

# Curriculum vitae

## PERSONAL INFORMATION

<b>Surname</b>	Vitali
<b>Name</b>	Emanuele
<b>Nationality</b>	Italian

## Education and Training

<b>Date (from – to)</b>	September 2012 - September 2015
<b>Name and type of organisation providing education and training</b>	Politecnico di Milano
<b>Duration of the program of study</b>	2
<b>Principal subjects/occupational skills covered</b>	Laurea Magistrale in Engineering of Computing Systems
<b>Title of qualification awarded</b>	Dottore Magistrale
<b>Final mark obtained</b>	109/110

<b>Date (from – to)</b>	September 2009 - September 2012
<b>Name and type of organisation providing education and training</b>	Politecnico di Milano
<b>Duration of the program of study</b>	3
<b>Principal subjects/occupational skills covered</b>	Laurea in Engineering of Computing Systems
<b>Title of qualification awarded</b>	Dottore
<b>Final mark obtained</b>	98/110

<b>Date (from – to)</b>	September 2004 - June 2009
<b>Name and type of organisation providing education and training</b>	Liceo Classico B.Zucchi di Monza
<b>Duration of the program of study</b>	5
<b>Principal subjects/occupational skills covered</b>	High School Diploma (Classical Studies)
<b>Title of qualification awarded</b>	-
<b>Final mark obtained</b>	86/100

## Graduation thesis

<b>Title</b>	Code Transformation in High Level Synthesis for iterative stencils
<b>Language</b>	English
<b>Supervisor</b>	Prof. Fabrizio Ferrandi
<b>Thesis Summary</b>	Scientific applications may be characterized by a high degree of parallelism which make them suitable to be implemented on programmable devices such as Field Programmable Gate Arrays. To automatize the creation of these hardware implementations, High Level Synthesis has been introduced. It consists of a set of methodologies aimed at creating a hardware implementation starting from a high level source code description. Among these methodologies the techniques for the data dependency analysis have a particular relevance. One of them is the polyhedral analysis which allows to identify some possibilities of parallelization inside loops that are due to the presence of the same operations applied to a large amount of data. To achieve this parallelism it is necessary to replicate the operations and to allow parallel accesses to the data. The contribution of this thesis is a methodology for the High Level Synthesis that is able to replicate the parallelizable section of the code, identified by the polyhedral analysis. This goal is reached with a data reorganization that satisfies data dependences, minimizes memory accesses and parallelizes the remaining accesses.

## publications

<b>Author(s) and title</b>	Emanuele Vitali, Davide Gadioli, Gianluca Palermo, Martin Golasowski, Joao Bispo, Pedro Pinto, Jan Martinovic, Katerina Slaninova, Joao MP Cardoso, Cristina Silvano; An Efficient Monte Carlo-based Probabilistic Time-Dependent Routing Calculation Targeting a Server-Side Car Navigation System
<b>Language</b>	English
<b>Publication place</b>	IEEE Transactions on Emerging Topics in Computing
<b>Date of publication</b>	Accepted

<b>Author(s) and title</b>	Emanuele Vitali, Davide Gadioli, Gianluca Palermo, Andrea Beccari, Carlo Cavazzoni, Cristina Silvano; Exploiting OpenMP and OpenACC to accelerate a geometric approach to molecular docking in heterogeneous HPC nodes
<b>Language</b>	English
<b>Publication place</b>	Journal of Supercomputing
<b>Date of publication</b>	Accepted

<b>Author(s) and title</b>	Davide Gadioli, Emanuele Vitali, Gianluca Palermo, Cristina Silvano; mARGOT: a Dynamic Autotuning Framework for Self-aware Approximate Computing
<b>Language</b>	English
<b>Publication place</b>	IEEE Transaction on Computers

<b>Date of publication</b>	November 2018
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<b>Author(s) and title</b>	Emanuele Vitali, Davide Gadioli, Gianluca Palermo, Andrea Beccari, Cristina Silvano; Accelerating a Geometric Approach to Molecular Docking with OpenACC
<b>Language</b>	English
<b>Publication place</b>	PBio 2018
<b>Date of publication</b>	September 2018

<b>Author(s) and title</b>	Davide Gadioli, Ricardo Nobre, Pedro Pinto, Emanuele Vitali, Gianluca Palermo, Joao Cardoso, Cristina Silvano; SOCRATES - A Seamless Online Compiler and System Runtime AutoTuning Framework for Energy-Aware Applications
<b>Language</b>	English
<b>Publication place</b>	Date 2018
<b>Date of publication</b>	March 2018

<b>Author(s) and title</b>	Kim Grüttner, Ralph Görden, Sören Schreiner, Fernando Herrera, Pablo Penil, Julio Medina, Eugenio Villar, Gianluca Palermo, Nima Khalilzad, William Fornaciari, Carlo Brandolese, Davide Gadioli, Emanuele Vitali, Sara Bocchio, Luca Ceva, Paolo Azzoni, Massimo Poncino, Sara Vinco, Enrico Macii, Salvatore Cusenza, John Favaro, Raul Valencia, Ingo Sander, Kathrin Rosvall, Davide Quaglia; CONTREX: Design of embedded mixed-criticality CONTROL systems under consideration of EXtra-functional properties
<b>Language</b>	English
<b>Publication place</b>	Microprocessors and Microsystems
<b>Date of publication</b>	2017

<b>Author(s) and title</b>	Emanuele Vitali, Gianluca Palermo; Early Stage Interference Checking for Automatic Design Space Exploration of Mixed Critical Systems
<b>Language</b>	English
<b>Publication place</b>	RAPIDO 2017
<b>Date of publication</b>	25/01/2017

### Certifications

<b>Certifications of language knowledge</b>	Language: English, Certificate: TOEIC ,Date Exam: 12/09/2012, Score: 960.0
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### Work experience, stages, studies abroad

<b>Date (from – to)</b>	May 2017 – Today
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<b>Name and address of firm/university</b>	Politecnico di Milano
<b>Type of business or sector</b>	Research
<b>Type of employment</b>	PhD Student
<b>Main activities and responsibilities</b>	Research of strategies for Dynamic Autotuning in applications for High Performance Computing. Exploring possibilities for exploit of heterogeneous platforms.

<b>Date (from – to)</b>	January 2019 – February 2019
<b>Name and address of firm/university</b>	Politecnico di Milano
<b>Type of business or sector</b>	Teaching
<b>Type of employment</b>	Tutor
<b>Main activities and responsibilities</b>	Tutor for course “Informatica”, prof. Miele

<b>Date (from – to)</b>	October 2018 – December 2018
<b>Name and address of firm/university</b>	Politecnico di Milano
<b>Type of business or sector</b>	Teaching
<b>Type of employment</b>	Teaching Assistant
<b>Main activities and responsibilities</b>	Teaching Assistant for course “Informatica”, prof. Miele

<b>Date (from – to)</b>	October 2017 – December 2017
<b>Name and address of firm/university</b>	Politecnico di Milano
<b>Type of business or sector</b>	Teaching
<b>Type of employment</b>	Teaching Assistant
<b>Main activities and responsibilities</b>	Teaching Assistant for course “Computing Systems for Engineering Physics”, prof. Palermo

<b>Date (from – to)</b>	November 2017 – February 2018
<b>Name and address of firm/university</b>	Politecnico di Milano
<b>Type of business or sector</b>	Teaching
<b>Type of employment</b>	Tutor
<b>Main activities and responsibilities</b>	Tutor for course “Prova Finale - Reti Logiche”

<b>Date (from – to)</b>	December 2015 – April 2017
<b>Name and address of firm/university</b>	Politecnico di Milano

<b>Type of business or sector</b>	Reasearch
<b>Type of employment</b>	Research Fellow
<b>Main activities and responsibilities</b>	Analysis of dependencies in mixed-critical systems, creation of model and tool for automatic verification of absence of dependencies. Research of strategies for Dynamic Autotuning in applications for High Performance Computing.

<b>Date (from – to)</b>	October 2015 – December 2015
<b>Name and address of firm/university</b>	Politecnico di Milano
<b>Type of business or sector</b>	Research
<b>Type of employment</b>	-
<b>Main activities and responsibilities</b>	Analysis of dependencies in mixed-critical systems, creation of model.

### Personal skills and competences

Acquired in the course of life and career but not necessarily evidenced by formal certificates and diplomas.

<b>Mother tongue</b>	Italian
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### Other language(s)

	English
<b>reading</b>	Good
<b>writing</b>	Good
<b>speaking</b>	Good

<b>Technical skills and competences</b> With computers, specific kinds of equipment, machinery, etc.	<p>Good Knowledge of C, C++, python, bash languages.</p> <p>Good Knowledge of Linux OS.</p> <p>Familiarity with Microsoft Windows and Office (Word, Excel, Power Point)</p> <p>I have experience with programming GPUs (with OpenACC language), parallel programming (MPI and OpenMP).</p> <p>I have small experience with FPGA programming with High Level Synthesis with Vivado Toolchain (SDAccel)</p>
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