer Science. *Electronic Notes in Theoretical Computer Science*, Vol. 264(2), 2010.

- [13] B. Jacobs, M. Niqui, J. Rutten, and A. Silva, editors. Short Contributions CMCS 2010. CWI Technical Report SEN-1004, 2010, pp. 1 - 32.

#### Refereed articles in international journals

- [14] F. Bonchi, S. Milius, A. Silva, F. Zanasi. Killing epsilons with a dagger: A coalgebraic study of systems with algebraic label structure. *Theoretical Computer Science*, 2015.
- [15] N. Oliveira, A. Silva, L. Barbosa.  $\text{IMC}_{\text{Reo}}$ : Interactive Markov Chains for stochastic Reo. *Journal of Internet Services and Information Security* 5(1), 3–28, 2015.
- [16] F. Bonchi, M. Bonsangue, G. Caltais, J. Rutten and A. Silva. A coalgebraic view on decorated traces. *Mathematical Structures in Computer Science*, 2015.
- [17] B. Jacobs, A. Silva, and A. Sokolova. Trace Semantics via Determinization. *Journal of Computer and System Sciences* 81(5), 859–879, 2015.
- [18] D. Kozen and A. Silva. Practical Coinduction. *Mathematical Structures in Computer Science*, 2015.
- [19] J. Jeannin, D. Kozen, and A. Silva. Well-Founded Coalgebras, Revisited. *Mathematical Structures in Computer Science*, 2015.
- [20] J. Rot, F. Bonchi, M. Bonsangue, D. Pous, J. Rutten, and A. Silva. Enhanced Coalgebraic Bisimulation. *Mathematical Structures in Computer Science*, 2015.
- [21] F. Bonchi, M. Bonsangue, H. Hansen, P. Panangaden, J. Rutten, and A. Silva. Algebra-Coalgebra Duality in Brzozowski’s Minimization Algorithm. *ACM TOCL*, Volume 15, Number 1, 2014.
- [22] Y. Moon, A. Silva, C. Kräuse and F. Arbab. A Compositional Model to Reason about end-to-end QoS in Stochastic Reo Connectors. *Science of Computer Programming*. Volume 80, Pages 3–24, 2014.
- [23] D. Kozen and A. Silva. On Moessner’s Theorem. *American Mathematical Monthly*, Volume 120, Number 2, 2013.
- [24] A. Silva, F. Bonchi, M. Bonsangue and J. Rutten. Generalizing determinization from automata to coalgebras. *Logical Methods in Computer Science*, Volume 9, Number 1, 2013.
- [25] M. Bonsangue, S. Milius and A. Silva. Sound and complete axiomatizations of coalgebraic language equivalence. *ACM TOCL*, Volume 14, Number 1, 2013.
- [26] M. Bonsangue, G. Caltais, E. Goriac, D. Lucanu, J. Rutten and A. Silva. Automatic Equivalence Proofs for Non-deterministic Coalgebras. *Science of Computer Programming*. Volume 78(9), Pages 1324–1345, 2013.
- [27] A. Silva. Position automata for Kleene Algebra with tests. *Scientific Annals of Computer Science (SACS)*, Volume XXII, Issue 2, Pages 367-394, 2012.
- [28] F. Bonchi, M. Bonsangue, M. Boreale, J. Rutten and A. Silva. A coalgebraic perspective on linear weighted automata. *Information and Computation*, Volume 211, Pages 77–105, 2012.
- [29] M. Bonsangue, D. Clarke, and A. Silva. A Model of Context-Dependent Component Connectors. *Science of Computer Programming*, Volume 77(6), Pages 685–706, 2012.
- [30] A. Silva, F. Bonchi, M. Bonsangue, and J. Rutten. Quantitative Kleene Coalgebras. *Information and Computation*, Volume 209, Issue 5, Pages 822-849, 2011.
- [31] A. Silva, M. Bonsangue and J. Rutten. Non-deterministic Kleene Coalgebras. *Logical Methods in Computer Science*, Volume 6, Issue 3, 2010.
- [32] A. Silva and J. Rutten. A coinductive calculus of binary trees. *Information and Computation*, Volume 208, Issue 5, Pages 578-593, 2010.

## Refereed articles in proceedings of international conferences

- [33] N. Foster, D. Kozen, K. Mamouras, M. Reitblatt and A. Silva. Probabilistic NetKAT. *Proceedings of ESOP'16*, Lecture Notes in Computer Science, vol. ??, pages ??–??, Springer, 2016.
- [34] D. Kozen, K. Mamouras, and A. Silva. Completeness and incompleteness in nominal Kleene algebra. *15th International Conference on Relational and Algebraic Methods in Computer Science (RAMICS 2015)* Lecture Notes in Computer Science, Springer, 2015.
- [35] D. Kozen, K. Mamouras, D. Petrisan, and A. Silva. Nominal Kleene Coalgebra. *Automata, Languages, and Programming (ICALP 2015)* Lecture Notes in Computer Science, vol. 9135, pages 286–298, Springer, 2015.
- [36] J. Endrullis, H. Hansen, D. Hendriks, A. Polonsky, A. Silva. A Coinductive Framework for Infinitary Rewriting and Equational Reasoning. *26th International Conference on Rewriting Techniques and Applications*, June 2015. **Best paper award**.
- [37] N. Foster, D. Kozen, M. Milano, A. Silva, and L. Thompson. A coalgebraic decision procedure for NetKAT. In *Principles of Programming Languages (POPL'15)*, ACM, Mumbai, India, January 2015.
- [38] S. Goncharov, S. Milius, A. Silva. Towards a Coalgebraic Chomsky Hierarchy. *Proceedings IFIP TCS 2014*, Lecture Notes in Computer Science, vol. 8705, pages 265–280, Springer, 2014.
- [39] F. Bonchi, S. Milius, A. Silva, and F. Zanasi. How to kill epsilons with a dagger - a coalgebraic take on systems with algebraic label structure. *Proceedings CMCS'12*, Lecture Notes in Computer Science, vol. 8446, pages 53–74, Springer, 2014.
- [40] N. Oliveira, A. Silva, L. Barbosa. Quantitative Analysis of Reo-based Service Coordination. In *Proceedings of the 29th Annual ACM Symposium on Applied Computing*, 2014.
- [41] B. Jacobs and A. Silva. A Categorical Perspective on Automata Learning. In *Horizons of the Mind. A Tribute to Prakash Panangaden - Essays Dedicated to Prakash Panangaden on the Occasion of His 60th Birthday*. Lecture Notes in Computer Science, vol. 8464, pages 384–406, Springer, 2014.
- [42] Filippo Bonchi, Georgiana Caltai, Damien Pous, and Alexandra Silva. Brzozowski's and up-to algorithms for must testing. In *11th Asian Symposium on Programming Languages and Systems (APLAS 2013)*, volume 8301 of *Lecture Notes in Computer Science*, pages 1–16, 2013.
- [43] B. Jacobs and A. Silva. Initial Algebras of Terms, with binding and algebraic structure. Categories and Types in Logic, Language and Physics. Festschrift on the occasion of Jim Lambek's 90th birthday. Lecture Notes in Computer Science, vol. 8089, pages 267–282, Springer, 2013.
- [44] A. Silva and B. Westerbaan. A Coalgebraic View on  $\varepsilon$ -Transitions. *Proceedings of Calco'13*, Lecture Notes in Computer Science, vol. 8089, pages 267–282, Springer, 2013.
- [45] J. Jeannin, D. Kozen and A. Silva. Language Constructs for Non-Well-Founded Computation. *Proceedings of ESOP'13*, Lecture Notes in Computer Science, vol. 7792, pages 61–80, Springer, 2013.
- [46] D. Kozen and A. Silva. Left handed completeness. *Proceedings of RAMICS'12*. Lecture Notes in Computer Science, vol. 7560, pages 162–178, Springer, 2012.
- [47] F. Bonchi, M. Bonsangue, G. Caltai, J. Rutten and A. Silva. Final semantics for decorated traces. *Proceedings of MFPS'12*. Electronical Notes in Theoretical Computer Science, vol. 286, pages 73–86, Elsevier, 2012.
- [48] B. Jacobs, A. Silva, and A. Sokolova. Trace semantics via determinization. *Proceedings CMCS'12*, Lecture Notes in Computer Science, vol. 7399, pages 109–129, Springer, 2012.
- [49] F. Bonchi, M. Bonsangue, J. Rutten, and A. Silva. Brzozowski's algorithm (co)algebraically. *Logic and Program Semantics - Essays Dedicated to Dexter Kozen on the Occasion of His 60th Birthday*, Lecture Notes in Computer Science, vol. 7230, pages 12–23. Springer, 2012.

- [50] J. Adámek, F. Bonchi, M. Hülsbusch, B. König, S. Milius and A. Silva. A coalgebraic perspective on minimization and determinization. In *Proceedings of the 15th International Conference on Foundations of Software Science and Computational Structures (FOSSACS 2012)*, Lecture Notes in Computer Science, vol. 7213, pages 58–73. Springer, 2012.
- [51] A. Silva. A specification language for Reo connectors. *Proceedings of Fundamentals of Software Engineering (FSEN)*. Lecture Notes in Computer Science, vol. 7141, pages 368–376, Springer, 2012.
- [52] A. Silva and A. Sokolova. Sound and Complete Axiomatization of Trace Semantics for Probabilistic Systems. *Proceedings of Mathematical Foundations of Computer Science (MFPS)*. Electronical Notes in Theoretical Computer Science, vol. 276, pp. 291–311, 2011.
- [53] Y. Moon, F. Arbab, A. Silva, A. Stam, and C. Verhoef. Stochastic Reo: a case study. *Proceedings of TTSS’11*.
- [54] A. Silva, F. Bonchi, M. Bonsangue and J. Rutten. Generalizing the powerset construction, coalgebraically. In K. Lodaya and M. Mahajan, editors, *IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2010)*, Leibniz International Proceedings in Informatics (LIPIcs), vol. 8, pages 272–283, 2010.
- [55] M. Bonsangue, G. Caltais, E. Goriac, D. Lucanu, J. Rutten and A. Silva. A decision procedure for bisimilarity of generalized regular expressions. *Proceedings 13th Brazilian Symposium on Formal Methods (SBMF)* Lecture Notes in Computer Science, vol. 6527, pages 226–241, Springer, 2011.
- [56] Y. Moon, A. Silva, C. Kräuse and F. Arbab. A Compositional Semantics for Stochastic Reo Connectors. *Proceedings 9th International Workshop on the Foundations of Coordination Languages and Software Architectures (FOCLASA)*. Electronic Proceedings in Theoretical Computer Science, vol. 30, pages 93–107, 2010.
- [57] F. Bonchi, M. Bonsangue, J. Rutten, and A. Silva. Deriving syntax and axioms for quantitative regular behaviours. *Proceedings of the 20th International Conference on Concurrency Theory (CONCUR 2009)*, Lecture Notes in Computer Science, vol. 5710, pages 146–162. Springer, 2009.
- [58] M. Bonsangue, J. Rutten, and A. Silva. An algebra for Kripke polynomial coalgebras. *Proceedings of the 24th IEEE Symposium on Logic in Computer Science (LICS 2009)*, pages 49–59. IEEE Computer Society, 2009.
- [59] M. Bonsangue, D. Clarke, and A. Silva. Automata for context-dependent connectors. *Proceedings of the 11th International Conference on Coordination Models and Languages (COORDINATION 2009)*, Lecture Notes in Computer Science, vol. 5521, pages 184–203. Springer, 2009.
- [60] M. Bonsangue, J. Rutten, and A. Silva. A Kleene theorem for polynomial coalgebras. *Proceedings of the 12th International Conference on Foundations of Software Science and Computational Structures (FOSSACS 2009)*, Lecture Notes in Computer Science, vol. 5504, pages 122–136. Springer, 2009.
- [61] L. Barbosa, J. Oliveira, and A. Silva. Calculating invariants as coreflexive bisimulations. *Proceedings of the 12th International Conference on Algebraic Methodology and Software Technology (AMAST 2008)*, Lecture Notes in Computer Science, vol. 5140, pages 83–99. Springer, 2008.
- [62] M. Bonsangue, J. Rutten, and A. Silva. Coalgebraic logic and synthesis of Mealy machines. *Proceedings of the 11th International Conference on Foundations of Software Science and Computational Structures (FOSSACS 2008)*, Lecture Notes in Computer Science, vol. 4962, pages 231–245. Springer, 2008.
- [63] A. Silva and J. Rutten. Behavioural differential equations and coinduction for binary trees. *Proceedings of the 14th International Workshop on Logic, Language, Information and Computation (WOLLIC 2007)*, Lecture Notes in Computer Science, vol. 4576, pages 322–336. Springer, 2007.
- [64] A. Silva and J. Visser. Strong types for relational databases. *Proceedings of the ACM SIGPLAN Workshop on Haskell (Haskell 2006)*, pages 25–36. ACM, 2006.