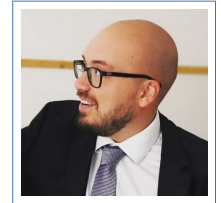


Andrea Marotta

Curriculum Vitae

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Andrea Marotta is Assistant Professor at the Department of Information Engineering, Computer Science and Mathematics of the University of L'Aquila, Italy. He received his M.Sc. degree in Computer Engineering and his Ph.D. in Information and Communications Technology from the University of L'Aquila, in 2015 and 2019, respectively. During his graduate studies, he was a visiting student at Group for Research on Wireless (GROW) at Instituto Superior Técnico/University of Lisbon, performing research on C-RAN deployment optimisation. In 2017 he spent one year as visiting researcher at the research Institute of Communication, Information and Perception Technologies (TeCIP) of Scuola superiore di studi universitari e di perfezionamento Sant'Anna in Pisa performing research on 5G Radio Access Network design. In 2019 he spent a research period at the Computer Networks Lab (NetLab) of the University of California, Davis, performing research on slice reliability. He actively participated in the TPC of IEEE Communications Society conferences. He serves as Associate Editor for the Springer Wireless Networks Journal. He performs research on Network Reliability, SDM Optical Networks, Multi-Access Edge Computing, 5G Software Defined Access, CoMP Coordinated Scheduling.

Education

- 2019 **Ph.D., Information and Communications Technology**, *University of L'Aquila*, L'Aquila, Italy.
Network Design for 5G Converged Access
- 2015 **M.Sc. Computer Engineering**, *University of L'Aquila*, L'Aquila, Italy.
Thesis: Optimisation of Radio Access Network Cloud Architectures Deployment in LTE-Advanced
- 2013 **B.Sc. Computer Engineering**, *University of L'Aquila*, L'Aquila, Italy.
Thesis: Study and implementation of octilinear polygonal approximation algorithms

Research Experience

- Jan. 2021 – **Assistant Professor**, *University of L'Aquila*, L'Aquila, Italy.
present Professor for the Telecommunication Engineering Master program. Bachelor and Master thesis Co-supervision. Ph.D. Co-supervision.
- Feb. 2020 – **Visiting Researcher**, *University of California*, Davis, CA, US.
Mar. 2020 Research on network reliability with focus on content connectivity.
- Apr. 2019 – **Vice-director**, *Fibers Lab, CNIT, University of L'Aquila*, L'Aquila, Italy.
present Support to the experimental activities of the National Laboratory of Advanced Optical Fibers for Photonics (FIBERS) at the University of L'Aquila. The infrastructure of FIBERS Lab is the world-first installation of fibers for SDM transmission.
- Jan. 2019 – **Visiting Researcher**, *University of California*, Davis, CA, US.
Aug. 2019 Research on Reliable Slicing with focus on Slice Isolation. Support with Net2Plan environment in the Optical Network course offered at University of California, Davis.
- Nov. 2018 – **Research Fellow**, *University of L'Aquila*, L'Aquila, Italy.
Dec. 2020 Research on 5G networks design and reliability, radio access schemes for ultra Reliable and Low Latency Communications. Bachelor and Master thesis Co-supervision. Seminar activities in telecommunications engineering courses.
- Feb. 2017 – **Laboratory Setup and Management**, *MECLAB, University of L'Aquila*, L'Aquila, Italy.
present Design and setup of the Multi-Access Edge Computing Lab at the University of L'Aquila, funded by the INCIPICT research project. The lab offers the possibility to perform experimental research by the means of prototypal and commercial technologies. Experimental activities performed in the lab include, but are not limited to: 4G/5G emulation; Network Slicing; Multi-Access Edge Computing.

- Feb. 2016 – **Visiting Ph.D. Student**, *Scuola Superiore Sant'Anna*, Pisa, Italy.
 Feb. 2017 Research activities on 5G Radio Access Network design and PON Fronthauling.
 Jan. 2015 – **Visiting Student**, *INOV-INESC/ Instituto Superior Técnico, Univeristy of Lisbon*, Lisbon, Portugal.
 July 2015 M.Sc. thesis work on optimisation of radio access network cloud architectures deployment in LTE-Advanced

Publications

Journal Articles

- J1 **A. Marotta**, D. Cassioli, C. Antonelli, K. Kondepu, and L. Valcarenghi. Network solutions for CoMP coordinated scheduling. *IEEE Access*, volume 7, pages 176624–176633. IEEE, 2019.
- J2 **A. Marotta**, D. Cassioli, K. Kondepu, C. Antonelli, and L. Valcarenghi. Exploiting flexible functional split in converged software defined access networks. *Journal of Optical Communications and Networking*, volume 11, pages 536–546. Optical Society of America, 2019.
- J3 C. Calcaterra, A. Carmenini, **A. Marotta**, U. Bucci, and D. Cassioli. Maxhadoop: an efficient scalable emulation tool to test SDN protocols in emulated hadoop environments. *Journal of Network and Systems Management*, volume 28, pages 1610–1638. Springer, 2020.
- J4 G. Le, S. Ferdousi, **A. Marotta**, S. Xu, Y. Hirota, Y. Awaji, M. Tornatore, and B. Mukherjee. Survivable virtual network mapping with content connectivity against multiple link failures in optical metro networks. *Journal of Optical Communications and Networking*, volume 12, pages 301–311. Optical Society of America, 2020.
- J5 **A. Marotta** and L. M. Correia. Cost-effective joint optimisation of BBU placement and fronthaul deployment in brown-field scenarios. *EURASIP Journal on Wireless Communications and Networking*, volume 2020, pages 1–26. Springer, 2020.
- J6 C. Rinaldi, F. Franchi, **A. Marotta**, F. Graziosi, and C. Centofanti. On the exploitation of 5G multi-access edge computing for spatial audio in cultural heritage applications. *IEEE Access*, volume 9, pages 155197–155206, 2021.
- J7 F. Franchi, **A. Marotta**, C. Rinaldi, F. Graziosi, L. Fratocchi, and M. Parisse. What can 5G do for public safety? structural health monitoring and earthquake early warning scenarios. *Sensors*, volume 22, page 3020. Multidisciplinary Digital Publishing Institute, 2022.
- J8 V. Gattulli, F. Franchi, F. Graziosi, **A. Marotta**, C. Rinaldi, F. Potenza, and U. Di Sabatino. Design and evaluation of 5G-based architecture supporting data-driven digital twins updating and matching in seismic monitoring. *Bulletin of Earthquake Engineering*, pages 1–21. Springer, 2022.
- J9 **A. Marotta**, D. Cassioli, M. Tornatore, Y. Hirota, Y. Awaji, and B. Mukherjee. Multilayer protection-at-lightpath for reliable slicing with isolation in optical metro-aggregation networks. *Journal of Optical Communications and Networking*, volume 14, pages 289–302. Optica Publishing Group, 2022.

In Conference Proceedings

- C1 F. Matera, M. Vari, M. Posada, G. Maier, F. Giannone, L. Valcarenghi, **A. Marotta**, and C. Antonelli. Fiber access cost models from road NGN project. IET, 2016.
- C2 S. Medranda Posada, G. Maier, F. Giannone, L. Valcarenghi, **A. Marotta**, and C. Antonelli. Comparison of multi-operator PON technologies beyond NG-PON2: A real greenfield case-study. In *2016 18th International Conference on Transparent Optical Networks (ICTON)*, pages 1–4. IEEE, 2016.
- C3 **A. Marotta** and L. M. Correia. A model to evaluate C-RAN architectures deployment impact in urban scenarios. In *2016 International Conference on Broadband Communications for Next Generation Networks and Multimedia Applications (CoBCom)*, pages 1–6, 2016.

- C4 **A. Marotta**, K. Kondepu, F. Giannone, S. Doddikrinda, D. Cassioli, C. Antonelli, L. Valcarenghi, and P. Castoldi. Performance evaluation of CoMP coordinated scheduling over different backhaul infrastructures: A real use case scenario. In *2016 IEEE International Conference on the Science of Electrical Engineering (ICSEE)*, pages 1–5. IEEE, 2016.
- C5 A. Colarieti, **A. Marotta**, M. Mpervarakis, L. Pomante, and V. Tsolkas. QoE provisioning over mobile networks: The CASPER perspective. In *2017 IEEE 22nd International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD)*, pages 1–5. IEEE, 2017.
- C6 K. Kondepu, A. Giorgetti, F. Giannone, **A. Marotta**, F. Cugini, P. Castoldi, and L. Valcarenghi. SDN-enabled latency-guaranteed dual connectivity in 5G ran. In *Asia Communications and Photonics Conference*, pages M3B–4. Optical Society of America, 2017.
- C7 E. Liotou, **A. Marotta**, L. Pomante, and K. Ramantas. A middleware architecture for QoE provisioning in mobile networks. In *2017 IEEE 22nd International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD)*, pages 1–5. IEEE, 2017.
- C8 **A. Marotta**, K. Kondepu, S. Doddikrinda, D. Cassioli, C. Antonelli, L.M. Correia, and L. Valcarenghi. Software defined 5G converged mobile access networks: Energy efficiency considerations. In *2017 Asia Communications and Photonics Conference (ACP)*, pages 1–3. IEEE, 2017.
- C9 **A. Marotta**, F. Giannone, K. Kondepu, D. Cassioli, C. Antonelli, L. Valcarenghi, and P. Castoldi. Reducing CoMP control message delay in PON backhauled 5G networks. In *European Wireless 2017; 23th European Wireless Conference*, pages 1–5. VDE, 2017.
- C10 **A. Marotta**, K. Kondepu, F. Giannone, D. Cassioli, C. Antonelli, L. Valcarenghi, and P. Castoldi. Impact of CoMP VNF placement on 5G coordinated scheduling performance. In *2017 European Conference on Networks and Communications (EuCNC)*, pages 1–6. IEEE, 2017.
- C11 C. Antonelli, D. Cassioli, F. Franchi, F. Graziosi, **A. Marotta**, M. Pratesi, C. Rinaldi, and F. Santucci. The city of L'Aquila as a living lab: The INCIPICT project and the 5G trial. In *2018 IEEE 5G World Forum (5GWF)*, pages 410–415. IEEE, 2018.
- C12 F. Barletta, F. Massimiani, F. Pierangeli, M. R. Spada, **A. Marotta**, and F. Graziosi. 5G networks. An overall perspective for the innovation management. In *2018 IEEE 4th International Forum on Research and Technology for Society and Industry (RTSI)*, pages 1–4, 2018.
- C13 U. Bucci, **A. Marotta**, K. Kondepu, C. Antonelli, L. Valcarenghi, and D. Cassioli. Experimental demonstration of flexible TDM-PON fronthauling. In *Asia Communications and Photonics Conference*, pages Su1E–4. Optica Publishing Group, 2018.
- C14 S. Doddikrinda, **A. Marotta**, D. Cassioli, C. Antonelli, K. Kondepu, and L. Valcarenghi. Exploiting core-switching to minimize fronthaul degradation using multicore fiber. In *Asia Communications and Photonics Conference*, pages Su2A–253. Optical Society of America, 2018.
- C15 F. Franchi, F. Graziosi, **A. Marotta**, and C. Rinaldi. The INCIPICT project and the 5G trial: a living lab for the city of L'Aquila. In *2018 International Conference on Computational Science and Computational Intelligence (CSCI)*, pages 519–524. IEEE, 2018.
- C16 **A. Marotta**, D. Cassioli, K. Kondepu, C. Antonelli, and L. Valcarenghi. Efficient management of flexible functional split through software defined 5G converged access. In *2018 IEEE International Conference on Communications (ICC)*, pages 1–6. IEEE, 2018.
- C17 **A. Marotta**, K. Kondepu, D. Cassioli, C. Antonelli, Luís M Correia, and L. Valcarenghi. Software defined 5G converged access as a viable techno-economic solution. In *2018 Optical Fiber Communications Conference and Exposition (OFC)*, pages 1–3. IEEE, 2018.
- C18 C. Calcaterra, A. Carmenini, **A. Marotta**, and D. Cassioli. Hadoop performance evaluation in software defined data center networks. In *2019 International Conference on Computing, Networking and Communications (ICNC)*, pages 56–61. IEEE, 2019.

- C19 L. D’Errico, F. Franchi, F. Graziosi, **A. Marotta**, C. Rinaldi, M. Boschi, and A. Colarieti. Structural health monitoring and earthquake early warning on 5G URLLC network. In *2019 IEEE 5th World Forum on Internet of Things (WF-IoT)*, pages 783–786. IEEE, 2019.
- C20 F. Franchi, **A. Marotta**, C. Rinaldi, F. Graziosi, and L. D’Errico. IoT-based disaster management system on 5G URLLC network. In *2019 International Conference on Information and Communication Technologies for Disaster Management (ICT-DM)*, pages 1–4, 2019.
- C21 G. Le, **A. Marotta**, S. Ferdousi, S. Xu, Y. Hirota, Y. Awaji, M. Tornatore, and B. Mukherjee. Logical network mapping with content connectivity against multiple link failures in optical metro networks. In *2019 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)*, pages 1–3. IEEE, 2019.
- C22 F. Franchi, F. Graziosi, **A. Marotta**, and C. Rinaldi. Structural health monitoring over 5G URLLC network. In *European Workshop on Structural Health Monitoring*, pages 60–68. Springer, 2020.
- C23 R. S. Luís, B. J. Puttnam, G. Rademacher, **A. Marotta**, C. Antonelli, F. Graziosi, A. Mecozzi, T. Hayashi, T. Nakanishi, S. Shinada, et al. Evaluation of dynamic skew on spooled and deployed multicore fibers using o-band signals. In *Optical Fiber Communication Conference*, pages T4J–4. Optical Society of America, 2020.
- C24 M. Mazur, N. K. Fontaine, R. Ryf, **A. Marotta**, H. Chen, T. Hayashi, T. Nagashima, T. Nakanishi, T. Morishima, F. Graziosi, A. Mecozzi, and C. Antonelli. Transfer matrix characterization of field-deployed mcfs. In *2020 European Conference on Optical Communications (ECOC)*, pages 1–4, 2020.
- C25 B.J. Puttnam, R.S. Luis, G. Rademacher, **A. Marotta**, C. Antonelli, A. Mecozzi, F. Graziosi, T. Hayashi, T. Nakanishi, Y. Awaji, et al. Dynamic skew measurements in a deployed 4-core fiber. In *CLEO: Science and Innovations*, pages STu4R–1. Optical Society of America, 2020.
- C26 R. Ryf, **A. Marotta**, M. Mazur, N. K. Fontaine, H. Chen, T. Hayashi, T. Nagashima, T. Nakanishi, T. Morishima, F. Graziosi, A. Mecozzi, and C. Antonelli. Transmission over randomly-coupled 4-core fiber in field-deployed multi-core fiber cable. In *2020 European Conference on Optical Communications (ECOC)*, pages 1–4, 2020.
- C27 **A. Marotta**, D. Cassioli, M. Tornatore, Y. Hirota, Y. Awaji, and B. Mukherjee. Reliable slicing with isolation in optical metro-aggregation networks. In *Optical Fiber Communication Conference*, pages M4D–3. Optica Publishing Group, 2020.
- C28 C. Centofanti, **A. Marotta**, C. Rinaldi, F. Franchi, D. Cassioli, and F. Graziosi. Improved dash video streaming performance by MEC-enabled optical access. In *2021 Asia Communications and Photonics Conference (ACP)*, pages 1–3. IEEE, 2021.
- C29 G. Le, S. Ferdousi, **A. Marotta**, S. Xu, Y. Hirota, Y. Awaji, M. Tornatore, and B. Mukherjee. Reliable provisioning for dynamic content requests in optical metro networks. In *Optical Fiber Communication Conference*, pages W1F–2. Optical Society of America, 2021.
- C30 R. S. Luís, B. J. Puttnam, G. Rademacher, **A. Marotta**, C. Antonelli, F. Graziosi, A. Mecozzi, T. Hayashi, T. Nakanishi, S. Shinada, et al. Dynamic skew in multi-core fibers: from lab measurements to field trials. In *Optical Fiber Communication Conference*, pages W7B–1. Optica Publishing Group, 2021.
- C31 M. Mazur, R. Ryf, N. K. Fontaine, **A. Marotta**, E. Börjeson, L. Dallachiesa, H. Chen, T. Hayashi, T. Nagashima, T. Nakanishi, et al. Real-time MIMO transmission over field-deployed coupled-core multi-core fibers. In *Optical Fiber Communication Conference*, pages Th4B–8. Optica Publishing Group, 2022.

Book Chapters

- B1 F. Franchi, F. Graziosi, **A. Marotta**, C. Rinaldi, The City of L’Aquila as a Living Lab: The INCIPICT Project and the 5G Trial, In *Smart Governance for Cities: Perspectives and Experiences*, Springer, Cham, Germany, 2020.

- B2 S. Subramaniam, K. Kondepu, **A. Marotta**, Cross-layer Design, In *Springer Handbook of Optical Networks*, Springer Nature Switzerland AG, Basel, Switzerland, 2020.

Other Publications

- O1 C. Antonelli, **A. Marotta**, F. Graziosi, A. Mecozzi, Towards Space-Division Multiplexed Transmission: The World-Wide First and Unique Testbed with Deployed Special Fibers for the Photonics Community, In *IEEE Photonics Society News*, Apr. 2020.
- O2 F. Cugini, M. Tornatore, N. Sambo, C. Rottondi, **A. Marotta**, *Optical Networks evolution: from programmability to Machine Learning and Spatial Division Multiplexing*, In *CNIT Technical Report Network Programmability: a (r)evolutionary approach*, Nov. 2020.

Editorial and Conference activities

Editorial Activities

- 2022 – **Editor**, *Wireless Networks (ISSN: 1022-0038, 1572-8196) Springer*.
present
- 2022 – **Member of the Topical Advisory Panel**, *Photonics (ISSN: 2304-6732) MDPI*.
present
- 2022 – **Member of the Reviewer Board**, *Sensors, (ISSN 1424-8220), MDPI*.
present

Reviewer Activities

- 2015 – **Reviewer**, *IEEE*, > 20 reviews, *IEEE Communication Letters*, *IEEE Access*, *IEEE Transactions on Networking*, *IEEE Transactions on Mobile Computing*.
present
- 2015 – **Reviewer**, *Elsevier*, > 10 reviews, *Computer Networks*, *Optical Switching and Networking*, *Optical Fiber Technology*.
present
- 2015 – **Reviewer**, *MDPI*, > 20 reviews, *Photonics*, *Sensors*, *Energies*, *Applied Sciences*, *Future Internet*.
present
- 2015 – **Reviewer**, *Optica*, > 5 reviews, *Journal of Optical Communications and Networking*, *Journal of Lightwave Technology*.
present
- 2015 – **Reviewer**, > 5 reviews, *Wiley*, *Wireless Networks*, *Transactions on Emerging Telecommunications Technologies*.
present

Conference Activities

- 2023 **Symposium Chair**, 9th Int. Symposium on Engineering Energy Efficient Internet Worked Smart seNsors (E3WSN) Colocated with the 37th International Conference on Advanced Information Networking and Applications (AINA-2023).
- 2023 **Technical programme committee member**, IEEE International Conference on Communications (ICC).
- 2022 **Technical programme committee member**, IEEE Conference on Standards for Communications and Networking (CSCN).
- 2022 **Technical programme committee member**, IEEE Global Communications Conference (GLOBECOM).
- 2022 **Technical programme committee member**, IEEE International Conference on Communications (ICC).
- 2021 **Technical programme committee member**, IEEE Global Communications Conference (GLOBECOM).
- 2021 **Technical programme committee member**, IEEE 5G World Forum (WF-5G).
- 2020 **Technical programme committee member**, IEEE 5G World Forum (WF-5G).
- 2019 **Technical programme committee member**, IEEE 5G World Forum (WF-5G).

- 2019 **Technical programme committee member**, IEEE International Forum on Research and Technologies for Society and Industry (RTSI).
- 2019 **Session chair**, IEEE International Conference on Computing, Networking and Communications (ICNC).
- 2018 **Technical programme committee member**, IEEE International Forum on Research and Technologies for Society and Industry (RTSI).
- 2018 **Session chair**, IEEE International Conference on Communications (ICC).

Project activities

- Feb. 2020 – present **FIRST Fiber Infrastructure for Research on Space-Division Multiplexed Transmission**, *Progetti di Rilevante Interesse Nazionale (PRIN)*, Researcher.
- May. 2020 – present **OPTIMIST OPTIMised video content delivery chains leveraging data analysis over joint multi-access edge computing and 5G radio network infrastructures**, *MSCA-RISE-2019 - Research and Innovation Staff Exchange, grant 872866*, Work Package Leader.
- May. 2018 – Nov. 2021 **CYBERTRAINER**, supported by *Abruzzo Region POR FESR Abruzzo 2014-2020 – Asse I Determinazione n. 35 DPG013 del 30/11/2017*, Researcher.
- Nov. 2015 – present **INCIPICT Innovating City Planning through Information and Communications Technologies**, supported by the Italian Government under *CIPE resolution no. 135 (December 21, 2012)*, Researcher.
- Jul. 2017 – Jul. 2020 **INCUBANDO INCUBate and DO**, supported by the Italian Ministry of Foreign Affairs and Israeli Ministry of Science, Technology and Space, Researcher.
- Mar. 2017 – June 2020 **Italian 5G Trial**, promoted by the Ministry for the Economic Development, Researcher.
- Jan. 2016 – Dec. 2019 **CASPER A user-Centric middleware Architecture for advanced Service Provisioning in future networks**, *MSCA-RISE-2014 - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE), grant 645393*, Researcher.
- Nov. 2015 – Feb. 2016 **ROAD-NGN Optical Frequency/Wavelength Division Multiple Access Techniques For Next Generation Networks**, *Progetti di Rilevante Interesse Nazionale (PRIN)*, Researcher.

Teaching

- 2022 **M.Sc. Course: Design of Access, Metro, and Core Networks**, University of L'Aquila, L'Aquila, Italy.
- 2022 **M.Sc. Course: Advanced and Software Defined Networks**, University of L'Aquila, L'Aquila, Italy.
- 2021 **Ph.D. Course: Optical Wireless Convergence**, University of L'Aquila, L'Aquila, Italy.

Training

- 2017 **Summerschool on Network Programmability**, Jacob T. Schwartz International School for Scientific Research.
- 2016 **5G NORMA Summerschool**, 5G NORMA EU project.
- 2013 **Professional Course "Instrumentation and control systems for industrial facilities"**, ENEA Italian National Agency for new technologies, energy and sustainable economic development, Rome, Italy.
- 2013 **Certified associate in project management training course**, PMI Rome Chapter, L'Aquila, Italy.
- 2012 **Professional course "Introduction to the development of mobile applications on the android platform"**, University of L'Aquila, L'Aquila, Italy.

- 2012 **Professional course "Remote services of electrical networks, water, and gas: local automation, distributed control, and communication networks"**, Itaco Systems srl, Rome, Italy.
- 2011 **Cisco networking academy course CCNA exploration: network fundamentals**, University of L'Aquila, L'Aquila, Italy.

Networks and memberships

- 2015 – **IEEE - Institute of Electrical and Electronics Engineers.**
- current IEEE Communications Society Membership; IEEE Computer Society Membership; IEEE Young Professionals; IEEE Women in engineering