

Brazilian Scientists Selected as Finalists for the European Inventor Award 2024

MUNICH, GERMANY, June 6, 2024 /EINPresswire.com/ --

According to the [International Civil Aviation Organization \(ICAO\)](#), aircraft noise is the most significant cause of adverse community reaction related to the operation and expansion of airports. Limiting or reducing the number of people affected is therefore one of the main priorities and goals, since this aircraft noise has been identified as responsible for high annoyance, sleep disturbance among others health impacts. As the demand for environmentally friendly aircraft rises, global aerospace leaders are working on developing quieter planes that use less fuel. Brazilian inventors Fernando Catalano and Micael Carmo joined forces to this end and they have been selected as finalists in the 'Non-EPO Countries' category of the European Inventor Award 2024 in recognition of their promising work. They were chosen from over 550 candidates for this year's edition.



Safer for humans and for wildlife

Noise pollution not only harms human health, causing issues like hearing loss, stress, and cognitive impairments but also disrupts wildlife habitats and leads to economic losses through increased healthcare costs and reduced workplace productivity. Motivated by stricter noise certification standards, airport noise limits, and customer demands, Catalano and Carmo collaborated with British, Dutch, German, and Brazilian institutes to initiate the [Brazilian Silent Aircraft Programme](#).

The Brazilian team has implemented these innovative enhancements to diminish noise pollution from the core of the Embraer's new generation jets, the E2 family, by 65%. These include sealing slat track cutouts, streamlining the fuselage and the high-lift surfaces to eliminate aerodynamic noise and improve performance during take-off and landing, and extending wing to decrease noise and drag, improving operational efficiency and cost-effectiveness. The decision to use raked wingtips (extensions or modifications to the tips of aircraft wing that angle upward or downward) instead of winglets (small, vertical extensions at the tips of aircraft wings) further boosts efficiency and noise reduction while keeping costs and weight down. The redesigned tail (26% smaller than its predecessor) and the choice of engine, with slower air propulsion, also contribute to noise reduction and fuel efficiency.

After extensive fine-tuning, the new E2 aircraft's size is optimally suited for noise-restricted

medium-haul flights, offering cost advantages in densely populated airport areas, benefiting airlines, and positively impacting local communities. Its advancements have led to a drastically reduced noise footprint of up to 65% than its first-generation counterpart. The E2 also has 25% lower CO2 emissions per passenger than the previous model, and this reduction in emissions can be increased by up to an impressive 85% with 100% Sustainable Aviation Fuel (SAF).

“One of the most challenging aspects was to do the job without any impact on the aerodynamic or mechanical performance”, explained Professor Catalano. “The big change in the coming years is going to be the fuel, such as sustainable aviation fuel. We have to solve a lot of chemical problems.”

A passion for aviation and a multidisciplinary approach

At Embraer, Carmo serves as the Senior Manager for Interiors, Noise, and Vibration within the Chief Engineer’s Office. He is a renowned expert in aircraft noise control and aeroacoustics research and is co-inventor of seven patents related to aerodynamic noise reduction. He has been involved in the “Brazilian Silent Aircraft Programme” since the beginning in 2006.

With extensive and profound knowledge of aeronautics and aerodynamics, Catalano marks 40 years at the University of São Paulo, teaching and researching in the field. He is the Director of the university’s São Carlos School of Engineering (EESC). Their partnership collaboration spans almost 20 years but was consolidated during the Brazilian Silent Aircraft Programme. “Focusing on optimised solutions, one of the main challenges was to get noise specialists and aerodynamic specialists to work together on aircraft noise, as they have different goals”, Carmo said. “We are trying to find the best design for the future. Normally, it’s a balance between noise and fuel consumption, but also drag and lift and a lot of things, as well as the comfort of the passengers,” he added.

The two Brazilian inventors leading Embraer’s innovation have been named one of three finalists in the ‘Non-EPO Countries’ category for this year’s European Inventor Award, recognising outstanding inventors with inventions patented in Europe. The other finalists in this category are American-based David Fattal for his advancements in display optics and software to create glasses-free 3D imaging and Masato Sagawa from Japan for his contributions to developing superior permanent magnets. The EPO will announce the winners of the different categories during a ceremony livestreamed [here](#) from Malta on 9 July 2024. In addition, the EPO will reveal the Popular Prize winner, chosen by online public vote. Voting will remain open until the day of the ceremony.

Media Contact

Loredana Domingo- MARCO

+34 914 58 54 90

loredana.domingo@marco.agency

This press release can be viewed online at: <https://www.einpresswire.com/article/717537105>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2024 Newsmatics Inc. All Right Reserved.