Prof. Antonio Liotta

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Career: Since 2020, Antonio Liotta has been Full Professor of Computer Engineering (Italian scientific sector ING-INF/05) at the Faculty of Engineering, Free University of Bolzano, Italy, where he teaches Data Science and Machine Learning. He also holds the Full Professor Habilitation in Computer Science (Italian scientific sector INF/01) and in Telecommunications (Italian scientific sector ING-INF/03). Antonio is currently serving the following roles at the Faculty of Engineering: Coordinator of the PhD in Computer Science; Scientific Coordinator of the macro area D2AI (data-driven Artificial Intelligence); and co-coordinator for the Master in Data Analytics for Economics and Management, managed jointly with the Faculty of Economics.

Antonio's passion for *artificial intelligence*, has driven his academic career throughout Europe. After majoring his master´s degree with a thesis in *artificial vision* (University of Pavia, 1994), he earned a second master in ICT with a major in *e-Health* (Politecnico di Milano, 1996), and completed his PhD in Computer Science with a thesis in *intelligent networks* (University College London, 2001). He then progressed to a range of tenured academic roles at University of Surrey (*intelligent networks*, 2001-05) and Essex University (*intelligent systems*, 2005-2008). In the period between 2008 and 2020, he held full professorships at Eindhoven University of Technology (NL), University of Derby (UK), and Edinburgh Napier University (UK), in tandem with Visiting and Distinguished Professorships in China and Visiting Professorships in the UK, Australia and China. In 2017 he was the founding director of the Data Science Research Centre, which is now a prominent institution in data science and intelligent systems.

Research Activity: Antonio´s team is at the forefront of influential research in *data science* and *artificial intelligence*. He is renowned for his contributions to *micro-edge intelligence* and *miniaturized machine learning*, which have significant potential in harnessing *data-intensive systems*, specifically in the context of *smart cities*, *cyber-physical systems*, *Internet of Things*, *smart energy*, and *machine learning with humans in the loop*. Antonio has led the international team that has recently made a breakthrough in *artificial neural networks*, initiating a new research strand at the intersection between *machine learning* and *network science* (see Nature Communications paper, having over 47k accesses). He is also well-known for demonstrating machine learning processes in tiny sensors, proving the benefits of concurrent sensing and learning.

Research Projects: He has been involved in several research and development projects in the research/technical areas of data-intensive systems, intelligent IoT, smart sensing, mesh networking and computing, artificial neural networks miniaturization, intelligent networks, and urban informatics. In the last 20 years he has gained research grants totaling over €17m, including EU funding and national funding in the UK, the Netherlands, Italy, and China, in addition to contracts and sponsorships from Industry. Major EU projects have included: H2020 project INTER-IoT, Interoperability of Heterogeneous IoT Platforms.(http://www.inter-iot.eu); EIT ICT RICH, Reliable IP for time synchronized Channel Hopping networks; EU ARTEMIS ACCUS, Adaptive Cooperative Control in Urban (sub) Systems https://cordis.europa.eu/project/id/333020; EIT ICT SNE, Smart Networks at the Edge; ARTEMIS DEMANES, Design, Monitoring and Operation of Adaptive Embedded Systems http://www.demanes.eu; IST 2006-034115 PHOSPHORUS: Lambda User Controlled Infrastructure For European Research, a Research Infrastructure project aimed at building a EU-wide optical network managed by a Grid Resource Management Framework. He was also the national PI for the following EU networks of excellence and EU Intensive Programmes: ERASMUS LLP Intensive Programme Multimedia and the Future Internet: moving social and mobile; COST Action IC1105 – 3D-ConTourNet: 3D Content Creation, Coding and Transmission over Future Media Networks (http://www.3d-contournet.eu); EU IST project IST 2001-38835 ANWIRE: Academic Network for Wireless Internet Research in Europe, a network of excellence aiming at integrating European efforts in the area of wireless networks and services.

His most recent National research projects, as principal investigator, are: PRIN project "Community-Oriented Wearable Computing Systems" (2022-2025), grant CUP I53C21000210001, total budget: EUR 944,131); PRIN project "Self-optimizing Networked Edge Control for Cooperative Vehicle Autonomy" (2023-2025, grant CUP E53D23000920001, total budget EUR 196,862); UniBZ Startup project "Sparse Artificial Neural Networks for Embedded Machine Learning" (2021-2024, grant CUP I55F21001900005, total budget EUR 70,000); Pfizer project "Analysis for Speech Recognition using Artificial Intelligence methods" (2023-2024, grant EG2202, total budget EUR 43,650).

Young Researchers' Formation: since 2003, he has supervised dozens of PhD students in different Universities in the UK, the Netherlands, and Italy. He is typically supervising 4-5 PhD students and 2-3 postdoctoral researchers. Six of his former PhD students have already achieved prominent academic positions (1 vice-president, 1 college dean, 3 assistant professors, and 1 researcher).

Publications and Awards: He has been credited with over 350 peer-reviewed publications involving, overall, more than 150 co-authors, securing 12 best-paper awards. He has authored 6 book monographs, including a major 900-page handbook on peer-to-peer computing. He has received the 2022 Teacher of The Year Award at the Free University of Bozen-Bolzano.

Bibliometrics (March´24): According to SCOPUS he has: h-index=36, citations=5,240. According to Google Scholar he has: h-index=48, citations= 8,640, i10-index=151.

Professional Research Services: He is the founding editor in chief of the Springer Book Series on Internet of Things: Technology, Communications and Computing. He is currently associate editor of the following journals: Journal of Network and System Management; International Journal of Network Management. He has guest-edited several journal special issues in his area of expertise and has delivered dozens of keynotes at international conferences. He has co-chaired over 50 international conferences and workshops and has been a member of the technical program committee in over 200 conferences.

International Activity: He has held a number of research and academic roles abroad between 1996 and 2020, taking up his first academic position in Italy in September 2020. He was the founding director of research teams at University of Surrey (UK), University of Essex (UK), Eindhoven University of Technology (The Netherlands). In 2017 he founded the Data Science Research Centre, University of Derby (UK), which is now a prominent institution. He is also the founding director of the Joint Intellisensing Lab (connecting laboratories in four different continents). He has held numerous visiting professorships, including University of Derby (UK), Shanghai Ocean University (China), Griffith University, Brisbane (Australia). In 2019 he was awarded as Distinguished Professor of Artificial Intelligence, Shanghai Ocean University (China).

Teaching Activity: He currently teaches two full modules in English at the Free University of Bolzano: Data Mining (BSc in Computer Science); and Programming for Data Analytics (MSc in Computational Data Science). Prior to his current appointment, between 2001 and 2020 he has developed and taught a range of university courses in the UK and in The Netherlands, at all higher education levels, including BSC, MSC, post-master, doctoral schools and for industry. He has also delivered several conference tutorials, and summer/winter schools. All together he has supervised hundreds of final-year BSc and MSc students, as well as dozens of PhD students. Since 2003, he is a Fellow of the UK Higher Education Academy.

Technology Transfer: He has carried out several projects with industry, which has led to significant technology transfer, including 6 patents, and a vast number of publications involving industry co-authors. He has been in the scientific advisor of two start-up companies, Fractal Networx (Cyprus) and SmartDutch (The Netherlands). He was also the executive board member of three Dutch institutes: the Data Science Centre; the Centre of Wireless Technology; and the Eindhoven Institute for Research in ICT.

Professional Activity: He is IEEE Senior Member (since 2015), Fellow of the UK Higher Education Academy (since 2003) and member of the following IEEE Technical Committees: Interactive and Wearable Computing and Devices; Environmental Informatics and Sensor Networks; Big Data; Internet of Things; Smart Cities; Smart Grid; Green ICT; Software Defined Networks; QoE for Multimedia Communications; Rebooting Computing; Computer Supported Cooperative Work in Design.