

Summary

Mattia D'Emidio is an Associate Professor of Computer Engineering at the Department of Information Engineering, Computer Science and Mathematics (DISIM) at the University of L'Aquila (Italy). He received a Ph.D. in Information and Electrical Engineering from the same university in 2014 and subsequently held postdoctoral research positions at both the University of L'Aquila and the Gran Sasso Science Institute (GSSI, L'Aquila, Italy), within the Computer Science division.

He has been a visiting member of Team COATI at INRIA Sophia-Antipolis (France), a visiting researcher at the University of Perugia (Italy), and a visiting professor and scientific collaborator at the Gran Sasso Science Institute (GSSI, L'Aquila, Italy).

He holds the Italian National Scientific Habilitation for the role of Associate Professor in both the Computer Science (INF/01) and Computer Engineering (ING-INF/05) scientific sectors, awarded by ANVUR (Italian National Agency for the Evaluation of Universities and Research Institutes) under the Ministry of University and Research.

Over the years, he has taught several graduate and postgraduate/doctoral courses on a variety of topics, including: Big Data: Models and Algorithms, Distributed Systems, Algorithms Engineering, Design and Analysis of Algorithms, and Graph Data Mining.

He is a founder and active member of TEEMA, a technology transfer start-up and spin-off of the University of L'Aquila. The company specializes in developing web-based tools for modeling complex systems and analyzing their geometrical and electromagnetic properties using fast, scalable, cloud-based algorithms for big data.

He has served as principal investigator and collaborator on several research projects involving both academic and industrial partners.

His primary research interests lie in the design, analysis, and efficient implementation of algorithms for combinatorial problems. His work follows an Algorithm Engineering approach, combining theoretical analysis with practical experimentation. His current research focuses on efficient algorithms for processing massive (possibly dynamic) graphs, as well as algorithmic and game-theoretic aspects of distributed systems, networks, and systems of autonomous agents (e.g., robots, drones).

He is the author or co-author of numerous papers published in international, peer-reviewed journals and conference proceedings. He has served on the program committees of various international conferences in the field of Computer Engineering, including as Program Committee Chair of ATMOS 2022, and has reviewed for leading journals and conferences.

He is an active member of several scientific and professional associations, and currently serves as the representative of the University of L'Aquila on the board of the CINI (Italian Interuniversity Consortium for Informatics) National Laboratory for Big Data.

Additional information is available at: <http://www.mattiademidio.com/>. A summary of his bibliometric data can be found on his Scopus profile.

Full Publications Record

Available in any of the following repositories

- www.mattiademidio.com/pubs.php
- scholar.google.it/citations?user=JDReDEkAAAAJ&hl=it
- www.scopus.com/authid/detail.uri?authorId=57207254487

Experience

Associate Professor

DEPT. OF INFORMATION ENGINEERING, COMPUTER SCIENCE AND MATHEMATICS (DISIM) OF UNIVERSITY OF L'AQUILA

L'Aquila, Italy
Jan 2024 - to date

Co-Founder, Researcher, Developer

TEEMA (TOOLS FOR EFFICIENT ELECTROMAGNETIC ANALYSIS), SPIN-OFF OF THE UNIVERSITY OF L'AQUILA

L'Aquila, Italy
Nov 2021 - to date

RTD-B (Senior Researcher on a Tenure track)

DEPT. OF INFORMATION ENGINEERING, COMPUTER SCIENCE AND MATHEMATICS (DISIM) OF UNIVERSITY OF L'AQUILA

L'Aquila, Italy
Jan 2021 - Dec 2023

Lecturer and Scientific Collaborator

GRAN SASSO SCIENCE INSTITUTE

L'Aquila, Italy
Nov 2017 - Oct 2020

Research Associate

LGNS-INFN (NATIONAL INSTITUTE FOR NUCLEAR PHYSICS)

L'Aquila, Italy
Jul 2018 - Dec 2020

RTD-A (Non Tenured researcher)

DEPT. OF INFORMATION ENGINEERING, COMPUTER SCIENCE AND MATHEMATICS (DISIM) OF UNIVERSITY OF L'AQUILA

L'Aquila, Italy
Nov 2017 - Oct 2021

Visiting Researcher

UNIVERSITY OF PERUGIA

Perugia, Italy

Nov. 2016

Post-Doctoral Researcher

GRAN SASSO SCIENCE INSTITUTE

L'Aquila, Italy

Nov. 2015 - Oct. 2017

Post-Doctoral Researcher

UNIVERSITY OF L'AQUILA

L'Aquila, Italy

Nov. 2013 - Oct. 2015

Education

National Scientific Habilitation as Associate Professor in the Computer Science scientific sector (INF/01)

ANVUR (ITALIAN NATIONAL AGENCY FOR THE EVALUATION OF UNIVERSITIES AND RESEARCH INSTITUTES), ITALIAN MINISTRY OF UNIVERSITY AND RESEARCH

2023

National Scientific Habilitation as Associate Professor in the Computer Science scientific sector (ING-INF/05)

ANVUR (ITALIAN NATIONAL AGENCY FOR THE EVALUATION OF UNIVERSITIES AND RESEARCH INSTITUTES), ITALIAN MINISTRY OF UNIVERSITY AND RESEARCH

2019

Post-Graduate Workshop on Distributed Computing by Mobile Robots

UNIVERSITY OF PISA, ITALY

La Maddalena, Italy

2017

Ph.D. Electrical and Information Engineering

DEPT. OF ELECTRICAL AND INFORMATION ENGINEERING (DIEI) OF UNIVERSITY OF L'AQUILA

L'Aquila, Italy

2014

DRMSim Licensed Training Expert, Distributed Algorithms Simulation Environments

EUROPEAN PROJECT EULER, EXPERIMENTAL UPDATELESS EVOLUTIVE ROUTING

Sophia-Antipolis, France

2013

Visiting Ph.D. Student

FUNDING ENTITY: TEAM COATI (COMBINATORICS, OPTIMIZATION, AND ALGORITHMS FOR TELECOMMUNICATIONS), JOINT PROJECT-TEAM BETWEEN THE INRIA CENTRE AT UNIVERSITÉ CÔTE D'AZUR AND THE I3S LABORATORY (CNRS)

Sophia-Antipolis, France

2013

School on Graph Theory, Algorithms and Applications

INTERNATIONAL SCHOOL OF MATHEMATICS GUIDO STAMPACCHIA

Erice, Italy

2011

Licensed Professional Information and Automation Engineer

DEPT. OF ELECTRICAL AND INFORMATION ENGINEERING (DIEI) OF UNIVERSITY OF L'AQUILA

L'Aquila, Italy

2010

Master's Degree in Computer and Automation Engineering

FACULTY OF ELECTRICAL AND INFORMATION ENGINEERING, UNIVERSITY OF L'AQUILA

L'Aquila, Italy

2010

Scientific Activities

PROGRAM COMMITTEES (LAST 5 YEARS)

2025	Program Committee Member , 28th European Conference on Artificial Intelligence (ECAI 2025)	<i>Bologna, Italy</i>
2025	Program Committee Member , 25th Symposium on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS 2025)	<i>Warsaw, Poland</i>
2025	Program Committee Member , 23rd Symposium on Experimental Algorithms (SEA 2025)	<i>Venice, Italy</i>
2024	Program Committee Member , 24th Symposium on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS 2024)	<i>Royal Holloway, University of London, UK</i>
2024	Program Committee Member , 16th International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2024)	<i>University of Calabria, Rende, Italy</i>
2024	Program Committee Member , 12th International Symposium on Computing and Networking (CANDAR 2024)	<i>Naha, Okinawa, Japan</i>
2024	Program Committee Member , 3rd Italian Conference on Big Data and Data Science (ITADATA 2024)	<i>Pisa, Italy</i>
2024	Program Committee Member , 27th European Conference on Artificial Intelligence (ECAI 2024)	<i>Santiago de Compostela, Spain</i>
2023	Program Committee Member , 11th International Symposium on Computing and Networking (CANDAR 2023)	<i>Matsue, Japan</i>
2023	Program Committee Member , 2nd Italian Conference on Big Data and Data Science (ITADATA 2023)	<i>Naples, Italy</i>
2023	Program Committee Member , 26th European Conference on Artificial Intelligence (ECAI 2023)	<i>Krakow, Poland</i>
2022	Program Committee Chair , 22nd Symposium on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS 2022)	<i>Potsdam, Germany</i>
2022	Program Committee Member , 10th International Symposium on Computing and Networking (CANDAR 2022)	<i>Himeji, Japan</i>
2022	Program Committee Member , 1st Italian Conference on Big Data and Data Science (ITADATA 2022)	<i>Milan, Italy</i>
2021	Program Committee Member , 22nd Italian Conference on Theoretical Computer Science (ICTCS 2021)	<i>Bologna, Italy</i>
2021	Program Committee Member , 9th International Symposium on Computing and Networking (CANDAR 2021)	<i>Matsue, Japan</i>
2020	Program Committee Member , 16th International Symposium on Algorithms and Experiments for Wireless Sensor Networks (ALGOSENSORS 2020)	<i>Pisa, Italy</i>
2020	Program Committee Member , 18th International Conference on High Performance Computing & Simulation (HPCS 2020)	<i>Barcelona, Spain</i>
2020	Program Committee Member , 8th International Symposium on Computing and Networking (CANDAR 2020)	<i>Okinawa, Japan</i>

DOCTORAL COMMITTEES & SUPERVISING

2021-to date	Member of the Committee of the Doctoral Program "Information and Communication Technology" , University of L'Aquila	<i>L'Aquila, Italy</i>
2023-to date	Ph.D. Supervisor of Umer Arshad , University of L'Aquila	<i>L'Aquila, Italy</i>
2020-2024	Ph.D. Supervisor of Andrea D'Ascenzo , University of L'Aquila	<i>L'Aquila, Italy</i>
2016-2020	Ph.D. Supervisor of Imran Khan , Gran Sasso Science Institute	<i>L'Aquila, Italy</i>
2015-2018	Ph.D. Co-Supervisor of Feliciano Colella (Main Advisor Prof. G. Proietti) , Gran Sasso Science Institute	<i>L'Aquila, Italy</i>

EDITORIAL

2022	Editorial Board Member , Member of the Editorial Board of Frontiers in Computer Science (area: Theoretical Computer Science)	<i>Frontiers</i>
2022	Editor of Conference Proceedings , Mattia D'Emidio, Niels Lindner: 22nd Symposium on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems, ATMOS 2022, September 8-9, 2022, Potsdam, Germany. OASlcs 106, Schloss Dagstuhl - Leibniz-Zentrum für Informatik 2022, ISBN 978-3-95977-259-4	<i>OASlcs</i>
2021	Guest Editor , Special Issue "Algorithms for Systems of Autonomous and Mobile Computational Entities". Algorithms, ISSN: 1999-4893, https://www.mdpi.com/1999-4893/14/2/62	<i>Algorithms, MDPI</i>
2019	Guest Editor , Special Issue on "Algorithm Engineering: Towards Practically Efficient Solutions to Combinatorial Problems". Algorithms, vol. 12, ISSN: 1999-4893, doi: 10.3390/a12110229	<i>Algorithms, MDPI</i>
2019	Topic Advisor , https://www.mdpi.com/journal/algorithms/topical_advisory_panel	<i>Algorithms, MDPI</i>

ORGANIZING

2022	Session Chair , 20th International Symposium on Experimental Algorithms (SEA 2022)	Heidelberg, Germany
2022	Plenary Session Chair , 22nd Symposium on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS 2022)	Potsdam, Germany
2020	Session Chair , 16th International Symposium on Algorithms and Experiments for Wireless Sensor Networks (ALGOSENSORS 2020)	Pisa, Italy
2019	Organizing Committee Member , 26th International Colloquium on Structural Information and Communication Complexity (SIROCCO 2019), GSSI	L'Aquila, Italy
2018	Organizing Committee Member , 17th International Symposium on Experimental Algorithms (SEA 2018), GSSI	L'Aquila, Italy
2017	Organizing Committee Member , 10th International Symposium on Algorithmic Game Theory (SAGT 2017), GSSI	L'Aquila, Italy

(RECENT) REVIEWING ACTIVITIES

Journals

Computer and Operation Research, Elsevier
Journal of Experimental Algorithmics, ACM
Transactions on Architecture and Code Optimization, ACM
IEEE Transactions on Computers
Transactions on Architecture and Code Optimization, ACM
Information Sciences, Elsevier
Theoretical Computer Science, Elsevier
IEEE Transactions on Parallel and Distributed Systems
Software X, Elsevier
Journal of Traffic and Transportation Engineering, Elsevier
International Journal of Advanced Robotic Systems, Sage
Expert Systems with Applications, Elsevier
IEEE Internet Computing
Networks, Wiley

Conferences

ECAI 2025, SEA 2025, ASONAM 2024, ITADATA 2024, ECAI 2024, ICWS 2024, ECAI 2023, IJCAI 2022, ATMOS 2022
ITADATA 2022, WWW 2021, SSS 2021, ESA 2021, ALGOSENSORS 2020, ATMOS 2020, ALENEX 2020

SEMINARS Over the years, I have been giving (more or less regularly) seminars within the following graduate courses:

- Computer Architectures. University of Perugia
- Operating Systems. University of L'Aquila
- Computer Networks. University of L'Aquila
- Algorithms and Networking. University of Perugia
- Distributed Systems. University of L'Aquila
- Advanced Algorithms. University of Perugia
- "Algoritmi a Colazione" Series. University of Rome Tor Vergata

covering a variety of topics, e.g.:

- Dynamic Graph Algorithms
- Distributed Algorithms
- Code Tuning and Hardware-Friendly Programming
- Cache Friendly Programming
- Distance Oracles
- Concurrent Programming
- Dynamic Algorithms for Transport Systems
- Route Planning
- Intel Architectures
- Fault-Tolerant Approximate Shortest-Path Trees
- Shortest Path Algorithms for Large-Scale Fully Dynamic Complex Networks

INVITED

Invited Speaker @ INRIA, Team COATI

SEMINAR ON "ALGORITHMS FOR MINING SHORTEST-PATH DISTANCES OUT OF MASSIVE TIME-EVOLVING GRAPHS"

Sophia-Antipolis, France
Nov 2020

Invited Speaker @ Humboldt University

NETWORKIT DAY 2020, TALK ON "ON MINING DISTANCES OUT OF MASSIVE TIME-EVOLVING GRAPHS"

Berlin, Germany
Oct 2020

Invited Speaker @ Research Retreat on Graph Analytics

TALK ON "ALL PAIR DISTANCES IN DYNAMIC NETWORKS WITH APPLICATIONS TO TIME-EVOLVING NETWORKS"

CEUB Bertinoro, Italy
Dec 2015

ASSOCIATIONS AND RESEARCH CENTERS (PRESENT AND PAST)

Member	GNCS, Gruppo Nazionale per il Calcolo Scientifico, Indam
Member	GRIN (Italian National Group for Informatics)
Member	GII (Italian National Group for Computer Engineering)
Member	EATCS (European Association for Theoretical Computer Science, Italian Chapter)
Local Director, Univaq Unit	CINI (Italian National Interuniversity Consortium for Informatics) Big Data Laboratory
Member	Center of Excellence Ex-Emerge http://exemerge.disim.univaq.it/
Member	Center CITRAMS, Centro Interdipartimentale Trasporti e Mobilità Sostenibile
Member	Center of Excellence DEWS https://dews.univaq.it/

Teaching Activities

2017-ongoing	Big Data: Models and Algorithms , Master's Degree and Doctoral Programs, University of L'Aquila, Italy	English
2017-ongoing	Algorithm Engineering , Master's Degree Program in Computer Engineering, University of L'Aquila, Italy	Italian
2018-2021	Distributed Systems , Series of Seminars, Master's Degree Program in Computer Science, University of L'Aquila, Italy	English
2018	Algorithm Engineering , Doctoral Program, GSSI, Italy	English
2018	Design and Analysis of Algorithms , Doctoral Program, GSSI, Italy, co-held w/ Prof. Michele Flammini	English
2017	Large Graph Mining and Algorithm Engineering , Doctoral Program, GSSI, Italy, co-held w/ Prof. Pierluigi Crescenzi	English
2017	Design and Analysis of Algorithms , Doctoral Program, GSSI, Italy, co-held w/ Prof. Michele Flammini	English
2016	Algorithm Engineering and Approximation Algorithms , Doctoral Program, GSSI, Italy, co-held w/ Prof. Gianlorenzo D'Angelo	English
2016	Design and Analysis of Algorithms , Doctoral Program, GSSI, Italy, co-held w/ Prof. Michele Flammini	English

Projects and Funding (Recent)

Project SCHEDULE (Smart interseCtions with connEctED and aUtonomous vehicLES)

UNIT LEADER

Italy
2024-to date

- Funded by the European Union through NextGenEU Programme
- ExEmerge Centre of Excellence, University of L'Aquila, Italy
- <http://exemerge.disim.univaq.it>
- Partnership w/ Hipert srl, University of Bologna, and Gran Sasso Science Institute

Start-up Company "TEEMA: Tools for Efficient ElectroMagnetic Analysis"

FOUNDER, ALGORITHM DESIGNER, DEVELOPER, BIG-DATA TECH SPECIALIST

Italy
2021-to date

- We design and test complex electrical systems via SaaS technologies
- We develop web-based tools to model complex systems and analyze their (geometrical and electromagnetic) properties through fast and scalable cloud-based algorithms for big-data
- We have been funded through various sources, we plan to go to market in early 2024
- <https://www.teema.studio/>

Project "Efficient Mining of Distances in Fully Dynamic Massive Graphs"

PRINCIPAL INVESTIGATOR

Italy
2020

- Funded by GNCS@INDAM, funding young researchers program 2019-2020

Project "Toward Efficient Mining of Massive Dynamic Graphs: Theory and Applications"

PRINCIPAL INVESTIGATOR

Italy
2019

- Funded by GNCS@INDAM, funding young researchers program 2018-2019

Project EMERGE (Connected, geo-localized and cybersecure vehicles)

ALGORITHM DESIGNER, DEVELOPER, TESTER

Italy
2021-to date

- Funded by Italian Ministry of Economic Development (MISE) and Regione Abruzzo
- ExEmerge Centre of Excellence, University of L'Aquila, Italy
- <http://exemerge.disim.univaq.it>

Project ASSIOMI (Algorithms, Systems and Devices for Machine Monitoring and Diagnosing in Smart Factories)

ALGORITHM DESIGNER

Italy

2020

- Funded by the European Union through PON Programme of Italian Ministry of Education, University and Research
- Center of Excellence DEWS

Project DarkSide (DarkSide Collaboration: Two phase argon TPC for Dark Matter Direct Detection)

DATA ANALYST

Italy

2018-2020

- Joint group of Gran Sasso Science Institute, Istituto Nazionale di Fisica Nucleare, Laboratori Nazionali del Gran Sasso (L'Aquila, Italy)
- <http://darkside.lngs.infn.it/collaboration/>

Additional Information

Languages (fluent) English, Italian

Travelling Passport and driving license

More details here: <http://www.mattiademidio.com/>