FRANCESCO FANTOZZI – short bio

Francesco graduated in Mechanical Engineering from the University of Perugia in 1996 and obtained a PhD in Aerospace Energy and Propulsion from the University of Pisa in 2000 with pioneering applications of artificial intelligence to the simulation, monitoring, and diagnostics of energy systems.

He is an energy and sustainability scholar with nearly 30 years of experience in research and teaching. He is currently a full professor of Energy Machines and Systems at the Department of Engineering at the University of Perugia, where he also serves as delegate for technology transfer and outreach (after having served as research delegate for over 10 years) and is a member of the Doctoral Board in Energy and Sustainable Development. Francesco is also an adjunct professor at the Interdisciplinary Research Center for Sustainability and Climate at the Sant'Anna School of Advanced Studies in Pisa.

He founded and heads the SES-LAB (Sustainable Energy System Laboratory) at the University of Perugia, with research activities ranging from the design, optimization, and testing of thermochemical and biochemical reactors for the production of hydrogen-rich synthesis gas and their integration into energy conversion systems and process industries. from integrated biofuel and hydrogen production chains and their use in engines and turbines and biomass and waste energy conversion, to environmental impact analysis using an LCA approach for complex technological and energy systems and the eco-design of machines.

Francesco is the author/co-author of over 320 scientific publications on these topics, with important international collaborations including the Universities of Wuhan and Zhejiang in China, Columbia University in the United States, and the Tokyo Institute of Technology in Japan, supervising 20 PhD students and over 200 graduate students. With his research group, he has prototyped on a pilot scale the original IPRP technology for micro-generation of electricity from biomass using pyrolysis technology.

In addition to his academic role, Francesco teaches in executive and postgraduate programs at LUISS (Rome) and the Scuola Superiore Sant'Anna (Pisa) and has long been an expert evaluator for the European Commission (MSCA/Horizon calls) and Italian ministries. He was also the founder and technical manager of two spin-offs from the University of Perugia, still active today, BIO-NET Srl and TREE Srl, which deal with micro-scale cogeneration from biomass/waste, carbon credit management, and LCA-energy saving certification (e.g., support related to ISO/EPD).

His portfolio includes coordination roles in various funded projects (EU LIFE, EU PRIMA, PNRR/PRIN, national calls for proposals) ranging from biochar, waste-to-fuel conversion, hydrogen production from residues and its conversion into biomethane, to circular economy solutions, as well as industrial collaboration with various companies, most recently Baker Hughes/Nuovo Pignone.

Throughout his career, Francesco has received numerous awards and recognitions, including those from the American Society of Mechanical Engineers ASME-IGTI (Best Papers and Outstanding Service), and has always been committed to inclusion, the fight against inequality, and outreach. Some of the most significant examples include organizing training courses for inmates at correctional facilities, demonstrating business models for reducing food waste and donating to charities, founding the Formula Student Racing Team at the University of Perugia, participating in TED Talks and numerous editions of Researchers' Night and Apericerca.

Francesco is a member of the Stanford/Elsevier Top 2% Scientists List, the American Society of Mechanical Engineers (ASME), and the Combustion Institute. He is registered with the Board of Engineers of the Province of Perugia and a fellow of the Accademia dei Georgofili. He is also a member of the Associazione Tecnica dell'Automobile (ATA), and the Associazione Termotecnica Italiana (ATI), of which he is President of the Umbria Section.

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