

# František Blahoudek



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## *Curriculum Vitae*

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| PERSONAL DATA<br>AND CONTACT<br>INFORMATION | <i>Date of Birth:</i> August 30, 1986<br><i>Phone:</i> +420 602 610 417<br><i>E-mail:</i> frantisek.blahoudek@gmail.com   | Botanická 68a, room C415<br>602 00 Brno<br>Czech Republic |
| ACADEMIC<br>POSITIONS                       | <b>Faculty of Informatics, Masaryk University, Brno, Czech Republic:</b><br><br><b>Research and development worker</b> Sep. 2014 – Sep. 2017  |   |
| EDUCATION                                   | <b>Faculty of Informatics, Masaryk University, Brno, Czech Republic:</b><br><br><b>Doctoral Degree Program (Ph.D.)</b> 2012 – present <ul style="list-style-type: none"><li><i>Thesis:</i> <b>Automata for Formal Methods: Little Steps Towards Perfection</b></li><li><i>Advisor:</i> Jan Strejček</li><li><i>Reviewers:</i> Orna Kupferman and Christel Baier</li><li><i>Advisor until 2013:</i> Mojmír Křetínský</li><li><i>Defense:</i> expected in June/July 2018</li></ul><br><b>Doctoral Degree (RNDr.)</b> in Informatics 2015 <ul style="list-style-type: none"><li><i>Thesis:</i> LTL and <math>\omega</math>-automata</li></ul><br><b>Master Degree (Mgr.)</b> in Informatics 2012 <ul style="list-style-type: none"><li><i>Master thesis:</i> Translation of an LTL fragment to deterministic Rabin and Streett automata</li></ul><br><b>Bachelor Degree (Bc.)</b> in Applied Informatics 2009 <ul style="list-style-type: none"><li><i>Bachelor thesis:</i> Tools for Automated Heap Analysis (in Czech)</li></ul> |   |
| RESEARCH<br>INTERESTS                       | <b>Formal Verification:</b> <ul style="list-style-type: none"><li>translations of LTL into automata</li><li><math>\omega</math>-automata, games</li><li>model checking, probabilistic model checking</li><li>program analysis (static analysis, shape analysis)</li></ul>   |   |
| PROJECTS AND<br>TOOLS                       | <b>LTL and <math>\omega</math>-Automata</b><br><br><b>LTL3DRA:</b> Translation of LTL\GUX into deterministic automata<br><br><b>HOAF:</b> Format for exchanging $\omega$ -automata<br><br><b>LTL3TELA:</b> Translation of LTL to transition-based Emerson-Lei automata<br><br><b>Seminator:</b> Semi-determinization of generalized Büchi automata  |   |
| INVITED TALKS                               | <b>IST Austria</b><br><br><b>RiSE Seminar</b> June 2017 <ul style="list-style-type: none"><li><i>Title:</i> Advances in <math>\omega</math>-Automata for Formal Methods</li></ul>   |   |

**Conference Proceedings:**

František Blahoudek, Alexandre Duret-Lutz, Mikuláš Klokočka, Mojmír Křetínský, and Jan Strejček. “**Seminator: A Tool for Semi-Determinization of Omega-Automata**”. In: *Proceedings of the 21st International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-21)*. EPiC Series in Computing (vol. 46), 2017.

František Blahoudek, Matthias Heizmann, Sven Schewe, Jan Strejček, and Ming-Hsien Tsai. “**Complementing Semi-deterministic Büchi Automata**”. In: *Proceedings of the 22nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS’16)*. Lecture Notes in Computer Science (vol. 9636), 2016.

Tomáš Babiak, František Blahoudek, Alexandre Duret-Lutz, Joachim Klein, Jan Křetínský, David Müller, David Parker, and Jan Strejček. “**The Hanoi Omega-Automata Format**”. In: *Proceedings of the 27th International Conference on Computer Aided Verification (CAV’15)*, part I. Lecture Notes in Computer Science (vol. 9206), 2015.

František Blahoudek, Alexandre Duret-Lutz, Vojtěch Rujbr, and Jan Strejček. “**On Refinement of Büchi Automata for Explicit Model Checking**”. In: *Proceedings of 22nd International SPIN Symposium on Model Checking of Software (SPIN’15)*. Lecture Notes in Computer Science (vol. 9232), 2015.

František Blahoudek, Alexandre Duret-Lutz, Mojmír Křetínský, and Jan Strejček. “**Is there a Best Büchi Automaton for Explicit Model Checking?**” In: *Proceedings of 21st International SPIN Symposium on Model Checking of Software (SPIN’14)*. 2014.

Tomáš Babiak, František Blahoudek, Mojmír Křetínský, and Jan Strejček. “**Effective Translation of LTL to Deterministic Rabin Automata: Beyond the (F, G)-Fragment**”. In: *Proceedings of the 11th International Symposium on Automated Technology for Verification and Analysis (ATVA’13)*. Lecture Notes in Computer Science (vol. 8172), 2013.

František Blahoudek, Mojmír Křetínský, and Jan Strejček. “**Comparison of LTL to Deterministic Rabin Automata Translators**”. In: *Proceedings of the 19th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR-19)*. Lecture Notes in Computer Science (vol. 8312), 2013.

RESEARCH STAYS    **Alexandre Durt-Lutz, LRDE laboratory, Epita, Kremlin-Bicêtre, France**

- nine days June 2015
- nine days May 2014

SUPERVISED STUDENTS    **Master students**

**Juraj Major**

- Translation of LTL into Automata with Generic Acceptance Condition.
- Dean’s prize

TEACHING EXPERIENCE

**Faculty of Informatics, Masaryk University, Brno, Czech Republic**

- TeachingLab 2016 – 2017
- Algorithms and Data Structures 2015 – 2017
- Automata, Grammars, and Complexity 2013 – 2017
- Selected Chapters of Automata Theory 2013 – 2014
  - for students with hearing disabilities 2014
- Formal Languages and Automata 2013 – 2014
- Automata and Grammars 2008 – 2012