

Florent Avellaneda

Researcher

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Education

2010
2013

PhD, *Laboratoire d'Informatique Fondamentale de Marseille*, Aix-Marseille University.

Subject: Checking Petri Nets with States Under Partial Order Semantics

2008
2010

Master's Degree in Computer Science, *Aix-Marseille University*, (valedictorian).

Specialization in algorithmic and machine learning

2005
2008

Bachelor's Degree in Computer Science, *Aix-Marseille University*, (valedictorian).

Professional Experience

2020

Researcher, *Computer Research Institute of Montréal*.

2015
2020

Postdoctoral, *Computer Research Institute of Montréal*.

- Subject: Automating Change Impact Analysis in Integration and Testing
- Subject: Advanced Technology Work Testing and Verification of Machine Learning/AI Based Systems
- Subject: Industrial-grade Verification & Validation of Evolving Systems

2014
2015

Postdoctoral, *IRIT and LAAS-CNRS*, Toulouse.

- Subject: Formal Contracts for a Component-Based Specification Language

2013
2014

Teaching and Research Assistant (ATER), *Aix-Marseille University*.

- In charge of the teaching unit: **Object-oriented programming project**
 - Bachelor 3, 18 students
- In charge of practical work for the teaching unit: **Complexity**
 - Master 1, 60 students

2010
2013

Teaching Assistant (moniteur), *Aix-Marseille University*.

- In charge of the teaching unit: **Object-oriented programming project**
 - Bachelor 3, 18 students
- Chargé de TD et TP pour l'UE **Architecture des ordinateurs**
 - Bachelor 2, 15 students
- Chargé de TP pour l'UE **Introduction informatique et programmation**
 - Bachelor 1, 25 students

Journal Publications

2019

Alexandre Petrenko, Florent Avellaneda, Roland Groz, and Catherine Oriat. "FSM inference and checking sequence construction are two sides of the same coin". In: *Software Quality Journal* 27.2, pp. 651–674.

2015

Florent Avellaneda and Rémi Morin. "Catching a Structural Bug with a Flower". In: *Fundamenta Informaticae* 140.1, pp. 61–87.

Conference Publications

2020

Florent Avellaneda. "Efficient Inference of Optimal Decision Trees". In: *The Thirty-Fourth AAAI Conference on Artificial Intelligence, AAAI 2020, The Thirty-First Innovative Applications of Artificial Intelligence Conference, IAAI 2020, The Ninth AAAI Symposium on Educational Advances in Artificial Intelligence, EAAI 2020, New York*. AAAI Press.

2019

Alexandre Petrenko and Florent Avellaneda. "Learning and Adaptive Testing of Non-deterministic State Machines". In: *19th IEEE International Conference on Software Quality, Reliability and Security, QRS 2019, Sofia, Bulgaria, July 22-26, 2019*. IEEE, pp. 362–373.

2019

Alexandre Petrenko and Florent Avellaneda. "Learning Communicating State Machines". In: *Tests and Proofs - 13th International Conference, TAP 2019, Held as Part of the Third World Congress on Formal Methods 2019, Porto, Portugal, October 9-11, 2019, Proceedings*. Ed. by Dirk Beyer and Chantal Keller. Vol. 11823. Lecture Notes in Computer Science. Springer, pp. 112–128.

2019

Florent Avellaneda, El-Hackemi Alikacem and Femi Jaafar. "Using Attack Pattern for Cyber Attack Attribution". In: *2019 International Conference on Cybersecurity (ICoCSec)*. IEEE, pp. 1–6.

2019

Florent Avellaneda and Alexandre Petrenko. "Learning Minimal DFA: Taking Inspiration from RPN1 to Improve SAT Approach". In: *Software Engineering and Formal Methods - 17th International Conference, SEFM 2019, Oslo, Norway, September 18-20, 2019, Proceedings*. Ed. by Peter Csaba Ölveczky and Gwen Salaün. Vol. 11724. Lecture Notes in Computer Science. Springer, pp. 243–256.

2019

Omer Nguena Timo, Dimitri Prestat, and Florent Avellaneda. "Fault Detection in Timed FSM with Timeouts by SAT-Solving". In: *19th IEEE International Conference on Software Quality, Reliability and Security, QRS 2019, Sofia, Bulgaria, July 22-26, 2019*. IEEE, pp. 326–333.

2018

Alexandre Petrenko and Florent Avellaneda. "Conformance Testing and Inference of Embedded Components". In: *Testing Software and Systems - 30th IFIP WG 6.1 International Conference, ICTSS 2018, Cádiz, Spain, October 1-3, 2018, Proceedings*. Ed. by Inmaculada Medina-Bulo, Mercedes G. Merayo, and Robert M. Hierons. Vol. 11146. Lecture Notes in Computer Science. Springer, pp. 119–134.

2018

Florent Avellaneda and Alexandre Petrenko. "FSM Inference from Long Traces". In: *Formal Methods - 22nd International Symposium, FM 2018, Held as Part of the Federated Logic Conference, FloC 2018, Oxford, UK, July 15-17, 2018, Proceedings*. Ed. by Klaus Havelund, Jan Peleska, Bill Roscoe, and Erik P. de Vink. Vol. 10951. Lecture Notes in Computer Science. Springer, pp. 93–109.

2018

Florent Avellaneda and Alexandre Petrenko. "Inferring DFA without Negative Examples". In: *Proceedings of the 14th International Conference on Grammatical Inference, ICGI 2018, Wrocaw, Poland, September 5-7, 2018*. Ed. by Olgierd Unold, Witold Dyrka, and Wojciech Wieczorek. Vol. 93. Proceedings of Machine Learning Research. PMLR, pp. 17–29.

2017

Alexandre Petrenko, Florent Avellaneda, Roland Groz, and Catherine Oriat. "From Passive to Active FSM Inference via Checking Sequence Construction". In: *Testing Software and Systems - 29th IFIP WG 6.1 International Conference, ICTSS 2017, St. Petersburg, Russia, October 9-11, 2017, Proceedings*. Ed. by Nina Yevtushenko, Ana Rosa Cavalli, and Hüsnü Yenigün. Vol. 10533. Lecture Notes in Computer Science. Springer, pp. 126–141.

2016

Florent Avellaneda, Silvano Dal-Zilio, and Jean-Baptiste Raclet. "Solving Language Equations Using Flanked Automata". In: *Automated Technology for Verification and Analysis - 14th International Symposium, ATVA 2016, Chiba, Japan, October 17-20, 2016, Proceedings*. Ed. by Cyrille Artho, Axel Legay, and Doron Peled. Vol. 9938. Lecture Notes in Computer Science, pp. 106–121.

2014

Florent Avellaneda and Rémi Morin. "Exhibition of a Structural Bug with Wings". In: *Application and Theory of Petri Nets and Concurrency - 35th International Conference, PETRI NETS 2014, Tunis, Tunisia, June 23-27, 2014. Proceedings*. Ed. by Gianfranco Ciardo and Ekkart Kindler. Vol. 8489. Lecture Notes in Computer Science. Springer, pp. 253–272.

2013

Florent Avellaneda and Rémi Morin. "Checking Partial-Order Properties of Vector Addition Systems with States". In: *13th International Conference on Application of Concurrency to System Design, ACSD 2013, Barcelona, Spain, 8-10 July, 2013*. Ed. by Josep Carmona, Mihai T. Lazarescu, and Marta Pietkiewicz-Koutny. IEEE Computer Society, pp. 100–109.

2011

Florent Avellaneda and Rémi Morin. "Checking Non-divergence, Channel-Bound and Global Cooperation Using SAT-Solvers". In: *11th International Conference on Application of Concurrency to System Design, ACSD 2011, Newcastle Upon Tyne, UK, 20-24 June, 2011*. Ed. by Benot Caillaud, Josep Carmona, and Kunihiko Hiraiishi. IEEE Computer Society, pp. 19–28.

Workshops Publications

2019

Florent Avellaneda. *Learning Optimal Decision Trees from Large Datasets*. The third edition of "Learning and Automata" (LearnAut 2019). arXiv: 1904.06314.

2011

Florent Avellaneda and Rémi Morin. *Vector addition systems with states vs. Petri nets*. Foundations of Software Technology and Theoretical Computer Science (DOTS 2011).

Thesis

2013

Florent Avellaneda. "Vérification de réseaux de Pétri avec états sous une sémantique d'ordres partiels". Supervisor: Rémi Morin. PhD thesis. Aix-Marseille Université.

2010

Florent Avellaneda. "Divergence et dimensionnement de protocoles de communication". Supervisor: Rémi Morin. MA thesis. Aix-Marseille Université.

Reviews

2020

Machine Learning, *Journal*, Springer.

2018
2020

FM, *World Congress on Formal Methods*.
7 reviews

2018
2020

QRS, *International Conference on Software Quality, Reliability and Security*.
7 reviews

2020

Formal Aspects of Computing, *Journal*, Springer.

2020

TAP, *International Conference on Tests & Proofs*.

2020

ToCaMS, *Workshop on Testing of Configurable and Multi-variant Systems*.

2019

Science of Computer Programming, *Journal*, Elsevier.

2018

ICTSS, *International Conference on Testing Software and Systems*.

2018

TAP, *International Conference on Tests & Proofs*.

2015

FAC, *Formalisation des activités concurrentes*.

2014

SAT, *International Conference on Theory and Applications of Satisfiability Testing*.

Conference Presentations

- 2020 **AAAI**, *The AAAI Conference on Artificial Intelligence*, New York.
- 2019 **SEFM**, *Software Engineering and Formal Methods*, Oslo.
- 2018 **FM**, *International Symposium on Formal Methods*, Oxford.
- 2018 **ICGI**, *International Conference on Grammatical Inference*, Wrocaw.
- 2016 **ATVA**, *International Symposium on Automated Technology for Verification and Analysis*, Japan.
- 2014 **Petri Nets**, *Application and Theory of Petri Nets and Concurrency*, Tunis.
- 2013 **ACSD**, *International Conference on Application of Concurrency to System Design*, Barcelona.
- 2012 **MOVEP**, *International Winter School on MOdelling and VErifying parallel Processes*, Marseille.
- 2011 **ACSD**, *International Conference on Application of Concurrency to System Design*, Newcastle.
- 2010 **DOTS**, *Distributed Open Timed Systems*, Paris.

Languages

French **Native**

Mother Tongue

English **Working proficiency**

Daily practice, all work performed in English