

Curriculum Vitæ of Blaise GENEST

Permanent full time Senior Researcher of CNRS
(Centre National de la recherche scientifique).

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Employement :

CNRS Senior Researcher :

- at CNRS@CREATE, Singapore, 2022+.
 - Co-Director of CREATE programme **DesCartes**, 2021+.
 - Programme joint with NUS, NTU and ASTAR.

at IRISA, Rennes, France, 2013-2022

- cosupervision of Hugo Bazille, PhD defended in 2019,
- supervision of Matthieu Pichené, PhD defended in 2018 and
- cosupervision of Bruno Karelovic, PhD defended in 2017.

CNRS Junior Researcher

at french-Singaporean IPAL UMI, Singapore, 2010-2012. Also Adjunct Associate Professor at NUS (2011-13).

at IRISA, Rennes, France, 2005-2009.

- supervision of Debmalya Biswas, PhD defended in 2009.

Postdoc at **Warwick University** (Departement of Computer Science), Formal Methods group of Doron Peled, Coventry, United Kingdom, 2004-2005.

Studies :

PhD Student at **LIAFA, University Paris 7**, 2002-2004. Supervised by Anca Muscholl. Defended in November 2004.

Graduate studies at **Ecole Normale Supérieure de Cachan/Paris Saclay** : grant holder and scholarship for 4 years, ended early because of PhD studies, France, 1999-2001.

PhD Supervision (current and past) :

Hugo Bazille [Sept 2016-2019].

Matthieu Pichené [Dec 2014-2018].

Bruno Karelovic [2013-2017].

Debmalya Biswas [2006-2009].

Grants (current and past) :

- CREATE Program **DesCartes** [2021-2026], **Co-Director**, 50m SGD.
ANR (French NSF) **MAVERIQ** [2021-2024], 350k euros.
CEFIPRA (France-India) **EQUAVE** [2018-2021].
CNRS funding : project QAnIS [2016-2017], **PI**, 30k euros.
ANR (French NSF) **Stoch-MC** [2014-2018], **PI**, 500k euros.
CEFIPRA (France-India) : AVERTS with IIT Mumbai [2014-2016].
CNRS funding : project AABS [2010-2011], **PI**, 40k euros. (co PI :
PS Thiagarajan and Jin Song Dong, NUS).
ANR (French NSF) MDCA Docflow [2006-2009], **WP leader**, 700k
euros.
ANR (French NSF) DOTS [2006-2010], 500k euros.

Bibliography

Chapters of Books

- Ch-1** Blaise Genest, Anca Muscholl, and Doron Peled. Message Sequence Charts. Survey in *Lectures on Concurrency and Petri Nets*, pages 537–558, volume LNCS 3098, 2003.

Fully Referred International Journals

- IJ-17** Matthieu Pichené, Sucheendra Palaniappan, Eric Fabre, Blaise Genest. Modeling Variability in Populations of Cells using Approximated Multivariate Distributions. *Transaction on Computational Biology and Bioinformatics*, IEEE/ACM, 17(5) : 1691-1702, 2020.
- IJ-16** Nathalie Bertrand, Miheer Dewaskar, Blaise Genest, Hugo Gimbert, Adwait Godbole. Controlling a Population. *Logical Methods in Computer Science (LMCS)* Volume 15, Issue 3, paper 5647, 2019.
- IJ-15** Nathalie Bertrand, Blaise Genest, Hugo Gimbert. Qualitative Determinacy and Decidability of Stochastic Games with Signals. *Journal of the ACM (JACM)* 64(5), 33 :1-33 :48, 2017.
- IJ-14** Sucheendra Palaniappan, François Bertaux, Matthieu Pichené, Eric Fabre, Gregory Batt, Blaise Genest. Abstracting the Dynamics of Biological Pathways using Information Theory : A Case Study of Apoptosis Pathway. *Bioinformatics* 33 (13) : 1980-1986, Oxford University Press, 2017.
- IJ-13** Manindra Agrawal, S. Akshay, Blaise Genest, P.S. Thiagarajan. Approximate Verification of the Symbolic Dynamics of Markov Chains. *Journal of the ACM (JACM)* 62(1), 34-65, 2015.

- IJ-12** Debmalya Biswas, Blaise Genest. Minimal Observability and Privacy Preserving Compensation for Transactional Services. *Discrete Event Dynamic Systems : Theory and Applications (JDEDS)* 24(4), 611-646, 2014.
- IJ-11** Loic Helouet, Herve Marchand, Blaise Genest, Thomas Gazagnaire. Diagnosis from Scenarios. *Discrete Event Dynamic Systems : Theory and Applications (JDEDS)* 24(4), 353-415, 2014.
- IJ-10** Sucheendra Palaniappan, S. Akshay, Bing Liu, Blaise Genest, P.S. Thiagarajan. A Hybrid Factored Frontier Algorithm for Dynamic Bayesian Networks with a Biopathways Application. *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)* 9(5) : 1352-1365, 2012.
- IJ-9** S. Akshay, Blaise Genest, Loic Helouet, Shaofa Yang. Regular Set of Representatives for Time-Constrained MSC Graphs. *Information Processing Letters (IPL)* 112(14-15) :592-598, Elsevier, 2012.
- IJ-8** Philippe Darondeau, Blaise Genest, P.S. Thiagarajan, and Shaofa Yang. Quasi-Static Scheduling of Communicating Tasks, special issue of CONCUR 2008. *Information and Computation (I&C)* 208(10) :1154-1168, Elsevier, 2010.
- IJ-7** Edith Elkind, Blaise Genest, Doron Peled, and Paola Spoletini. Quantifying the discord : Order discrepancies in Message Sequence Charts, special issue of ATVA 2007. *International Journal of Foundations of Computer Science* 21(2) : 211-233, WorldSciNet, 2010.
- IJ-6** Thomas Gazagnaire, Blaise Genest, Loic Helouet, P.S. Thiagarajan, and Shaofa Yang. Causal Message Sequence Charts. *Theoretical Computer Science (TCS)* 410(41) : 4094-4110, Elsevier, 2009.
- IJ-5** Dragan Bosnacki, Edith Elkind, Blaise Genest, and Doron Peled. On commutativity based edge lean search, special issue of BISFAI 2007. *Annals of Mathematics & Artificial Intelligence (Annals Math & AI)* 56(2) : 187-210, Springer, 2009.
- IJ-4** Blaise Genest and Anca Muscholl. Pattern Matching and Membership for Hierarchical Message Sequence Charts. *Theory of Computing Systems (ToCS)* 42(4) :536-567, Springer, 2008.
- IJ-3** Blaise Genest, Dietrich Kuske, and Anca Muscholl. On communicating automata with bounded channels. *Fundamenta Informaticae* 80(2) :1-21, IOS Press, 2007.
- IJ-2** Blaise Genest, Anca Muscholl, Helmut Seidl, and Marc Zeitoun. Infinite-state high-level MSCs : Model-checking and Realizability. *Journal of Computer and System Science* 72(4) :617-647, Elsevier, 2006.
- IJ-1** Blaise Genest, Dietrich Kuske, and Anca Muscholl. A Kleene theorem and model checking for a class of communicating automata. *Information and Computation (I&C)* 204(6) :920-956, Elsevier, 2006.

Fully Referred International Conferences

- IC-44** S. Akshay, Hugo Bazille, Blaise Genest, Mihir Vahanwala. On Robustness for the Skolem and positivity problems. In *39th International Symposium on Theoretical Aspects of Computer Science (STACS'22)*, LIPIcs 219, 5 :1-5 :20, 2022.
- IC-43** S. Akshay, Blaise Genest, Loic Helouet, Krishna S., Sparsa Roychowdhury. Resilience of Timed Systems. In *41th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS'21) 2021*, 33 :1-33 :22, LIPIcs 213, 2021.
- IC-42** Hugo Bazille, Blaise Genest, Cyrille Jégourel, Sun Jun. Global PAC Bounds for Learning Discrete Time Markov Chains. In *32nd International Conference on Computer-Aided Verification (CAV'20)*, 304-326, LNCS 12225, 2020.
- IC-41** S. Akshay, Blaise Genest, Loic Helouet, Sharvik Mital. Timed Negotiation. In *23st International Conference on Foundations of Software Science and Computation Structures (FoSSaCS'20)*, 37-56, LNCS 12077, 2020.
- IC-40** Michael Blondin, Javier Esparza, Blaise Genest, Martin Helfrich, Stefan Jaax. Succinct Population Protocols for Presburger Arithmetic. In *37th International Symposium on Theoretical Aspects of Computer Science (STACS'20)*, LIPIcs, 40 :1-40 :15, 2020.
- IC-39** S. Akshay, Hugo Bazille, Eric Fabre, Blaise Genest. Classification Among Hidden Markov Models. In *39th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS'19) 2019*, 29 :1-29 :14, LIPIcs, 2019.
- IC-38** S. Akshay, Blaise Genest, Nikhil Vyas. Distribution-based objectives for Markov Decision Processes. *33rd Annual ACM/IEEE Symposium on Symposium on Logic In Computer Science (LICS'18)*, 36-45, ACM/IEEE, 2018.
- IC-37** Hugo Bazille, Eric Fabre, Blaise Genest. Complexity reduction techniques for quantified diagnosability of stochastic systems. *Proc. of the 14th Int. Workshop on Discrete Events Systems (WODES'18)*, 94-99, IFAC, 2018.
- IC-36** Hugo Bazille, Eric Fabre, Blaise Genest. Symbolically Quantifying Response Time in Stochastic Models using Moments and Semi-rings. Accepted in *21st International Conference on Foundations of Software Science and Computation Structures (FoSSaCS'18)*, LNCS, 2018.
- IC-35** Hugo Bazille, Eric Fabre, Blaise Genest. Diagnosability Degree of Stochastic Discrete Event Systems. Accepted in *56th IEEE Conference on Decision and Control (CDC'17)*, IEEE, 2017.

- IC-34** Nathalie Bertrand, Miheer Dewaskar, Blaise Genest, Hugo Gimbert. Controlling a Population. In *28th International Conference on Concurrency Theory (CONCUR'17)*, 8 :1-16, LIPIcs, 2017.
- IC-33** Sucheendra Palaniappan, Matthieu Picheni, Eric Fabre, Gregory Batt, Blaise Genest. A Look-ahead Simulation Algorithm for DBN Models of Biochemical Pathways. In *5th International Workshop on Hybrid Systems Biology (HSB'16)*, 3-19, LNBI 9957, 2016.
- IC-32** S. Akshay, Blaise Genest, Bruno Karelövic, Nikhil Vyas. On Regularity of unary Probabilistic Automata. In *33rd International Symposium on Theoretical Aspects of Computer Science (STACS'16)*, LIPIcs, 8 :1-8 :14, 2016.
- IC-31** S. Akshay, Blaise Genest, Loïc Helouët. Decidable classes of unbounded Petri nets with time and urgency. In *37th International Conference on Applications and Theory of Petri Nets and Concurrency (ICATPN'16)*, 301-322, LNCS 9698, 2016.
- IC-30** Blaise Genest, Doron Peled, Sven Schewe. Knowledge = observation + memory + computation. In *18th International Conference on Foundations of Software Science and Computation Structures (FoSSaCS'15)*, 215-229, LNCS 9034, 2015.
- IC-29** Nathalie Bertrand, Thomas Brihaye, Blaise Genest. Deciding the value 1 problem in 1-clock Decision Stochastic Timed Automata. In *11th International Conference on Quantitative Evaluation of Systems (QEST'14)*, 313-328, LNCS 8657, 2014.
- IC-28** S.Akshay, Ionut Dinca, Blaise Genest, Alin Stefanescu. Implementing Realistic Asynchronous Automata. . In *the 33st Foundations of Software Technology and Theoretical Computer Science (FSTTCS'13)*, 213-224, LIPIcs, 2013.
- IC-27** Blaise Genest, Hugo Gimbert, Anca Muscholl, Igor Walukiewicz. Asynchronous Games over Tree Architectures. In *40th International Colloquium on Automata, Languages and Programming (ICALP'13, track B)*, volume LNCS 7966, pages 275–286, 2013.
- IC-26** S. Akshay, M. Agrawal, Blaise Genest, P.S. Thiagarajan. Approximate Verification of the Symbolic Dynamics of Markov Chains. In *27th Annual ACM/IEEE Symposium on Symposium on Logic In Computer Science (LICS'12)*, pages 55–64. IEEE, 2012.
- IC-25** S. Akshay, Blaise Genest, Loïc Helouët, Shaofa Yang. Symbolically Bounding the Drift in Time-Constrained MSC Graphs. In *9th International Colloquium on Theoretical Aspects of Computing 2012 (ICTAC'12)*, 1-15, LNCS 7521, 2012.
- IC-24** Nathalie Bertrand, Blaise Genest. Minimal Disclosure in Partially Observable Markov Decision Processes. In *31st Foundations of Soft-*

- ware Technology and Theoretical Computer Science (FSTTCS'11), 411-422, LIPIcs, 2011.
- IC-23** Sucheendra Palaniappan, S. Akshay, Blaise Genest, P.S. Thiagarajan. A Hybrid Factored Frontier Algorithm for Dynamic Bayesian Networks. In *9th International Conference on Computational Methods in Systems Biology (CMSB'11)*, 35-44, ACM/IEEE 978-1-4503-0817-5, 2011.
- IC-22** Blaise Genest, Anca Muscholl, and Zhilin Wu. Verifying Recursive Active Documents with Positive Data Tree Rewriting. In *30th Foundations of Software Technology and Theoretical Computer Science (FSTTCS'10)*, LIPIcs , pages 469-480, 2010.
- IC-21** Blaise Genest, Hugo Gimbert, Anca Muscholl, and Igor Walukiewicz. Optimal Zielonka-Type Construction of Deterministic Asynchronous Automata. In *37th International Colloquium on Automata, Languages and Programming (ICALP'10, track B)*, volume LNCS 6199, pages 52–63, 2010.
- IC-20** Nathalie Bertrand, Blaise Genest, and Hugo Gimbert. Qualitative Determinacy and Decidability of Stochastic Games with Signals. In *24th IEEE Symposium on Logic In Computer Science (LICS'09)*, volume IEEE, 2009.
- IC-19** Debmalya Biswas, Thomas Gazagnaire, and Blaise Genest. Small Logs for Transactional Services. In *11th IEEE High Assurance Systems Engineering Symposium (HASE'08)*, volume IEEE 978-0-7695-3482-4, pages 97-106, 2008.
- IC-18** Blaise Genest, Anca Muscholl, Olivier Serre, and Marc Zeitoun. Tree Pattern Rewrite Systems. In *6th International Symposium on Automated Technology for Verification and Analysis (ATVA'08)*, volume LNCS 5311, pages 332–346, 2008.
- IC-17** Philippe Darondeau, Blaise Genest, P.S. Thiagarajan, and Shaofa Yang. Quasi-Static Scheduling of Communicating Tasks. In *19th International Conference on Concurrency Theory (CONCUR'08)*, volume LNCS 5201, pages 310–324, 2008.
- IC-16** Debmalya Biswas and Blaise Genest. Minimal Observability for Transactional Hierarchical Services. In *20th International Conference on Software Engineering and Knowledge Engineering (SEKE'08)*, volume ISBN 1-891706-22-5, pages 531–536, 2008.
- IC-15** Philippe Darondeau, Blaise Genest, and Loïc Hélouët. Products of Message Sequence Charts. In *11th International Conference on Foundations of software science and computation structures (FOSACS'08)*, volume LNCS 4962, pages 459–474, 2008.
- IC-14** Edith Elkind, Blaise Genest, Doron Peled, and Paola Spoletini. Quantifying the discord : Order discrepancies in Message Sequence

- Charts. In *5th International Symposium on Automated Technology for Verification and Analysis (ATVA'07)*, volume LNCS 4762, pages 378–393, 2007.
- IC-13** Thomas Gazagnaire, Blaise Genest, Loïc Hélouët, P.S. Thiagarajan, and Shaofa Yang. Causal Message Sequence Charts. In *18th International Conference on Concurrency Theory (CONCUR'07)*, volume LNCS 4703, pages 166–180, 2007.
- IC-12** Dragan Bosnacki, Edith Elkind, Blaise Genest, and Doron Peled. On commutativity based edge lean search. In *34th International Colloquium on Automata, Languages and Programming (ICALP'07, track A)*, volume LNCS 4596, pages 158–170, 2007.
- IC-11** Edith Elkind, Blaise Genest, and Doron Peled. Detecting races in ensembles of message sequence charts. In *13th Joint Conference on Tools and Algorithms for Construction and Analysis of Systems (TACAS'07)*, volume LNCS 4424, pages 420–434, 2007.
- IC-10** Blaise Genest and Anca Muscholl. Constructing exponential-size deterministic Zielonka automata. In *33rd International Colloquium on Automata, Languages and Programming (ICALP'06, track B)*, volume LNCS 4052, pages 565–576, 2006.
- IC-9** Edith Elkind, Blaise Genest, Doron Peled, and Hongyang Qu. Grey box checking. In *26th International Conference on Formal Methods for Networked and Distributed Systems (FORTE'06)*, volume LNCS 4229, pages 420–435, 2006.
- IC-8** Blaise Genest. On Implementation of Global Concurrent Systems with Local Asynchronous Controllers. In *16th International Conference on Concurrency Theory (CONCUR'05)*, volume LNCS 3653, pages 443–457, 2005.
- IC-7** Blaise Genest. Compositional Message Sequence Charts (CMSCs) Are Better to Implement than MSCs. In *11th Joint Conference on Tools and Algorithms for Construction and Analysis of Systems (TACAS'05)*, volume LNCS 3440, pages 429–444, 2005.
- IC-6** Blaise Genest, Dietrich Kuske, Anca Muscholl, and Doron Peled. Snapshot Verification. In *11th Joint Conference on Tools and Algorithms for Construction and Analysis of Systems (TACAS'05)*, volume LNCS 3440, pages 510–525, 2005.
- IC-5** Blaise Genest, Dietrich Kuske, and Anca Muscholl. A Kleene Theorem for a Class of Communicating Automata with Effective Algorithms. In *8th International Conference on Developments in Language Theory (DLT'04)*, volume LNCS 3340, pages 300–48, 2004.
- IC-4** Blaise Genest, Marius Minea, Anca Muscholl, and Doron Peled. Products of Message Sequence Charts. In *7th International Confe-*

rence on Foundations of software science and computation structures (FOSSACS'04), volume LNCS 2987, pages 195–210, 2004.

- IC-3** Blaise Genest, Loïc Hélouët, and Anca Muscholl. High-Level Message Sequence Charts and Projections. In *14th International Conference on Concurrency Theory (CONCUR'03)*, volume LNCS 2761, pages 308–322, 2003.
- IC-2** Blaise Genest, Anca Muscholl, Helmut Seidl, and Marc Zeitoun. Infinite-state high-level MSCs : Model-checking and Realizability. In *29th International Colloquium on Automata, Languages and Programming (ICALP'02, track B)*, volume LNCS 2380, pages 657–668, 2002.
- IC-1** Blaise Genest, and Anca Mushcoll. Pattern Matching and Membership for Hierarchical Message Sequence Charts. In *Theoretical Informatics, 5th Latin American Symposium (LATIN'02)*, volume 2286, pages 326–340, 2002.