

## Curriculum vitae

Andrea Splendiani



**Work:** Rothamsted Research  
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18<sup>th</sup> August, 1973

Nationality: Italian

### Education

- 2006
- **PhD in computer science** at University of Milano-Bicocca (Milano, Italy)
  - PhD thesis: **Integration of ontologies and high-throughput data in bioinformatics**
  - Supervisor: Prof. Giancarlo Mauri
  - **DASI '06: Bertinoro PhD school on Data and Service Integration** (Bertinoro, Italy, October 10-15)
- 2004
- **3rd VIPS Advanced School on Computer Vision, Pattern Recognition and Image Processing** (Introduction to Bayesian Inference and Statistical Learning) Verona, Italy, November 15-19
  - **First International School on Biology, Computation and Information** (Mathematical modeling tools for systems biology) Dobbiaco (BZ), Italy, September 19-25
  - **1st International School on Advanced BioMedicine and Bioinformatics** Lipari Island, May 29 - June 5
- 2002
- “Laurea” degree in Information Technology Engineering (Ms equivalent, nominal duration of studies: 5 years + thesis)** at **Politecnico di Milano** (Milano Italy). Marks 96/100.  
Thesis title: **GCDB: An information system for the study of gene expression**  
Focus on: Algebra&Logic, Theoretical computer science, Language and compilers design, Software engineering, Systems theory.
- 1993
- “Maturità scientifica”** degree at Liceo scientifico Temistocle Calzecchi Onesti (Fermo, Italy) 60/60 with special honors

### Professional experience

- 2009- **Senior Bioinformatics Scientist** at Rothamsted Research. Topic: **Data Integration**
- 2007-2008 **Postdoc** on the european project bootstrep ([www.bootstrep.org](http://www.bootstrep.org)). Topic: **bio-ontology** analysis. Located at the **Medical Informatics** Department of the University of Rennes 1 (now INSERM U936)
- 2005-2006 Stagiaire Scientifique in the **Systems Biology Unit** of **Institut Pasteur**, Paris, under the supervision of Benno Schwikowski. (Working on **integration of pathway ontologies information and microarray data analysis**, **Cytoscape**, participation in the **BioPAX** working group)
- 2003- Participation in Leaf Bioscience s.r.l. as founder and CEO (**PI** in the dc-thera NoE). (Leaf Bioscience is an **“open source bioinformatic company”** project. Current turnover is around 100k€. Main projects are [www.biodirectory.it](http://www.biodirectory.it) and the development of a portal/KMS for dendritic cell immunology in Europe, in the context of the EU network of excellence DC-thera ([www.dc-thera.org](http://www.dc-thera.org)).
- 2002-2005 **Research assistant** at university of Milano Bicocca, **Biotechnology and Bioscience dept.** and at **Genopolis** Consortium, under the supervision of Paola Ricciardi-Castagnoli  
Planning, development and maintenance of an internal microarray database/LIMS for dendritic cells transcriptome profiling, that included MAGE support and intuitive context based analysis/browsing interfaces.
- 2001-2002 Consultant at Biopolo srl. IT support and microarray data analysis (Affymetrix service provider)

## Teaching and Tutoring

- 2010 “**Use of semantic web resources for computational biology and bioinformatics**”, scheduled ECCB 2010 (Ghent)  
“**Introduction on Semantic Web based biomedical applications development**”, Italian oncological research network. (March 2010)
- 2009 “**Semantic Web Applicatons and Tools**”, Bioinformatics Italian Society (March 2009)
- 2008 “**Applications of Semantic Web Methodologies and Techniques to Biology and Bioinformatics**”, Reasoning Web 08 Summer School (September 2008)
- 2002-2005 **Tutorials** on microarray databases at the University of Milano-Bicocca, Biotechnology and Bioscience dept. (Master in bioinformatics).  
Tutorials at EMBO courses on functional genomics. “**Microarray databases**” (2003), “**Network based functional annotation**” (2005)
- 2002-2005 **Thesis supervisor** for undergraduate students at the **Computer Science Dept.** University of Milano-Bicocca (2003-2004).

## Projects/Software

- 2008- The DC-Thera Directory. Knowledge management system for immunology.
- 2007- Beat: Framework for ontology alignment and enrichment designed for the bio-domain.
- 2005- **RDFScape: Cytoscape plugin for the integration of ontologies and data analysis** (Java-Jena based, primarily targeted at BioPAX and microarray data) <http://www.bioinformatics.org/rdfscape/>
- 2005- Collaboration with the BioPAX working group.
- 2005 **Cytoscape BioPAX importer plugin** (Protégé OWL-api based) currently available at [www.geocities.com/sergentpenguin](http://www.geocities.com/sergentpenguin)
- 2002- [www.biodirectory.it](http://www.biodirectory.it) Italian biotechnology web directory (java,php,mysql)
- 2001-2005 GenopolisDB **gene expression database** (php, java) (project, development and maintenance) <http://www.bioinformatics.org/genopolisdb/>. Integration with ArrayExpress through an automated MAGE-ML based pipeline.
- Before 2000 Smart3web: Robotic arm simulator over the Internet (VRML, Java, Matlab), SimpleSemCC: Hierarchy of compilers and abstract virtual machine for SimpleSem (Java, JavaCC), Pretty Pascal: (Code formatter/analyzer based on context grammars)

## Professional Skills

- Programming languages C, Java, php (some experience in many other languages). Experience of almost 25 years in programming.
- IT Technologies Basis in a wide range of IT technologies, including unix systems, compiler design, software engineering, database design, knowledge representation, web technologies and Semantic Web related “principles and technologies” (Jena, RDF, OWL).
- Bioinformatics Basics of microarray data analysis, bioinformatic IT systems (pipelines, microarray databases), pathway databases, representation and exchange languages (MAGE, BioPAX), Ontologies (OWL), RDF, Semantic Web. Some specific software internals (Cytoscape). Ontology design.
- Other (Scientific) Basic knowledge of molecular and cell biology. Some notions of immunology. Basics of dynamic modeling/systems theory.
- Other (Business) Experience as a CEO of a small srl (ltd) (negotiations, management of a group of 2-3 people, accounting, FP6 EU projects).

## Language Skills

- Italian (mother tongue)  
English (TOEFL taken in 1996: 623/660)  
*French (some basic knowledge, reading only)*

## Main Awards and Grants

- 2005- DC-Thera Network of Excellence grant for Integration for the development of a knowledge management systems and integration of data analysis open source resources, (awarded to Leaf Bioscience, about 320k€ in 5 years)
- 2005 ESF "Integrated Approaches to Functional Genomics" Exchange Fellowship ("network based analysis of gene expression data")
- 2004 Participation at the project Digital Gate to California after the selection of "Leaf Bioscience" as "innovative company". (met investors, legals and companies in the IT and bioinformatic sector in Silicon Valley).
- 2003 Awarded a financing from "Province of Milan" for new enterprise proposals ("startup, nuove imprese al via 2002" about 30k€)
- 2002-2005 Fellowship at the university of Milano Bicocca for the development of an integrated functional genomics platform

## Professional associations

- 2009- Invited expert, HCLS Interest group, w3c consortium.
- 2005- Member of the "order of engineers" of Milan, civil, information, industrial sectors (no. A24699, admission test completed in 2002)
- 2004-/ Member of the International Immunomics Society
- 2004- Member of the Italian Bioinformatics Society
- 2001- Member of the International Society for Computational Biology

## Academic activities (workshop organization and chair)

2009	<ul style="list-style-type: none"><li>• Nettab (Collaborative Bioinformatics Research and Development) <a href="http://www.nettab.org/2009/">www.nettab.org/2009/</a></li><li>• SWAT4LS (Semantic Web Applications, Tools and Perspectives for Life Sciences) <a href="http://www.swat4ls.org">www.swat4ls.org</a></li></ul>
2008	<ul style="list-style-type: none"><li>• SWAT4LS</li><li>• I-ATLAS (International Workshop on Gene signalling Pathway Analysis and Representation) <a href="http://www.i-atlas.org">www.i-atlas.org</a></li></ul>

## Personal profile

Curious and always willing to learn new subjects. Good problem solving skills, can get easily to the core of problems. Creative, at ease in international environment, good attitude to travel and deal with foreign cultures.

## Objectives

I'm looking for a research position in the area of Semantic Web / Bioinformatics, where I've been focused on pathway ontologies and microarray data for a while. I already have a range of collaborations and projects in this area that I would like to maintain / pursue. I'm interested in projects at the boundary between academia and industry or which have a string applied focus.

## Hobbies

Burning Man, Traveling, Music, Motorcycling

## References

*(e-mails are available upon request)*

- Prof. Paola Ricciardi-Castagnoli, Singapore Immunology Network (SIgN), Singapore (Employer, PhD co-advisor)
- Prof. Giancarlo Mauri, Computer Science Dept., univ. of Milano Bicocca, Italy (PhD advisor)
- Dot. Duccio Cavalieri, Pharmacology Dept., University of Florence, Italy (Pathway analysis advisor)
- Prof. Carlo Ghezzi, Computer Engineering Dept., Politecnico di Milano, Italy (MS Thesis advisor)
- Joanne Luciano Biopathway consortium and Harvard Medical School, USA (Collaboration on BioPAX)
- Benno Schwikowski, Unité de Biologie Systémique, Institut Pasteur (PhD co-advisor)
- Alan Ruttenberg, Science Commons, Boston (Collaboration on BioPAX)

## Publications and communications

### Journal Papers

Albert Burger, Paolo Romano, Adrian Paschke, [Andrea Splendiani](#)

**Semantic Web Application and Tools for Life Sciences, 2008 – Introduction**

BMC Bioinformatics 2009, 10 (S10), S1

E. Beisswanger, V. Lee, Kim JJ, Rebholz-Schumann D, [A. Splendiani](#), O. Dameron, Schulz S, U Hahn.

**The Gene Regulation Ontology (GRO): Design Principles and Use Cases.**

Stud Health Technol Inform. 2008;136:9-14

[Splendiani A](#)

**RDFScape: Semantic Web meets Systems Biology** (selected In IMIA Yearbook of Medical Informatics)

BMC Bioinformatics 2008 Apr 25, 9 (S4):S6

[Splendiani A](#), Brandizi B, Even G, Beretta O, Pavelka N, Pelizzola M, Foti M, Mauri G, Ricciardi-Castagnoli P.

**The Genopolis Microarray Database**

BMC Bioinformatics 2007 Mar 8, 8(Suppl 1):S22

Pavelka N, Pelizzola M, Vizzardelli C, Capozzoli M, [Splendiani A](#), Granucci F, Ricciardi-Castagnoli P.

**A power law global error model for the identification of differentially expressed genes in microarray data.**

BMC Bioinformatics. 2004 Dec 17;5(1):203.

*In submission:*

*Several authors*

**A semantic approach to support collaborative translational research in dendritic cells immunology: The DC-THERA Directory**

*Several authors*

**BioPAX: A community standard for pathway data sharing**

*Several authors*

**DC-ATLAS: Towards System Biology of Signal Transduction Pathways in Dendritic Cells**

### Other publications

Paolo Romano and [Andrea Splendiani](#)

**Applications of Semantic Web Methodologies and Techniques to Biology and Bioinformatics**

(Reasoning Web 08 , Springer LNCS 5224, 2008,VII)

### Relevant communication at conferences and workshops (proceedings)

Marco Brandizi, Michaela Guendel, Ciro Scognamiglio and [Andrea Splendiani](#)

**DC-THERA Directory, a Knowledge Management System for the support of the European Dendritic Cell Immunology Community (demo paper)**

To appear in proceedings of the SWAT4LS workshop, Amsterdam. CEUR Proceedings.

[Andrea Splendiani](#), Martin Kuiper, Chris J Rawlings

**Toward a New Paradigm for User Interaction on the Semantic Web to Support Life Sciences Investigation (position paper)**

In proceedings of the 6<sup>th</sup> International Workshop on Semantic Web User Interaction (SWUI 2009), CEUR-WS Vol. 544

M. Guendel, C. Scognamiglio, M. Brandizi, [A. Splendiani](#)

**The DC-THERA Directory, a Knowledge Management System to support collaboration on Dendritic Cell and Immunology research.**

In proceedings of Nettab 2009: Ninth Annual Workshop Network Tools and Applications in Biology, ISBN 978-88-7388-242-8

[Andrea Splendiani](#)

**Ontology based data analysis.**

Dagstuhl proceedings, 2006. <http://drops.dagstuhl.de/opus/volltexte/2006/474/>

[Andrea Splendiani](#)

**Ontology based analysis of experimental data** (position paper). Uncertainty Reasoning for the Semantic Web Workshop, International Semantic Web Conference, Galway 2005. ISWC-URSW 2005, p102-103

### Editorial activity

Albert Burger, Paolo Romano, Adrian Pashcke and Andrea Splendiani  
**Semantic Web Applications and Tools for Life Sciences, 2008**

BMC Bioinformatics 10 (Suppl. 10), 2009

Paolo Romano, Rosalba Giugno, Alfredo Pulvirenti, Andrea Splendiani, Alfredo Ferro  
**Nettab 2009. Ninth Annual Workshop Network Tools and Applications in Biology (Technologies, Tools and Applications for Collaborative and Social Bioinformatics Research and Development)**  
ed. liberodiscivere, Genova, IT ISBN 978-88-7388-242-8, 2009

### **Recent posters and demos (2009)**

Andrea Splendiani

**Beat and RDFScope: Tools for the manipulation and visualization of ontologies**

ICBO (International Conference on Biomedical Ontologies), Buffalo, 2009.

Andrea Splendiani, Elena Beisswanger, Olivier Dameron, John McNaught, Scott Piao, Sophia Ananiadou, Udo Hahn, Anita Burgun

**Beat: Bio-ontologies enrichment and alignment toolkit**

### **Recent seminars and talks (2009)**

Combined CellML SBGN SBO BioPAX MIASE Workshop, Auckland, 2009: BioPAX for Semantic Web based Data Integration

Seminar in Trondheim NTNU, 2009: Semantic Web Knowledge bases and network-based visualization

BioPAX f2f meeting, NYC, 2009: BioPAX is from Venus, the Semantic Web is from Mars.

BioHackathon Symposium, Tokyo 2010: Visualization and Analysis of Biological Networks on the Semantic Web

### **Activity of reviewer for**

\* Briefings in Bioinformatics

\* MIE (Medical Informatics Europe)

\* BMC Bioinformatics

\* Nettab

\* SWAT4LS (Semantic Web Applications and Tools for Life Sciences)

\* ICMLA (International Conference on Machine Learning and Applications)

### **Relevant conferences and workshops attended**

**ISMB** (Intelligent Systems for Molecular Biology) 2007-2009, 2005-2001

**BioPAX** f2f meetings 2005-2009 (Definition of an ontology for pathway data exchange). New York, Detroit, Tokyo, Cold Spring, Palo Alto. (\*)

**MGED** Meeting (Microarray **Gene Expression Data Society** meeting) 2003, Aix en Provence

**ICSB** (International Conference on Systems Biology) 2002, Stockholm

**NETTAB** (Network standards for bioinformatics) 2001, Genova, (A Semantic Web for Bioinformatics: Goals, Tools, Systems, Applications) 2007, Pisa, 2008 Catania

**NCBO** Workshop Ontologies for Cellular Networks, Newark 2008 (\*)

(\*) oral presentations: **"OWL vs non-OWL validation"** and **"Computing on BioPAX"**