

# Curriculum Vitae of Andrea Morichetta



## Personal information

Surname(s) / First name(s)

Email(s)

Nationality(-ies)

Gender

Current position

**Andrea Morichetta**

Italian

M

PostDoctoral Research Fellow in Business Process modeling, analysis and implementation in the School of Science and Technology, University of Camerino.

## Education

February 2013 - February 2016

**Ph.D.** in Computer Decision and Systems Science, in the System Modelling and Analysis Group, IMT-Institute for Advanced Studies, Lucca, Italy.

Admitted with full scholarship.

Thesis title: "A Formal Approach to Decision Support on Mobile Cloud Computing Applications".

Final dissertation: 13/7/2016.

Advisor: Rocco De Nicola, Co-Advisor: Francesco Tiezzi.

November 2014 - April 2015

**Guest researcher at Department of Computer Science University of Aalborg.**

In 2014 I spent six months in the Distributed and Embedded Systems Unit at the Department of Computer Science at Aalborg University. Under the supervision of Prof. Kim G. Larsen.

The research activity was focused on the definition of a new verification techniques used for decision support in Mobile Cloud Computing Systems. The decision support was based on exploiting a series of techniques from the real-time model checker UPPAAL. The main result for finding an infinite scheduling strategy to be used for the decision support, was obtained using a so-called cost/horizon method. Other approaches was developed using the statistical model checker and a new verification extension called STRATEGO devoted to solve optimization problems.

March 2011 - June2011

**Erasmus Period**, University of Iceland

The research activity focused on implementing and testing a machine learning method such as Gaussian Mixture Models in the Speaker recognition field.

2009 - 2011

**Master's Degree** in Computer Science, University di Camerino, Italy

Final dissertation on "Run-Time fault forecast for evolving software systems".

Supervised by Professor Andrea Polini

110/110 cum laude

2006 - 2009

**Bachelor's Degree** in Computer Science, University di Camerino, Italy

Thesis title: "Progetto ed implementazione dell'interfaccia Web di Tourist in Palm".

Supervised by Professor Andrea Polini

107/110

## Professional experiences

January 2017 - Now

**PostDoctoral Researcher** in the School of Science and Technology, University of Camerino. The research activity is focused on "Business Process modeling, analysis and implementation".

April 2016 - December 2016

**Research Fellow** in the School of Science and Technology, University of Camerino. The research activity is focused on "Mobile Cloud Computing Solutions for Learning".

March 2012 - February 2013

**Research Fellow** in the Software Engineering group at the I.S.T.I. "A. Faedo" CNR Pisa, Italy.  
The research activity funded by the EU project CHOReOS, focused on the development of monitoring techniques for service oriented architectures. The main work consisted on developing a monitoring framework able to validate the run-time behavior of dynamic distributed systems relying on the adequacy of established criteria.

## Teaching Experience

a. y. 2016/2017  
a. y. 2017/2018

**Contract Professor** Course of Business Process Digitalization and Cloud Computing University of Camerino, MSc in Computer Science (6 ETCS Credits)

November 2016 - January 2017

**Lectures** - Course of Informatica (Liceo Scientifico A. Gentili San Ginesio)

February 2016 - June 2016

**Lectures** - Course of Informatica (Liceo Scientifico A. Gentili San Ginesio)

June - July 2015

**External examiner** in the high school final exam

## Research activity

Research Interest

Morichetta's research interest focuses on Mobile Cloud Computing (MCC) and in applying formal verification analysis for demanding applications that run on small mobile devices, as well as consumer electronic devices such as cell phones, tablets etc.. These platforms are limited in compute cycles, storage capacity, and battery energy, making this area a fun and challenging one in which to work.

Seminars and Talks

Morichetta has given several seminars at IMT Institute for Advanced Studies Lucca and he also given some talks titled:

- Specifying and Verifying SCEL programs with SPIN in the ASCENS Project (Modena, IT).
- Decision Support for Mobile Cloud Computing Applications via Model Checking in the IEEE Mobile Cloud Conerence (San Francisco, US)
- A cost/reward method for optimal infinite scheduling in Mobile Cloud Computing in the FACS Conference (Rio de Janeiro, BR)
- Optimal Scheduling for Mobile Cloud Computing Applications via Model Checking in the CINA Project (Civitnova Marche, IT)

## Research Projects

ASCENS Autonomic service-component ensemble, funded by the European Union (2010-2014);

**Role:** I was member of the IMT unit.

## Referee

- International Conference on Software Engineering and Formal Methods (SEFM 2017)
- International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2017)
- International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS 2015)
- ISSN: 2352-2208 Journal of Logical and Algebraic Methods in Programming (JLAMP 2017)

## Developed Software Tools

$C^4$

$C^4$  is a Java tool supporting modelers in automatically check whether a collaboration conforms to a prescribed choreography. This makes transparent to the modeler the use of formal methods, by offering a modern integrated development environment, equipped with conformance facilities for BPMN. The tool integrates the mCRL2 equivalence checker to allow the automatic verification of conformance. The resulting verification component has been wrapped as a publicly available Web service, and easily integrated in any BPMN modeling environment.

$S^3$

<http://pros.unicam.it/s3/>

$S^3$  verifies the correctness of multi-layered BPMN collaboration diagrams in particular with respect to safeness and soundness. The tool is based on a client-server architecture composed by a client, developed in Html/Javascript and embedding the Camunda bpmn.io modeller, and a web-service, developed in Java using the RESTful technology. The web-service contains the core of the system, and has the duty of taking in input the .bpmn representation of a BPMN model and sending back the results of safeness and soundness checks.

MobiCa

<http://pros.unicam.it/mobica/>

MobiCa is a software suite containing two parallel algorithms for supporting offloading decision at runtime. Considering the mobile characteristics and the application requirements, the tool permit to optimize the global system performance providing an optimal offloading strategy to be followed during the application execution.

## Personal skills and competences

Mother tongue(s)

*Self-assessment  
European level<sup>(\*)</sup>*

**English**

Social skills and competences

## Italian

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	C1	C1	C1

<sup>(\*)</sup> Common European Framework of Reference (CEF) level

During the university period and working period Morichetta enhanced good social skills and competences derived by several working group and interactions with expertises of other research fields.

## Technical skills and competences

Good knowledge of: Java and related technologies (Servlet, JSP, GWT, . . . );  
Web Services and related technologies (HTML, XML, XSD, DTD, SOAP, WSDL, WS-BPEL, BPMN, . . . );  
Mobile technologies (Android, FirefoxOS, . . . )  
Web Server (Axis, Tomcat, IIS, . . . )  
Programming languages HTML, CSS, DOT.NET, OSGI(Equinox), Drools, C, C++, SQL, PHP, Pascal, Matlab;  
Operative systems: Windows, Linux and Mac OS X  
Formal verification, Model checking, UPPAAL, mCRL2, CADP  
Mobile Cloud Computing DSL XText, MobiCa  
IC3  
Camunda, Activiti, JBPM.

## Driving licence(s)

A, B

## Publications

### References

- [1] Luca Aceto, Kim G. Larsen, Andrea Morichetta, and Francesco Tiezzi.  
A cost/reward method for optimal infinite scheduling in mobile cloud computing.  
In *Formal Aspects of Component Software - 12th International Conference, FACS 2015, Niterói, Brazil, October 14-16, 2015, Revised Selected Papers*, pages 66–85, 2015.
- [2] Luca Aceto, Andrea Morichetta, and Francesco Tiezzi.  
Decision support for mobile cloud computing applications via model checking.  
In *3rd IEEE International Conference on Mobile Cloud Computing, Services, and Engineering, MobileCloud 2015, San Francisco, CA, USA, March 30 - April 3, 2015*, pages 199–204, 2015.
- [3] Antonia Bertolino, Eda Marchetti, and Andrea Morichetta.  
Adequate monitoring of service compositions.  
In *Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, ESEC/FSE'13, Saint Petersburg, Russian Federation, August 18-26, 2013*, pages 59–69, 2013.
- [4] Rocco De Nicola, Diego Latella, Alberto Lluch-Lafuente, Michele Loreti, Andrea Margheri, Mieke Massink, Andrea Morichetta, Rosario Pugliese, Francesco Tiezzi, and Andrea Vandin.  
The SCEL language: Design, implementation, verification.  
In *Software Engineering for Collective Autonomic Systems - The ASCENS Approach*, pages 3–71. 2015.
- [5] Rocco De Nicola, Alberto Lluch-Lafuente, Michele Loreti, Andrea Morichetta, Rosario Pugliese, Valerio Senni, and Francesco Tiezzi.  
Programming and verifying component ensembles.  
In *From Programs to Systems. The Systems perspective in Computing - ETAPS Workshop, FPS 2014, in Honor of Joseph Sifakis, Grenoble, France, April 6, 2014. Proceedings*, pages 69–83, 2014.