Dimiter Milushev, PhD, MBA **Curriculum vitæ** **October 2015**

Contact Information

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Date of Birth 14 May 1981

Nationality Bulgarian, Belgian

Research Interests

Application of formal methods, in particular logics and languages, for the formal specification and verification of rich, security-relevant policies. Interest in both static analysis and runtime verification.

Strong interest in the application of state-of-the-art machine learning techniques, especially neural networks and random forests, to bioinformatics and security problems. Special interest in the application of machine learning to the analysis of transcriptomics data.

Education

KU Leuven, Leuven, Belgium **October 2008 – June 2013**

PhD in Computer Science

- Thesis title: *Reasoning about Hyperproperties*
- Advisor: prof. Dave Clarke
- Area of study: Formal verification of security-relevant policies

Hamburg University of Technology, Hamburg, Germany
October 2004 – September 2007

MS in Information and Media Technology, GPA 1.7, September 2007

- Thesis title: *Public Key Infrastructure for Wireless Systems*
- Advisor: prof. Dieter Gollmann
- Area of study: IT Security technology

Northern Institute of Technology Management, Hamburg, Germany
October 2004 – September 2007

MBA in Technology Management, GPA 1.9, September 2007

- Major subjects: Project Management, Innovations Management, Strategy, Finance, Marketing, International Law, Intellectual Property Rights Law.

Linfield College, Oregon, USA **August 2000 – May 2003**

BS, Double Degree in Computer Science and Mathematics, GPA 3.91/4.0, May 2003

- Award: *Outstanding Graduating Senior in Computer Science Award (in association with the Software Association of Oregon)*

Conference Articles

Minh Ngo, Fabio Massacci, Dimiter Milushev Frank Piessens. Runtime enforcement of security policies on black box reactive programs. Proceedings of the *42nd Symposium on Principles of Programming Languages*, 15 – 17 January 2015. Mumbai, India.

Dimiter Milushev and Dave Clarke. Incremental hyperproperty model checking via games. Proceedings of the *18th Nordic Conference on Secure IT Systems*, 18 – 21 October 2013. Ilulissat, Greenland.

Dimiter Milushev and Dave Clarke. Towards incrementalization of holistic hyperproperties. Proceedings of the *First international conference on Principles of Security and Trust*, 24 March – 1 April 2012. Tallinn, Estonia.

Dimiter Milushev, Wim Beck and Dave Clarke. Noninterference via symbolic execution. Proceedings of *FMOODS & FORTE 2012*, 13 – 16 June 2012. Stockholm, Sweden.

Dimiter Milushev and Dave Clarke. Coinductive unwinding of security-relevant hyperproperties. Proceedings of the *17th Nordic Conference on Secure IT Systems*, 31 October – 2 November 2012. Karlskrona, Sweden.

Journal Articles

Gamze Ates, Giuseppa Raitano, Melissa Van Bossuyt, Philippe Vanparys, Birgit Mertens, Christophe Chesne, Alessandra Roncaglioni, Dimiter Milushev, Emilio Benfenati, Vera Rogiers, Tatyana Y. Doktorova. In silico tools and transcriptomics analyses in the mutagenicity assessment of cosmetic ingredients: adding weight to the evidence? *Submitted to Mutagenesis (under revision).*

Teaching Experience

KU Leuven, Leuven, Belgium

Teaching Assistant **February 2012 to June 2012**
February 2011 to June 2011
February 2010 to June 2010

- Fundamentals for Computer Science (Introduction to the Theory of Computation)
  - Assisted the exercise sessions.
  - Graded the course project.

Teaching Assistant **February 2012 to June 2012**

- Object oriented programming
  - Provided consultations to groups of students regarding a Java programming project.

Teaching Assistant **October 2011 to January 2012**
October 2012 to January 2013

- Comparative Programming Languages
  - Developed and delivered an assignment for programming in Ruby.
  - Assisted exercise sessons on C, Ruby and Racket programming.

Teaching Assistant **October 2014 to January 2015**

- Introduction to Programming (Python)

Linfield College, McMinnville, Oregon, USA

Teaching Assistant **August 2002 to January 2003**

- Database Management Systems
  - Assisted the exercise sessions.

- Graded the course projects.
- Advised student on course projects.

Teaching Assistant **January 2003 to June 2003**

- Advanced Database Systems
  - Assisted the exercise sessions.
  - Graded the course projects.
  - Advised student on course projects.

Professional and Academic Experience

KU Leuven, Leuven, Belgium **June 2013 – June 2015**

Post Doctoral Researcher

- Proposed runtime enforcement techniques of security policies on blackbox reactive programs.
- Applied machine learning techniques for automating classification of websites, as well as classifying the malware malicious sites drop.
- Surveyed access control models in Software as a Service (Cloud) applications.
- Participated in writing European and local research project applications.

KU Leuven, Leuven, Belgium **October 2008 – June 2013**

Researcher

- Developed logical languages for specification of rich security policies.
- Proposed new techniques for specification and verification of security policies.
- Developed game-based techniques for verification of systems.
- Participated in teaching, preparing assignments and grading various courses.
- Proposed thesis topics, supervised and evaluated the final performance of master thesis students.

Sal. Oppenheim, Frankfurt, Germany

IT-Consultant/Developer **January 2008 – September 2008**

- Integrated C++ libraries for the trading system Imagine.
- Performed development work on an existent cluster framework in the software system Symphony.
- Implemented pricing models for trading with exotic derivatives.
- Developed and executed technical test concepts for derivative trading.
- Performed technical benchmarks of financial instruments in the field of stock derivatives.

Airbus, Finkenwerder, Germany

Master Thesis Student **February 2007 – August 2007**

- Analyzed the state of the art w.r.t. authentication and authorization in wireless networks by using a Public Key Infrastructure (PKI).
- Studied the 802.11i standard, a security framework for authentication, based on 802.1X and EAP-based methods.

- Proposed a new PKI exclusively for authentication and authorization of wireless devices, taking into account the Airbus-specific limitations.
- Main features of the proposal: automatic certificate enrollment and deployment, utilization of the directory as an RA, automatic certificate renewal and superseding.
- Thesis Title: "Public Key Infrastructure for Wireless Systems".

Linfield College Campus Security Department, McMinnville, Oregon, USA

Intern **September 2001 – March 2002**

- Performed planning, analysis, design, implementation, testing and maintenance of a relational database.
- Used Microsoft Access and Visual Basic6.

Academic Activities

External reviewer for CSF 2015, POST 2014, ESOP 2012, Coordination 2010, Coordination 2009.

Schools attended

Oregon Programming Languages Summer School **July 2010**
University of Oregon, Eugene, OR, USA

Summer School Marktoberdorf 2009 **August 2009**
Marktoberdorf, Germany

Technical Skills

Programming Languages: C++, Python, Java, Haskell, R, SQL, PL/SQL.

Security: AAA-infrastructure (RADIUS, Diameter), PKI, 802.11i, 802.1X, EAP-based methods, IPS/IDS.

Machine Learning: Linear regression, logistic regression, neural networks, SVM, decision trees, random forests.

Machine Learning Tools: R-Studio, Weka, MATLAB (Octave), Apache Spark, scikit-learn library, Theano.

Databases: Oracle Server, Microsoft SQL Server, MySQL

NoSQL storage systems: Hadoop, BigTable.

Operating Systems: MacOS, Linux, Windows.

Certificates

- ITIL v3 Foundation Certificate in IT Service Management
- Mathfinance: Introduction to Monte Carlo methods and C++ in Financial Engineering
- Machine Learning, Mining Massive Datasets, R Programming (Coursera)

- Introduction to Big Data with Apache Spark, Scalable Machine Learning (edX)
- Oracle Server 8i and 9i: 2 Exams for Oracle Certified Professional Track

Language Skills Bulgarian (native), English (fluent), German (very good, passed Goethe Institute's Zentrale Oberstufenprfung), Dutch (basic), French (basic).

Hobbies Photography, Guitar, Hiking.

References

Dave Clarke
Associate Professor, KU Leuven and Uppsala University
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Alexandra Silva
Assossiate Professor, University College London
alexandra.silva@ucl.ac.uk

Dieter Gollmann
Associate Professor, Technische Universität Hamburg-Harburg
diego@tuhh.de

Martin Dwomoh-Tweneboah
Associate Professor, Linfield College
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