

# Curriculum of Scientific Activity

## Alessandro Pappalardo

### Biographical Notes

- *Nationality:* Italian
- *Web Site:* [www.alessandropappalardo.it](http://www.alessandropappalardo.it)

### Education and Training

**2007-2010:** PhD student – Applied Mathematics and Computer Science – University of Basilicata

- Supervisor: Prof. Giansalvatore Mecca

**24th October 2006:** Master in Computer Science - University of Basilicata

- Thesis: "A Schema Matching System for Relational Data"
- Grade 110/110 cum lode

**26th October 2004:** Bachelor in Computer Science - University of Basilicata

- Thesis: "Study and prototype development of techniques for semantic search engine"
- Grade 110/110 cum lode

### Research Interests

#### Interoperability Framework

The work in this area began in 2007 during my work as a research assistant at the University of Basilicata. Within the research several results have been produced:

- a classification of "e-Government Interoperability Framework", national standards of various countries around the world for guaranteeing interoperability in e-government service delivery. In this classification an in-depth study about the Italian standard, SPCoop, was conducted;
- a complete and open-source implementation of SPCoop's standards, based on an innovative conceptualization in terms of "Enterprise Integration Patterns";
- an innovative tool for testing large-scale SOA, as SPCoop, and to facilitate the integration of legacy information systems, was designed and developed. Using the tool several SPCoop experimental scenarios have been simulated.

#### Data Integration

The work in this field has started within the Spicy project at the Department of Mathematics and Computer Science of University of Basilicata.

Many tools recently presented in the literature have studied how to derive mappings among data sources, working on “value correspondences”. Each correspondence states that a target attribute semantically corresponds to one or many source attributes. One of the most known mapping generation systems based on “value correspondences” is CLIO, that implements a sophisticated mapping algorithm to generate source to target transformations.

One of the most crucial steps in the transformation process is searching and discovering a set of mappings that can be used to transform source instances into target instances, because the quality of mappings depends strongly on input lines.

### **Document Clustering**

This research activity started during the preparation of my master thesis, and it was developed in the framework of the Noodles project at the Department of Mathematics and Computer Science of Università della Basilicata. Techniques for the automatic classification of Web and desktop documents have been studied. We have developed several innovative techniques to obtain good performances, with respect to: (a) projection of vector space of documents based on Latent Semantic Indexing; (b) selection of projected space dimension; (c) clustering algorithm based on Minimum Spanning Tree.

### **Research Experiences**

- Research assistant: “Studying, Development and Experimentation of Advanced Techniques about Data and Services Integration” (2009 March – Today) – Department of Mathematics and Computer Science – University of Basilicata.
- Research assistant: “Study, definition, prototype construction, testing and evaluation of innovative solutions for application interoperability in e-government environment, within the national project named ICAR” (2007 May – 2008 May) – Department of Mathematics and Computer Science – University of Basilicata.

## University Teaching Experience

- A.A. 2009-2010: Support to lab activities for course “Object Programming 2” – Laurea in Computer Science - University of Basilicata - Italy
- A.A. 2008-2009: Support to lab activities for course “Object Programming 2” – Laurea in Computer Science - University of Basilicata - Italy
- A.A. 2007-2008: Instructor for the course of "Foundations of Computer Science" at the Faculty of Human Sciences - University of Basilicata - Italy
- A.A. 2006-2007: Support to lab activities for course “Web Development Technologies” – Laurea in Computer Science - University of Basilicata - Italy
- A.A. 2006-2007: Support to lab activities for course “Procedural Programming” – Laurea in Computer Science - University of Basilicata - Italy
- A.A. 2006-2007: Support to lab activities for course “DataBase” – Laurea in Computer Science - University of Basilicata - Italy
- A.A. 2005-2006: Tutoring activity for students of Laurea in Computer Science – University of Basilicata – Italy
- A.A. 2005-2006: Supporting to lab activities for course “Web Development Technologies” – Laurea in Computer Science - University of Basilicata - Italy
- A.A. 2004-2005: Tutoring activity for students of Laurea in Computer Science – University of Basilicata – Italy

## Technical Abilities

- **Programming Languages:** Java, C, C++, C#, Visual Basic, Objective-C,
- **Development Frameworks:** Struts, Java Server Faces, Hibernate, NHibernate, Torque
- **DBMS:** PostgreSQL, MySQL, Microsoft SQLServer, DB40, SQLServer Compact, SQLite
- **WebServices :** XML, XSD, XSL, OWL, OWL-S, WSDL, WSAG, SAML
- **Development:**
  - very good development skills of desktop and web applications, both in Java and .NET
  - very good development skills for mobile applications (iPhone, Windows Mobile)

## Publications

- [1] A. Bonifati, G. Mecca, A. Pappalardo, S. Raunich, "The Spicy Project: A New Approach to Data Matching", Italian Symposium on Advanced Database Systems - SEBD 2006, 2006.
- [2] G. Mecca, S. Raunich, A. Pappalardo, "A New Algorithm to Cluster Search Results", Data and Knowledge Engineering, Volume 62, Issue 3, September 2007, Pages 504-522.
- [3] G. Mecca, S. Raunich, A. Pappalardo, "Clustering Web and Desktop Searches", Italian Symposium on Advanced Database Systems - SEBD 2007, pages 422-429.
- [4] G. Mecca, S. Raunich, A. Pappalardo, D. Santoro, "Noodles: A Clustering Engine for the Web", International Conference on Web Engineering (ICWE 2007), Como – Italy, 16-20 July 2007, pages 496-500.
- [5] A. Bonifati, G. Mecca, A. Pappalardo, S. Raunich, G. Summa, "Schema mapping verification: the Spicy way", International Conference on Extending Database Technology (EDBT 2008), Nantes – France, 25-30 March 2008, pages 85-96.
- [6] A. Bonifati, G. Mecca, A. Pappalardo, S. Raunich, G. Summa, "The Spicy System: Towards a Notion of Mapping Quality", ACM SIGMOD Conference 2008, Vancouver – Canada, 10-12 June 2008, pages 1289-1294.
- [7] G. Mecca, A. Pappalardo, S. Raunich, il Gruppo di Sviluppo ICAR, "Soluzioni Infrastrutturali Open Source per il Sistema Pubblico di Cooperazione Applicativa", Italian Symposium on Advanced Database Systems - SEBD 2008.
- [8] M. Carpentieri, A. Pappalardo, D. Sileo, G. Summa, "On Hybrid Genetic Models for Hard Problems", Proceedings of the FUZZ-IEEE2009, 2009 International Conference on Fuzzy Systems, 2009.