Mattia **D'Emidio**
Curriculum Vitae

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Summary

I am Associate Professor of Computer Engineering at the Dept. of Information Engineering, Computer Science and Mathematics (DISIM) of the University of L'Aquila (Italy). I have received a Ph.D. in Information and Electrical Engineering from the same university in 2014, and has been post-doctoral researcher at both the University of L'Aquila and Gran Sasso Science Institute (GSSI, L'Aquila, Italy), in the Computer Science division. I have been a visiting member of Team COATI of INRIA Sophia-Antipolis (France), visiting researcher at University of Perugia (Italy) and visiting professor and scientific collaborator at Gran Sasso Science Institute (GSSI, L'Aquila, Italy).

I hold the Habilitation as Associate Professor, awarded by the Italian National Agency for the Evaluation of Universities and Research Institutes of the Italian Ministry of University and Research (ANVUR), in both the Computer Science scientific sector (INF/01) and the Computer Engineering scientific sector (ING-INF/05). I have been teaching, over the years, several both graduate and post-graduate/doctoral courses on various topics. Among them: "Big Data: Models and Algorithms", "Distributed Systems", "Algorithms Engineering", "Design and Analysis of Algorithms", "Graph Data Mining".

I am one of the founders, and active members, of TEEMA, a start-up technological transfer company, spin-off of the University of L'Aquila, whose core activity is developing web-based tools to model complex systems and analyze their (geometrical and electromagnetic) properties through fast and scalable cloud-based algorithms for big-data. I have also been collaborating with and/or leading, as principal investigator, several research projects, collaborating with both academic and industrial partners.

My primary research interests lie in the design, analysis and efficient implementation of algorithms for combinatorial problems. My work follows an Algorithm Engineering approach, combining theory and experimentation, and is (currently) mostly focused on: algorithms for efficient processing of massive (possibly dynamic) graphs; study of distributed systems, networks, systems of autonomous entities (e.g. agents, robots or drones) from an algorithmic perspective (including game theoretic, strategic aspects).

I am author/co-author of tens of papers that have been selected for publication either on international, peer-reviewed journals or that have been included in the proceedings of international, peer-reviewed conferences. I have served as member of several program committees of international conferences of the Computer Engineering field (being chair of the PC of ATMOS 2022) and collaborated as reviewer for both international high-end journals and conferences. I am an active member of several associations for scientific networking, among them I am the representative for "University of L'Aquila" in the board of CINI (Italian Interuniversity Consortium for Informatics) National Laboratory for Big Data. Detailed information can be found in what follows and here `http://www.mattiademidio.com/`. A summary of my bibliometrics data can be found here `https://www.scopus.com/authid/detail.uri?authorId=57207254487`.

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   *L'Aquila, Italy*
Dept. of Information Engineering, Computer Science and Mathematics (DISIM) of University of L'Aquila   *Jan 2024 - to date*

Co-Founder, Researcher, Developer   *L'Aquila, Italy*
TEEMA (Tools for Efficient ElectroMagnetic Analysis), spin-off of the University of L'Aquila   *Nov 2021 - to date*

RTD-B (Senior Researcher on a Tenure track)   *L'Aquila, Italy*
Dept. of Information Engineering, Computer Science and Mathematics (DISIM) of University of L'Aquila   *Jan 2021 - Dec 2023*

Lecturer and Scientific Collaborator   *L'Aquila, Italy*
Gran Sasso Science Institute   *Nov 2017 - Oct 2020*

Research Associate   *L'Aquila, Italy*
LGNS-INFN (National Institute for Nuclear Physics)   *Jul 2018 - Dec 2020*

RTD-A (Non Tenured researcher)   *L'Aquila, Italy*
Dept. of Information Engineering, Computer Science and Mathematics (DISIM) of University of L'Aquila   *Nov 2017 - Oct 2021*

Visiting Researcher   *Perugia, Italy*
University of Perugia   *Nov. 2016*

Post-Doctoral Researcher   *L'Aquila, Italy*
Gran Sasso Science Institute   *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 3 Years)

2024	**Program Committee Member**, 27th European Conference on Artificial Intelligence (ECAI 2024)	*Santiago de Compostela, Spain*
2023	**Program Committee Member**, 11th International Symposium on Computing and Networking (CANDAR 2023)	*Matsue, Japan*
2023	**Program Committee Member**, 2nd Italian Conference on Big Data and Data Science (ITADATA 2023)	*Naples, Italy*
2023	**Program Committee Member**, 26th European Conference on Artificial Intelligence (ECAI 2023)	*Krakow, Poland*
2022	**Program Committee Chair**, 22nd Symposium on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS 2022)	*Potsdam, Germany*
2022	**Program Committee Member**, 10th International Symposium on Computing and Networking (CANDAR 2022)	*Himeji, Japan*
2022	**Program Committee Member**, 1st Italian Conference on Big Data and Data Science (ITADATA 2022)	*Milan, Italy*
2021	**Program Committee Member**, 22nd Italian Conference on Theoretical Computer Science (ICTCS 2021)	*Bologna, Italy*
2021	**Program Committee Member**, 9th International Symposium on Computing and Networking (CANDAR 2021)	*Matsue, Japan*
2020	**Program Committee Member**, 16th International Symposium on Algorithms and Experiments for Wireless Sensor Networks (ALGOSENSORS 2020)	*Pisa, Italy*
2020	**Program Committee Member**, 18th International Conference on High Performance Computing & Simulation (HPCS 2020)	*Barcellona, Spain*
2020	**Program Committee Member**, 8th International Symposium on Computing and Networking (CANDAR 2020)	*Okinawa, Japan*

Doctoral Committees & Supervising

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

EDITORIAL

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. OASIcs 106, Schloss Dagstuhl - Leibniz-Zentrum für Informatik 2022, ISBN 978-3-95977-259-4	*OASIcs*
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	*Algorithms, MDPI*
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	*Algorithms, MDPI*
2019	**Topic Board Member**, `https://www.mdpi.com/journal/algorithms/topical_advisory_panel`	*Algorithms, MDPI*

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 Commitee Member**, 26th International Colloquium on Structural Information and Communication Complexity (SIROCCO 2019), GSSI	*L'Aquila, Italy*
2018	**Organizing Commitee Member**, 17th International Symposium on Experimental Algorithms (SEA 2018), GSSI	*L'Aquila, Italy*
2017	**Organizing Commitee Member**, 10th International Symposium on Algorithmic Game Theory (SAGT 2017), GSSI	*L'Aquila, Italy*

(RECENT) REVIEWING ACTIVITIES

Journals
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 2023, IJCAI 2022, ATMOS 2022, ITADATA 2022
WWW 2021, SSS 2021, ESA 2021
ALGOSENSORS 2020, ATMOS 2020, ALENEX 2020
OPODIS 2019, STACS 2019, SPAA 2019

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
Sophia-Antipolis, France
Seminar on "Algorithms for Mining Shortest-Path Distances out of Massive Time-Evolving Graphs"
Nov 2020

Invited Speaker @ Humboldt University
Berlin, Germany
NetworKit Day 2020, Talk on "On mining distances out of massive time-evolving graphs"
Oct 2020

Invited Speaker @ Research Retreat on Graph Analytics
CEUB Bertinoro, Italy
Talk on "All pair distances in dynamic networks with applications to time-evolving networks"
Dec 2015

Associations (Present and Past)

Member	Center of Excellence DEWS, University of L'Aquila
Member	Association for Computing Machinery
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 DEWS (Design Methodologies of Embedded Controllers, Wireless Interconnect and S-o-C)

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 (Recent)

Start-up Company "TEEMA: Tools for Efficient ElectroMagnetic Analysis"
Italy
Founder, Algorithm Designer, Developer, Big-Data Tech Specialist
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"
Italy
Principal Investigator
2020

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

Project "Toward Efficient Mining of Massive Dynamic Graphs: Theory and Applications"
Italy
Principal Investigator
2019

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

Project EMERGE (Connected, geo-localized and cybersecure vehicles)
Italy
Algorithm Designer, Developer, Tester
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/`