Desiree **MANICARDI**

PhD in "Computer Science and Computational Mathematics"

Varese, Italy
desiree.manicardi@gmail.com
dmanicardi.github.io
desiree-manicardi-25a654168
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Current Position

from 03/2024 **Recognised Researcher**, *University of Insubria*, Como, Italy

- Research Title: "Specifica e analisi delle differenze comportamentali nei sistemi biomedici".
- Project: "MEDICA: Modelling and vErification of alkaptonuria and multiple sclerosis Driven by biomedICAl data" ("MEDICA: Modellazione e verifica dell'alcaptonuria e della sclerosi multipla guidate dai dati").
- See the website *here*.

Research Interests

- Categories.
- Probability.
- Timing formalisms.
- Formalisms for biological systems.

Education

from 11/2020 to 05/2024 **PhD Degree in "Computer Science and Computational Mathematics"**, *University of Insubria*, Varese, Italy

- Thesis (in English): "Formal Models for Biological Systems"
- I focus my research on formal models for biological systems. I started modelling some interesting biological systems such as the Heart system via CospanSpan(Graph), which is a compositional model having mathematical rigor and tailored for modelling large systems. Then, I have been working on a model to formalise a process algebra. It is user-friendly, easy to implement, and tailored for modelling biochemical reaction networks.
- Attended courses:
  - *Advanced Topics in Cryptography*;
  - *Bioinformatics*;
  - *Computational Cognitive Modeling*;
  - *Early design of Internet of Things networks towards real deployment*;
  - *Graph Labelings, Colorings and Their Applications*;
  - *Modeling and Verifying Hybrid Systems*;
  - *Systems, Modelling & Simulations*;
  - *Technologies for processing streaming data pipeline*.
- Camp: "Innovation Camp for PhD Students – Deep Dive Into Innovation and Execution" (03-05/2021).

- Public Ph.D. Scholarship for the best 6 Ph.D. applications for the XXXVI Ph.D. Cycle at the "Computer Science and Computational Science" Ph.D. course, Theoretical and Applied Sciences Department of University of Insubria, October 2020.

from 12/2016 to 07/2018 **Master Degree in Computer Science**, *University of Insubria*, Varese, Italy, *110/110 cum laude*

- Thesis (in Italian): "Modellazione di un Pacemaker Dual Chamber in Span(Graph)".
- Main courses: Computer Engineering, Programming in Java and C, Models of Computation, Models for Biological Systems, Privacy and Security, Artificial Intelligence.
- Six projects.
- Two scholarships.

from 09/2013 to 12/2016 **Bachelor Degree in Computer Science**, *University of Insubria*, Varese, Italy, *101/110*

- Thesis (in Italian): "Progettazione e sviluppo di un'applicazione per il filtraggio di messaggi di Twitter".
- Main courses: Database, Privacy and Security, Coding theory, Programming in Java, Software Design, Web applications.
- Seven projects.
- One scholarship.

Experience

Computer Science

from 11/2017 to 05/2018 **Traineeship**, *University of Insubria*, Como, Italy
Analysis of the Span-Cospan(Graph), focusing on timing.

from 02/2016 to 09/2016 **Traineeship**, *University of Insubria*, Varese, Italy
Design and development of a web application aimed at filtering tweets using Twitter API.

Teaching activities - Didactic support (in Italian)

A.Y. 2021-22 **Tutor for the course "Programmazione"**, *University of Insubria*, Como, Italy

A.Y. 2020-21 **Adjunct Professor for the course "Software Python"**, *University of Turin*, Turin, Italy
In Italian: *Professoressa Universitaria a Contratto*.
See the program *here*.

A.Y. 2020-21 **Assistant for the course "Programmazione"**, *University of Insubria*, Como, Italy

S.Y. 2020-21 **Tutor for the course "Le Basi della Scienza dei Dati"**, *"I Lincei per la Scuola" Foundation*, Milan, Italy

A.Y. 2019-20 **Assistant for the course "Le Basi della Scienza dei Dati"**, *University of Milan-Bicocca*, Milan, Italy

S.Y. 2012-13 **Tutor for the course "Nonni su Internet"**, *Istituto Tecnico Economico Enrico Tosi*, Busto Arsizio, Italy

Miscellaneous

from 12/2018 to 12/2019 **Administrative employee**, *Comune di Olgiate Olona*, Olgiate Olona, Italy

from 07/2012 to 08/2012 **Traineeship**, *Comune di Olgiate Olona*, Olgiate Olona, Italy

Languages

Italian	Native	
English	Upper intermediate	*First Certificate in English (CEFR Level B2)*

Computer Skills

Strenghts

Programming	Java, Python
Database	SQL, NoSQL

Basic-Intermediate

Programming	C, C++, C#, API REST
Environment	Eclipse, Node.js
Web	HTML, PHP, CSS, JavaScript, JSON
Tools	pgAdmin, Node-RED

Certifications

Computer	**Google digital training - Fondamenti di marketing digitale**, *Google*, 06/2020
Science	**Técnicas Cuantitativas y Cualitativas para la Investigación**, *EdX, Universidad Politécnica de Valencia*, 01/2019
	Data Access in C# and .NET Core, *EdX, Microsoft*, 09/2018
	Asynchronous Programming with Javascript, *EdX, Microsoft*, 08/2018
	Introduction to Python: Absolute Beginner, *EdX, Microsoft*, 08/2018

Architetture orientate ai servizi, *University of Insubria*, 06/2018
Sistemi organizzativi a rete, *University of Insubria*, 06/2018

Mathematics **IGCSE Mathematics Extended**, *University of Cambridge*, 06/2013
IGCSE Mathematics Core, *University of Cambridge*, 06/2012

Publications

[1] Alessandro Gianola, Stefano Kasangian, Desiree Manicardi, Nicoletta Sabadini, Filippo Schiavio, and Simone Tini. Cospanspan(graph): A compositional description of the heart system. *FUNDAMENTA INFORMATICAE*, 171:221–237, 2019.

[2] Alessandro Gianola, Stefano Kasangian, Desiree Manicardi, Nicoletta Sabadini, and Simone Tini. Compositional modeling of biological systems in cospanspan (graph)(extended version). Technical report, Technical report, https://gianola. people. unibz. it, 2020.

[3] Alessandro Gianola, Stefano Kasangian, Desiree Manicardi, Nicoletta Sabadini, and Simone Tini. Compositional modeling of biological systems in cospanspan(graph). In *CEUR Workshop Proceedings*, volume 2756, pages 61–66. CEUR-WS, 2020.

[4] Ruggero Lanotte, Desiree Manicardi, and Simone Tini. Step-by-step robustness for biochemical networks. volume 3587, page 299 – 313, 2023.

[5] Desiree Manicardi. Formal models for biological systems. 2024.

Extra

- Registered in the *Albo dei soggetti accreditati*, University of Milan-Bicocca (2020 – 2021)

Interests

Genealogy Tree I found the information of an ancestor of mine born in 1768.

Cooking I have been cooking as much time as possible since I was in middle school.

Gardening I have had a small garden since 2019.