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One versus two: a different philosophy in simulated combat training

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Pilots in military aviation are subjected to extreme conditions, like high-g maneuvers and flight in high angle of attack. In this sense, pilots must have good physiologic resistance besides proficiency in aircraft systems and weapons. Some suggest that with next generation aircraft with stealth features, beyond visual range combat will rule the skies. That can be true, but considering the designs of both Russian T-50 and Chinese J-20 and J-31 that give importance to maneuverability and stealth, it is not difficult to imagine an air combat starting in bvr but finishing in a dogfight. With this possible situation in mind, within visual range combat can't be neglected, and pilots must train hundreds of hours per year to achieve the desired proficiency in ACM. To present day, flight simulation in combat training has a separated approach regarding physiologic and tactical training: Use of g-seats coupled with large field of view image projection for tactical training and centrifuges for physiologic training. The drawbacks are clear: g-seat can't simulate extreme g-loads that undermine pilots stamina and current generation centrifuges (active or passive) can't be properly used for combat training due limitations described in literature (i.e. motion sickness due Coriolis effect). If one could combine in a simulator, strengths of both systems in one new flight simulator, there'll be a revolution in combat training. This paper proposes a change in paradigm in combat training, showing a new concept of flight simulator, considering that close combat will be still relevant in the near future.

Biography

Antonio O Dourado is a Professor of Flight Dynamics in the Aerospace Engineering Course at Federal University of Santa Catarina, Brazil and Editor of the Journal *Applied Physics Research*. He obtained his doctorate in Mechanical Engineering studying military dynamic flight simulators in 2012. Also, he has designed several motion simulators for aeronautic and automotive applications.

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