Personal information

Surname(s) / First name(s)	**Michele, Zanella**
Email(s)	michele.zanella@polimi.it
Homepage	zanella.faculty.polimi.it/
Date of birth	09/01/1991

Education

Place and Date	Politecnico di Milano, 27/01/2022
Title of qualification awarded	PhD in Information Technology
Place and Date	Politecnico di Milano, 28/04/2017
Title of qualification awarded	Master Degree in Computer Science and Engineering
Grade	110/110 cum Laude
Place and Date	Politecnico di Milano, 30/09/2014
Title of qualification awarded	Bachelor Degree in Engineering in Computing Systems
Grade	95/110
Place and Date	Civica Scuola di Musica Claudio Abbado, Milan, 05/12/2022
Title of qualification awarded	Bachelor of Music in Organ Performance and Composition
Grade	110/110
Place and Date	Università Cattolica del Sacro Cuore, Milan, AY 2010/2011
Title of qualification awarded	One year study in Psychological Science and Techniques
Average Marks	28/30
Place and Date	Istituto di Istruzione Superiore Marie Curie, Tradate, 2005 – 2010
Title of qualification awarded	Scientific High School/Liceo Diploma
Grade	86/100

Training

Place and Date	University of Illinois at Urbana-Champaign on Coursera Online, February 2017
Certificate	Cloud Computing Applications, Part 1: Cloud Systems and Infrastructure.

Teaching experience

Date	November 2021 - present
Occupation or position held	Math, Physics and Informatics Teacher
Company	Licei (High school) Istituto Gonzaga, Milan
Date	February 2021 - present

Occupation or position held	Teaching Assistant for the "Digital Technologies" (Tecnologie Digitali) course of the Management and Production Engineering (Ingegneria Gestionale) bachelor degree programme
Company	DEIB, Politecnico di Milano
Date	February 2021 - present
Occupation or position held	Adjunct Professor for the "Music Notation Software" (Videoscrittura musicale) course
Company	Archdiocese of Milan
Date	September 2020 - present
Occupation or position held	Teaching Assistant for the "Fundamentals of Computer Science" (Informatica A) course of the Management and Production Engineering (Ingegneria Gestionale) bachelor degree programme
Company	DEIB, Politecnico di Milano
Date	September 2017 - December 2019
Occupation or position held	Laboratory Teaching Assistant for the "Fundamentals of Computer Science" (Informatica A) course of the Management and Production Engineering (Ingegneria Gestionale) bachelor degree programme
Company	DEIB, Politecnico di Milano
Date	September 2017 - December 2019
Occupation or position held	Teaching Assistant for the "Information Systems" (Sistemi Informativi) course of the Management and Production Engineering (Ingegneria Gestionale) bachelor degree programme
Company	DEIB, Politecnico di Milano
Date	May 2019 - June 2019
Occupation or position held	Laboratory Teaching Assistant for the "Informatics" (Informatica) course of the Aerospace Engineering (Ingegneria Aerospaziale) bachelor degree programme
Company	DEIB, Politecnico di Milano
Date	March 2018 - June 2018
Occupation or position held	Laboratory Teaching Assistant for the "Computer Science and Elements of Medical Informatics" (Informatica ed Elementi di Informatica Medica) course of the Biomedical Engineering (Ingegneria Biomedica) bachelor degree programme
Company	DEIB, Politecnico di Milano
Date	October 2017 - February 2018
Occupation or position held	Academic Tutor for the course Computer Architecture and Operating Systems for the Geoinformatics Engineering master degree course
Company	DEIB, Politecnico di Milano
Date	December 2016 – February 2017
Occupation or position held	Academic Tutor for "Fundamentals of Computer Science" (Informatica A) course of the Management and Production Engineering (Ingegneria Gestionale) bachelor degree programme
Company	DEIB, Politecnico di Milano

Work experience

Date	November 2021 - present
Occupation or position held	Math, Physics and Informatics Teacher
Company	Licei (High school) Istituto Gonzaga, Milan
Date	February 2021 - present
Occupation or position held	Titular Organist
Company	Bisilica San Babila, Milan
Date	September 2017 - present

Occupation or position held	Teaching Assistant
Company	DEIB, Politecnico di Milano
Date	September 2020 - September 2022
Occupation or position held	Titular Organist
Company	Rectory of San Raffaele, Milan
Date	June 2019 - September 2021
Occupation or position held	Auxiliary Organist and Musical Animator
Company	Duomo di Milano
Date	November 2017 - January 2022
Occupation or position held	PhD Student in Information Technology
Company	Heap Lab - DEIB, Politecnico di Milano
Grant	Italian Government Scholarship (Department acceptance rate: 12%)
Date	May 2017 – October 2017
Occupation or position held	Research Collaboration
Company	Heap Lab - DEIB, Politecnico di Milano - IBT Solutions

Notable Projects

2018 – 2021	European Project: 'RECIPE: Reliable power and time-ConstraInts-aware Predictive management of heterogeneous Exascale systems' H2020-FETHPC-2017 – 801137 1 conference publications [C9] RECIPE (REliable power and time-ConstraInts-aware Predictive management of heterogeneous Exascale systems) provides a hierarchical runtime resource management infrastructure to optimise energy efficiency and minimise the occurrence of thermal hotspots, while enforcing the time constraints imposed by the applications, and ensuring reliability for both time-critical and throughput-oriented computation.
2018 – 2019	European Project: 'M2DC: Modular Microservice Data Centre' H2020-ICT-2015 – 688201 1 conference, 1 workshop and 1 book chapter publications [C10][C14][B1] Develop a new class of low-power TCO-optimised appliances with built-in efficiency and dependability enhancements, easy to integrate with a broad ecosystem of management software and fully software-defined to enable optimisation for a variety of future demanding applications in a cost-effective way. He was involved in the IoT automotive use-case, through the design and implementation of the algorithm to identify the number of people driving a single car.
2018 – 2019	European Project: 'MANGO: exploring Manycore Architectures for Next-GeneratiOn HPC systems' H2020-FETHPC-2014 – 671668 1 journal and 2 workshop publications [J1][C5][C8] The essential objective of MANGO is to achieve extreme resource efficiency in future QoS-sensitive HPC through ambitious cross-boundary architecture exploration. The research will investigate the architectural implications of the emerging requirements of HPC applications, aiming at the definition of new-generation high-performance, power-efficient, deeply heterogeneous architectures with native mechanisms for isolation and quality-of-service. He was involved in the design and implementation of the data communication interface between the local node resource manager (BarbequeRTRM), the global resource manager provided by EPFL and the monitoring tool by EATON. He took part also in technical meetings and in related publications [C5][C8][J1].

2016	European Project: 'P3S: Playful Supervised Smart Spaces' EIT Digital Project 2 international conference publications [C1][C2] Our research explores novel forms of smart spaces that support full body interaction with smart objects instrumented with audio, light, and motion sensors and actuators, virtual worlds on medium-large displays, and smart lights, and are integrated with cloud services for remote supervision and analysis of user behaviour. In this paper, we present the architecture and coordination infrastructure created in the Playful Supervised Smart Space (P3S) project, as well as initial designs for the Smart Object and Smart Space Gateway Components.

Publications

[B2][November, 2022] **M. Zanella**, *Post-Cloud Computing: Addressing Resource Management in the Resource Continuum*. In the book Special Topics in Information Technology, Springer Briefs Award 2022, *doi: 10.1007/978-3-031-15374-7_9*.

[T2][January, 2022] **M. Zanella**, *Post-Cloud Computing: Addressing Resource Management in the Resource Continuum*. PhD Thesis, Politecnico di Milano, Springer award winner 2022.

[J3][January, 2022] **M. Zanella**, F. Sciamanna, W. Fornaciari. *BarMan: A run-time management framework in the resource continuum*. Sustainable Computing: Informatics and Systems (SUSCOM 2022), Volume 35, January 2022, *doi:10.1016/j.suscom.2022.100663*.

[C16][September, 2021] F. Sciamanna, **M. Zanella**, G. Massari, W. Fornaciari. *Managing the Resource Continuum in a Real Video Surveillance Scenario*. In Euromicro Conference on Digital System Design (DSD 2021), *doi: 10.1109/DSD53832.2021.00018*.

[J2][February, 2021] Q. Zhang, J. Wu, **M. Zanella**, W. Yang, A.H. Bashir, W. Fornaciari, 2020, June. *Sema-IIoVT: Emergent Semantic-Based Trustworthy Information-Centric Fog System and Testbed for Intelligent Internet of Vehicles*. In IEEE Consumer Electronics Magazine, *doi: 10.1109/MCE.2021.3061067*.

[C15][June, 2020] S. Crippa, G. Massari, F. Reghenzani, **M. Zanella**, W. Fornaciari, 2020, June. *Predictive Resource Management in Energy-constrained Embedded Systems*. In Euromicro Conference on Digital System Design (DSD 2020), *doi: 10.1109/DSD51259.2020.00035*.

[B1][September, 2019] G. Agosta, A. Barenghi, [...], **M. Zanella**, *The M2DC Approach towards Resource-efficient Computing*. In the book Opportunities and Challenges for European Projects, Pages 150-176, *isbn: 978-989-758-361-2*, *doi:10.5220/0008862601500176*.

[C14][August, 2019] G. Agosta, C. Brandolese, W. Fornaciari, [...], **M. Zanella**, G. Des Courchamps, V. Ducrot, K. Juilly, S. Monot, L. Ceva, *Accelerating Automotive Analytics: The M2DC Appliance Approach*. In Proceedings of the 19th International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation, (SAMOS 2019), *doi:10.1007/978-3-030-27562-4_33*.

[C13][July, 2019] D. Iezzi, **M. Zanella**, G. Massari, W. Fornaciari, *Enabling Run-time Resource-aware Task Placement in Fog Scenario*. Fifthteenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES 2019), Pages 127-130, *isbn:978-88-905806-7-3*.

[C12][June, 2019] **M. Zanella**, G. Massari and W. Fornaciari, *Run-Time Managed Mobile Application Execution*. In Proceedings of the Fourth International Conference on Fog and Mobile Edge Computing (FMEC 2019), *doi:10.1109/FMEC.2019.8795323*.

[C11][October, 2018] **M. Zanella**, G. Massari, W. Fornaciari, *Back to the Future: Resource Management in Post-Cloud Solutions*. In Proceedings of the INTelligent Embedded Systems Architectures and Applications workshop (INTESA 2018), *doi:10.1145/3285017.3285028*.

[C10][October, 2018] N. Mainardi, **M. Zanella**, F. Reghenzani, N. Raspa, C. Brandolese, *An Unsupervised Approach for Automotive Driver Identification*. In Proceedings of the INTelligent Embedded Systems Architectures and Applications workshop (INTESA 2018), *doi:10.1145/3285017.3285023*.

[C9][July, 2018] W. Fornaciari, G. Agosta, [. . .], **M. Zanella**, M. Zapater, D. Zoni, *Reliable power and time-constraints-aware predictive management of heterogeneous exascale systems*. In Proceedings of the 18th International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation, (SAMOS 2018), *doi.org/10.1145/3229631.3239368*.

[C8][July, 2018] **M. Zanella**, F. Reghenzani, G. Massari, W. Fornaciari, *A Hierarchical Approach for Resource Management in Heterogeneous Systems*. Fourteenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES 2018), Pages 99-102, *isbn:978-88-905806-6-6*.

[J1][June, 2018] J. Flich, G. Agosta, [...], **M. Zanella**, M. Zapater, D. Zoni, *Exploring Manycore Architectures for Next-Generation HPC Systems through the MANGO Approach*. Microprocessors and Microsystems, Volume 61, September 2018, Pages 154-170, *doi:10.1016/j.micpro.2018.05.011*.

[C7][April, 2018] G. Massari, F. Terraneo, **M. Zanella**, D. Zoni, *Towards Fine-grained DVFS in Embedded Multi-core CPUs*. International Conference on Architecture of Computing Systems (ARCS 2018) *doi:10.1007/978-3-319-77610-1_18*.

[C6][January, 2018] **M. Zanella**, G. Massari, W. Fornaciari, *Enabling Run-Time Managed Distributed Mobile Computing*. In Proceedings of the 9th Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures and the 7th Workshop on Design Tools and Architectures For Multicore Embedded Computing Platforms (PARMA-DITAM'18) *doi:10.1145/3183767.3183778*.

[C5][January, 2018] G. Agosta, W. Fornaciari, G. Massari, A. Pupykina, F. Reghenzani, **M. Zanella**, *Managing Heterogeneous Resources in HPC Systems*. In Proceedings of the 9th Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures and the 7th Workshop on Design Tools and Architectures For Multicore Embedded Computing Platforms (PARMA-DITAM'18) *doi:10.1145/3183767.3183769*

[C4][July, 2017] L. Cremona, W. Fornaciari, A. Marchese, **M. Zanella**, D. Zoni, *DENA: A DVFS-capable hEterogeneous NoC Architecture*. In Proceedings of the IEEE Computer Society Annual Symposium on VLSI (IVLSI), pp.489-494, *doi:10.1109/ISVLSI.2017.91*.

[T1][April, 2017] **M. Zanella**, *Energy-Aware Run-Time Management of Distributed Mobile Devices*. Master's Thesis, Politecnico di Milano.

[C3][September, 2016] G. Massari, **M. Zanella**, and W. Fornaciari, *Towards Distributed Mobile Computing*. In Proceeding of the 2016 Mobile System Technologies Workshop (MST), pp.29-35, *doi:10.1109/MST.2016.13*.

[C2][June, 2016] F. Garzotto, M. Gelsomini, A. Pappalardo, C. Sanna, E. Stella, and **M. Zanella**, *Monitoring and Adaptation in Smart Spaces for Disabled Children*. In Proceedings of the ACM International Working Conference on Advanced Visual Interfaces, AVI '16, pp.224-227, *doi:10.1145/2909132.2909283*.

[C1][May, 2016] F. Garzotto, M. Gelsomini, A. Pappalardo, C. Sanna, E. Stella, and **M. Zanella**, *Using Brain Signals in Adaptive Smart Spaces for Disabled Children*. In Proceedings of the ACM 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems, CHI EA '16, pp.1684-1690, *doi:10.1145/2851581.2892533*.

International conferences and meetings attendance

[October, 2021] Paper presentation at IGSC 2021 International Virtual Conference

[September, 2021] Paper presentation at Euromicro DSD 2021 International Virtual Conference, Palermo

[August, 2020] Paper presentation at Euromicro DSD 2020 International Virtual Conference, Slovenia

[July, 2020] ACACES Virtual Summer School

[January, 2020] Tutorial presentation at HiPEAC 2020 International Conference, Bologna, Italy

[July, 2019] ACACES Summer School, Fiuggi, Italy

[June, 2019] Paper presentation at FMEC 2019 International Conference - Rome, Italy

[May, 2019] H2020-RECIPE Plenary meeting, Milan, Italy

[February, 2019] Attended the Embedded World Exhibition 2019, Nuremberg, Germany

[October, 2018] Paper and Poster presentation at INTESA Workshop - ESWEEK International Conference, Turin, Italy

[September, 2018] Poster presentation at ARM Research Summit, Cambridge, UK

[July, 2018] ACACES Summer School, Fiuggi, Italy

[June, 2018] UPMARC Summer School, Uppsala, Sweden

[May, 2018] H2020-RECIPE Kick-off meeting, Milan, Italy

[January, 2018] Paper presentation at PARMA-DITAM - HiPEAC 2018 International Conference, Manchester, UK

[Novemebr, 2017] H2020-MANGO Technical meeting, Morges, Switzerland

[September, 2016] 2016 Mobile System Technologies Workshop, Milan, IT

[May, 2016] Poster presentation at ACM 2016 CHI Conference on Human Factors in Computing Systems, San Josè, CA, USA

Memberships

2022 – present	IEEE Consumer Technology Society (CTSoc) Technical Committee (TC) member on Internet of Things, Internet of Everywhere and Edge Computing (IOT)
2022 – present	IEEE Consumer Technology Society (CTSoc) Technical Committee (TC) member on Application-Specific CE for Smart Cities (SMC)
2017 – present	HiPEAC Student member
2016 – present	ACM Student member

Personal skills and competences

Mother tongue(s)

Other language(s)

Self-assessment
European level[*]

English

Italian

English - EAS TOEIC: 850/990 - EFSET: 78/100 C2

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C1 - excellent	C2 - excellent	C1 - good	C1 - good	C1 - good

[*]*Common European Framework of Reference (CEF) level*

Social and Organizational skills and competences

During his career as PhD student of Politecnico di Milano, He has significantly improved relational, social and team-work skills by working in several international research teams. In particular, He gained experience in didactic as a teaching assistant for the "Fundamentals of Computer Science" (Informatica A) and "Information Systems/Digital Technologies" (Databases part) courses of the Management and Production Engineering (Ingegneria Gestionale), Biomedical Engineering (Ingegneria Biomedica) and Aerospace Engineering (Ingegneria Aerospaziale) bachelor degree programmes within both exercises and laboratory activities, as well as a student tutor for the "Architecture of Computing Systems" (Operating Systems part) course. He has also supervised different Bachelor and Master students' projects.

Moreover, He gained specific knowledge on the organization of the activities of EU-funded FP7 and H2020 projects. He has been in contact with big industrial players (e.g., Philips, Telecom Italia, STMicroelectronics, Vodafone, EATON Industries) and the major european universities. He has also participated in the writing of a H2020 proposal's abstract with his supervisor.

His main research topic is related to the run-time resource and power management in post-cloud computing solutions, developing novel architectural model and tasks allocation to integrate cooperating edge/fog devices and leverage their heterogeneous resources[C11][J2]. Relevant results have been achieved during the development of an open source tool for the runtime management of resources (bosp.deib.polimi.it) used in the FP7 "HARPA" STREP project (2013-2016), coordinated by Politecnico di Milano, and in the FP7 "CONTREX" IP project (2013-2016), further extended in the FET HPC H2020 "MANGO" project (2015-2019) and H2020 RECIPE" project (2018-2021), leading to the publication of papers [C5][J1][C13]. Furthermore, some results are achieved in the investigation of fine-grained DVFS-based power management techniques [C4][C7] and in clustering analysis related to automotive in the H2020 M2DC project [C10][C14][B1]. As part of his multi-disciplinary research interests, He has also collaborated to the EIT "P3S" project (2015-2016), coordinated by prof. Franca Garzotto, for the development of EEG-based adaptive smart spaces and self-control relaxation techniques for disabled children. This collaboration lead to two international publications in 2016 [C1][C2]. In particular He presented the paper during the CHI 2016 international conference held in San Jose, CA, May 2016. Part of his master's thesis work [T1] has been published [C3] and it was extended for the proceedings in the HiPEAC PARMA-DITAM conference [C6]. The PhD thesis [T2] has been selected by the IT Professor boards as one of the recipients of the Springer award 2022 and a chapter summary has been publihed in the 4th volume of Special Topics in Information Technology book [B2].

He has also attended some international conferences and workshops: CHI 2016 (San Jose, USA, as poster presenter), AVI 2016 (Bari, Italy), MST 2016 (Milan, Italy), IO-Things 2017 (Milan, Italy), MST 2017 (Milan, Italy), PARMA-DITAM 18 (Manchester, UK, as presenter), ARM Research Summit 2018 (Cambridge, UK, as presenter), and INTESA 2018 (Turin, Italy, as presenter), FMEC 2019 (Rome, Italy, as presenter), HiPEAC 2020 (Bologna, IT, as tutorial presenter), DSD 2020 (Virtual, Slovenia, as presenter), DSD 2021 (Palermo, Italy, as presenter), IGSC 2021 (Virtual, as presenter and session co-chair).

The aforementioned experiences gave him interdisciplinary competences regarding Distributed and Mobile Computing, Human Computer Interaction and Operating Systems fields and on how to deal with the schedule and deliverables of EU-funded projects. Moreover, He has collaborated with his supervisor as reviewer at the following conferences/workshops/journal: DATE 2017, 2018, 2019 DSD 2018, INTESA 2018, DAC 2019, 2020, COINS 2019, PARMA-DITAM 2019, MICPRO 2019(21), CASES 2019, 2020, ISLPED 2019, 2020, SUSCOM 2020, SoftwareX 2020 (81), MICPRO 2021, SUSCOM 2021.

As a conductor of two church and concert choirs from 2009 to 2020, as an organ player since 1999 and as a member of local church decisional councils, He has been stimulated to acquire strong leadership and group management abilities, as well as a remarkable attitude on problem-solving, decision-making, responsibility and financial management.

Technical skills and competences	*Professional competences in:* distributed systems, GoogleRPC, run-time resource management, Android mobile applications, energy-aware software design, relational databases, software engineering, Node.Js, UML and software design, code versioning. *Basic competences in:* artificial intelligence, knowledge engineering, lite databases, recommender systems.
Computer skills and competences	*Programming and other languages*: C, C++, Java, SQL, JavaScript, PHP, TeX, HTML5, CSS, SQL, Python (basic). *Frameworks:* JNI, GoogleRPC. *Development suites:* LabView, Netkit (basic), MS Office products including MS Project and MS Access, Visual Paradigm suite, Inkscape, Yed and other graphical scheme design products.
Artistic skills and competences	He is a choir conductor, composer, piano and organ player. He is currently enrolled in the Bachelor degree in Organ Performance and Composition at the Civica Scuola di Musica "Claudio Abbado" in Milan and he is studying organ technique and literature with Lorenzo Ghielmi, as well as composition with Mario Valsecchi.He is currently the titular organist of Rectory San Raffaele and San Babila Basilica in Milan, as well as musical collaborator of the Milan's Cathedral and Archdiocese's Liturgical Office. He has participated in different technical courses and workshops: Piano technique with Stefano Zecconello; Organ and Composition with Angelo Riva; Basics of Vocal technique with Giovanni Tenti; Conduction with Fabio Gallazzi; Basso Continuo Masterclass 2021 with Antonio Frigè; Organ Improvisation Masterclass 2020 with Juergen Essl (Associazione Flute Harmonique); Organ Improvisation 2018-2020 (Associazione Flute Harmonique); Organ Advanced Performance Course 2020 with Alessio Corti (Associazione Flute Harmonique); Organ Improvisation Summer Course (Corso Estivo di Improvvisazione Organistica) 2017 with Pierre Queval (Associazione Flute Harmonique); Conductor's Workshop 2017 with Karen Gibson (Feder Gospel Choirs); Choir Conductors Course (Corso di Formazione e Aggiornamento per Direttori di Coro) (Stabat Mater – Accademia al Santuario); Forma.MI 2015 (PIAMS)
Other skills and competences	The experience gained since 2008 as an aircraft Private Pilot has improved the self-control skills and the capability of dealing with stressful and emergency situations, as well as to develop a very strong commitment in pursuing interests.
Driving licence(s)	A,B
Other Licence(s) or Certification(s)	JAA/EASA Private Pilot Licence (Aircraft) with Class Rating: Single Engine Piston (Land), Difference Training: VP, RU, T and aircraft experience: Piper PA28T, Tampico TB9. NAUI Scuba Open Water Diver certification.
Additional information	
References	William Fornaciari, Giovanni Agosta, Franca Garzotto

Autorizzo al trattamento dati ai sensi del GDPR 2016/679 del 27 aprile 2016 (Regolamento Europeo relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali).
Autorizzo la pubblicazione sul sito istituzione del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).".

Milan, 11/02/2023