Marica Amadeo, PhD

Assistant Professor in Telecommunications
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Professional summary

Assistant Professor in Telecommunications, with expertise in Information-Centric Networking (ICN), Edge Computing, and Internet of Things (IoT) Networks. Co-authored over 70 publications in high-impact IEEE and Elsevier journals. Recognized as one of the IEEE COMSOC 2022 Top Ten N2Women Rising Stars and ranked among the Top 2% in the World Ranking of Scientists for 2019–2023. Currently serving as an editor for several IEEE and Elsevier journals, including IEEE Internet of Things Magazine, IEEE Transactions on Communications, IEEE Communications Letters, and Elsevier Computer Communications.

Current position

Assistant Professor in Telecommunications
University Mediterranea of Reggio Calabria, Italy (Dec 2019 – Present)
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Website: Marica Amadeo - Google Scholar

Research interests

Information-Centric Networking (ICN)
Edge Computing
Internet of Things (IoT) Networks
Mobile and Wireless Communications

Academic qualifications

Ph.D. in Information Engineering
University Mediterranea of Reggio Calabria, Italy (2013)
Thesis: "Design and Evaluation of Routing and Transport Solutions in Content-Centric Wireless Ad Hoc Networks."

M.Sc. in Telecommunications Engineering
University Mediterranea of Reggio Calabria, Italy (2008)

Work experience

Junior Consultant, Value Team S.p.A., Rome, Italy
January 2009 – October 2009

Consultant, Istituto Superiore Mario Boella (ISMB), Turin, Italy
January 2013 – April 2013
Developed and evaluated content-centric routing protocols for vehicular networks

Research Fellow, University Mediterranea of Reggio Calabria, Italy
October 2013 – September 2016
Conducted research on the potential of Information-Centric Networking (ICN) in the context of Smart Grid and Domotics.

Research Fellow, University Mediterranea of Reggio Calabria, Italy
June 2017 – May 2019
Focused on Cloud of Things environments and Cognitive buildings.

Assistant Professor, University Mediterranea of Reggio Calabria, Italy
December 2019 – current
Researching algorithms and protocols for data retrieval, aggregation, and processing in intelligent edge environments. Researching sustainable edge computing for hyper-distributed services and the orchestration of Digital Twin technologies in edge networks.

Editorial Experience

- Editor at IEEE Transactions on Communications (April 2024- current)
- Associate Editor at IEEE Internet of Things Magazine (March 2023 - current)
- Editorial Board Member of IEEE Communications Letters (August 2021 – current), Included in the list of Exemplary Editors in 2023 https://www.comsoc.org/publications/journals/ieee-comml/reviewer-and-editor-appreciation
- Editorial Board Member at MDPI Telecom (June 2020 – current)
- Associate Editor at Elsevier Computer Communications (March 2019 – current)
- Editorial Board Member of Elsevier Vehicular Communications (September 2021 – August 2024)
- Associate Editor at Frontiers in Communications and Networks (December 2022 – July 2024)
- Academic Editor at Hindawi/Wiley Wireless Communications and Mobile Computing (WCMC), (April 2021 – April 2023).
- Editorial Board Member at Wiley Transactions on Emerging Telecommunications Technologies (ETT), (April 2021 – August 2024).

- Guest Editor of special issues at: MDPI Sensors, MDPI Future Internet, Wiley ETT, MDPI Telecom, Elsevier Computer Communication, Elsevier Vehicular Communications, IEEE Transactions of Consumer Electronics (TCE).

Conference involvement

- Tutorial Chair at the 28th Conference on Innovation in Clouds, Internet and Networks (ICIN) 2025
- Track Chair at IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2022-2024
- General Chair of the First International Workshop on "Digital Twin Modelling, Orchestration and Development in the 6G era" co-located with IEEE MeditCom 2024
- Track Chair at IEEE International Smart Cities Conference (ISC2) 2022
- Publicity Chair for several conferences and workshops, including IEEE WCNC 2025, IFIP Networking 2022, IEEE WiMob 2021
- Technical Program Committee (TPC) member at over 30 international conferences, including IEEE ICC and WCNC.

Professional recognitions

- Ranked in the "Top 2% World Ranking of Scientists" for 2019–2023
- IEEE COMSOC Top 10 N2Women Rising Stars (2022)
- Exemplary Editor, IEEE Communications Letters (2023)
- Certificate of Editor's Choice Article from MDPI Sensors (2020) – paper "M. Amadeo, C. Campolo, G. Ruggeri, G. Lia, A. Molinaro "Caching Transient Contents in Vehicular Named Data Networking: A Performance Analysis"
- Ranked in the World's Top 1% Scientists, for the year 2017, by Stanford University, published over PLOS journal
- Exemplary Reviewer, IEEE Communication Letters (2013, 2014)
- Certificate of outstanding contribution in reviewing for Elsevier Future Generation Computer System (2018), Elsevier Computer Communications (2018), Elsevier Ad Hoc Networks, 2017.
- The paper "E-CHANET: routing, forwarding and transport in information centric multi-hop wireless networks", Elsevier Computer Communications, 2013, has been recognized as one of the "most influential papers published in Computer Communications in the last forty years" (Computer Communications | COMCOM 40-year special issue | ScienceDirect.com by Elsevier).
- Best Paper Award Nomination, IEEE Network of the Future, 2011

Teaching and supervision

- Teaching various telecommunications and computer engineering courses at both undergraduate and graduate levels.
- Supervising Ph.D. and M.Sc. students in IoT, ICN and edge computing topics.

Research Projects

- Principal Investigator, PRIN Project 2022: "TOGETHER: models and algorithms for 6G Era digital Twin orchestrator" (funding € 179.793)
- Participation in various national and international research projects on IoT networks and cognitive environments

Research publications

[1] Marica Amadeo, Claudia Campolo, Antonella Molinaro, Giuseppe Ruggeri, and Gurtaj Singh. Mitigating the communication straggler effect in federated learning via named data networking. *IEEE Communications Magazine*, 2024.

[2] M. Amadeo et al. "Composing Digital Twins for Internet of Everything Applications: a User-centric Perspective" IEEE MeditCom 2024

[3] Marica Amadeo, Franco Cicirelli, Antonio Guerrieri, Giuseppe Ruggeri, Giandomenico Spezzano, and Andrea Vinci. When edge intelligence meets cognitive buildings: The cogito platform. *Internet of Things*, 24:100908, 2023.

[4] Marica Amadeo, Marco Martal`o, Giuseppe Ruggeri, and Michele Nitti. Enabling social digital twins in the 6g era with information centric networking. *IEEE Communications Magazine*, 2023.

[5] Marica Amadeo, Claudia Campolo, Gianmarco Lia, Antonella Molinaro, and Giuseppe Ruggeri. In-network placement of reusable computing tasks in an sdn-based network edge. *IEEE Transactions on Mobile Computing*, 2023.

[6] Gianmarco Lia, Marica Amadeo, Giuseppe Ruggeri, Claudia Campolo, Antonella Molinaro, and Valeria Loscrì. In-network placement of delayconstrained computing tasks in a softwarized intelligent edge. *Computer Networks*, 219:109432, 2022.

[7] Yesin Sahraoui, Ahmed Korichi, Chaker Abdelaziz Kerrache, Muhammad Bilal, and Marica Amadeo. Remote sensing to control respiratory viral diseases outbreaks using internet of vehicles. *Transactions on Emerging Telecommunications Technologies*, 33(10):e4118, 2022.

[8] Marica Amadeo, Claudia Campolo, Giuseppe Ruggeri, and Antonella Molinaro. Popularity-aware closeness based caching in ndn edge networks. *Sensors*, 22(9):3460, 2022.

[9] Yesin Sahraoui, Chaker Abdelaziz Kerrache, Marica Amadeo, Anna Maria Vegni, Ahmed Korichi, Jamel Nebhen, and Muhammad Imran. A cooperative crowdsensing system based on flying and ground vehicles to control respiratory viral disease outbreaks. *Ad Hoc Networks*, 124:102699, 2022.

[10] Marica Amadeo, Claudia Campolo, Giuseppe Ruggeri, and Antonella Molinaro. Beyond edge caching: Freshness and popularity aware iot data caching via ndn at internet-scale. *IEEE Transactions on Green Communications and Networking*, 6(1):352–364, 2021.

[11] Marica Amadeo. A literature review on caching transient contents in vehicular named data networking. *Telecom*, 2(1):75–92, 2021.

[12] Giuseppe Ruggeri, Marica Amadeo, Claudia Campolo, Antonella Molinaro, and Antonio Iera. Caching popular transient iot contents in an sdnbased edge infrastructure. *IEEE Transactions on Network and Service Management*, 2021.

[13] Marica Amadeo, Giuseppe Ruggeri, Claudia Campolo, and Antonella Molinaro. Diversity-improved caching of popular transient contents in vehicular named data networking. *Computer Networks*, 184:107625, 2021.

[14] Carlos Borrego, Marica Amadeo, Antonella Molinaro, Paulo Mendes, Rute C Sofia, Naercio Magaia, and Joan Borrell. Forwarding in opportunistic information-centric networks: an optimal stopping approach. *IEEE Communications Magazine*, 58(5):56–61, 2020.

[15] Marica Amadeo, Claudia Campolo, Giuseppe Ruggeri, Gianmarco Lia, and Antonella Molinaro. Caching transient contents in vehicular named data networking: A performance analysis. *Sensors*, 20(7):1985, 2020.

[16] Marica Amadeo, Giuseppe Ruggeri, Claudia Campolo, Antonella Molinaro, Valeria Loscrì, and Carlos T Calafate. Fog computing in iot smart environments via named data networking: A study on service orchestration mechanisms. *Future internet*, 11(11):222, 2019.

[17] Marica Amadeo, Claudia Campolo, Giuseppe Ruggeri, Antonella Molinaro, and Antonio Iera. Sdn-managed provisioning of named computing services in edge infrastructures. *IEEE Transactions on Network and Service Management*, 16(4):1464–1478, 2019.

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[20] Marica Amadeo, Giuseppe Ruggeri, Claudia Campolo, and Antonella Molinaro. Iot services allocation at the edge via named data networking: From optimal bounds to practical design. *IEEE Transactions on Network and Service Management*, 16(2):661–674, 2019.

[21] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Empowering 5g network softwarization through information centric networking. *Internet Technology Letters*, 1(2):e30, 2018.

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[23] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Priority-based content delivery in the internet of vehicles through named data networking. *Journal of Sensor and Actuator Networks*, 5(4):17, 2016.

[24] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Ndne: Enhancing named data networking to support cloudification at the edge. *IEEE Communications Letters*, 20(11):2264–2267, 2016.

[25] Marica Amadeo, Orazio Briante, Claudia Campolo, Antonella Molinaro, and Giuseppe Ruggeri. Information-centric networking for m2m communications: Design and deployment. *Computer Communications*, 89:105–116, 2016.

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[29] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Forwarding strategies in named data wireless ad hoc networks: Design and evaluation. *Journal of Network and Computer Applications*, 50:148–158, 2015.

[30] Marica Amadeo, Claudia Campolo, Antonella Molinaro, and Giuseppe Ruggeri. Content-centric wireless networking: A survey. *Computer Networks*, 72:1–13, 2014.

[31] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Enhancing content-centric networking for vehicular environments. *Computer Networks*, 57(16):3222–3234, 2013.

[32] Marica Amadeo, Antonella Molinaro, and Giuseppe Ruggeri. E-chanet: Routing, forwarding and transport in information-centric multihop wireless networks. *Computer communications*, 36(7):792–803, 2013.

[33] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Crown: Content-centric networking in vehicular ad hoc networks. *Communications Letters, IEEE*, (99):1–4, 2012.

[34] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Enhancing ieee 802.11 p/wave to provide infotainment applications in vanets. *Ad hoc networks*, 10(2):253–269, 2012.

[35] Marica Amadeo, Giuseppe Ruggeri, Claudia Campolo, and Antonella Molinaro. Content-driven closeness centrality based caching in softwarized edge networks. In *IEEE International Conference on Communications*, pages 3264–3269, 2023.

[36] Yesin Sahraoui, Ludovica De Lucia, Chaker Abdelaziz Kerrache, Anna Maria Vegni, Marica Amadeo, and Ahmed Korichi. Contact tracing platform in osn for prevention of infectious disease outbreaks. In *IEEE 20th Consumer Communications & Networking Conference (CCNC)*, pages 188–193, 2023.

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[41] Marica Amadeo, Giuseppe Ruggeri, Claudia Campolo, Antonella Molinaro, and Giuseppe Mangiullo. Caching popular and fresh iot contents at the edge via named data networking. In *IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)*, pages 610–615, 2020.

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[49] Marica Amadeo, Claudia Campolo, and Antonella Molinaro. Named data networking for priority-based content dissemination in vanets. In *IEEE 27th Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC)*, pages 1–6, 2016.

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[51] Mohamed Ahmed Hail, Marica Amadeo, Antonella Molinaro, and Stefan Fischer. Caching in named data networking for the wireless internet of things. In *IEEE International Conference on Recent Advances in Internet of Ihings (RIoT)*, pages 1–6, 2015.

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[57] Marica Amadeo, Antonella Molinaro, Claudia Campolo, Manolis Sifalakis, and Christian Tschudin. Transport layer design for named data wireless networking. In *IEEE conference on computer communications workshops (INFOCOM WKSHPS)*, pages 464–469, 2014.

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[59] Jan Pieter Meijers, Marica Amadeo, Claudia Campolo, Antonella Molinaro, Stefano Yuri Paratore, Giuseppe Ruggeri, and Marthinus J Booysen. A two-tier content-centric architecture for wireless sensor networks. In *IEEE Network Protocols (ICNP)*, pages 1–2, 2013.

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[63] Marica Amadeo, Antonella Molinaro, and Giuseppe Ruggeri. A contentcentric architecture for green networking in IEEE 802.11 MANETs. In *Green Communications and Networking, GreeNets 2011, Colmar, France*, pages 73–87. Springer Berlin Heidelberg, 2012.

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