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Dr. Mark Drela

Editor-in-Chief

AIAA Journal of Aircraft

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Dear Dr. Drela,

We wish to submit an original research article entitled Flying and Handling Qualities of Small-Scale Supersonic Uncrewed Aerial Vehicles for consideration by the AIAA Journal of Aircraft.

Our work emerged in response to the dynamic landscape of Uncrewed Aerial Vehicle (UAV) technology, focusing on the emerging potential of low-cost, high-speed aerodynamic demonstrators. Small-scale Supersonic UAVs (SSUAVs) represent a unique class of aircraft, with numerous projects in development, yet none currently flying. Given their novelty and the void in specific research on SSUAVs, our manuscript addresses a significant gap in the academic community's knowledge.

Our contribution to the AIAA Journal of Aircraft explores the flying and handling qualities of SSUAVs, shedding light on their distinctive characteristics. Notably, in the absence of a standardized fixed-wing UAV flying quality performance criterion, our manuscript proposes a novel handling quality evaluation criterion for UAV analysis.

Our study goes beyond theoretical proposals. It compares SSUAV response behavior with small-scale high-speed UAVs and full-scale supersonic aircraft. This comparative analysis underscores the unique flying quality challenges encountered by SSUAVs, drawing from both full-scale and small-scale UAV domains. The results have important implications for the future design, control, and operation of SSUAVs.

We confirm that no conflicts of interest are associated with this work. Furthermore, this research is entirely original and has not been published elsewhere, nor is it concurrently under consideration for publication elsewhere. We firmly believe that our research aligns with the AIAA Journal of Aircraft's objectives and will catalyze further exploration of SSUAV technology.

We look forward to publishing our work in the AIAA Journal of Aircraft.

Thank you for your consideration of this manuscript.

Sincerely,

Benjamin Durante

Sessional Instructor, MSc

University of Calgary