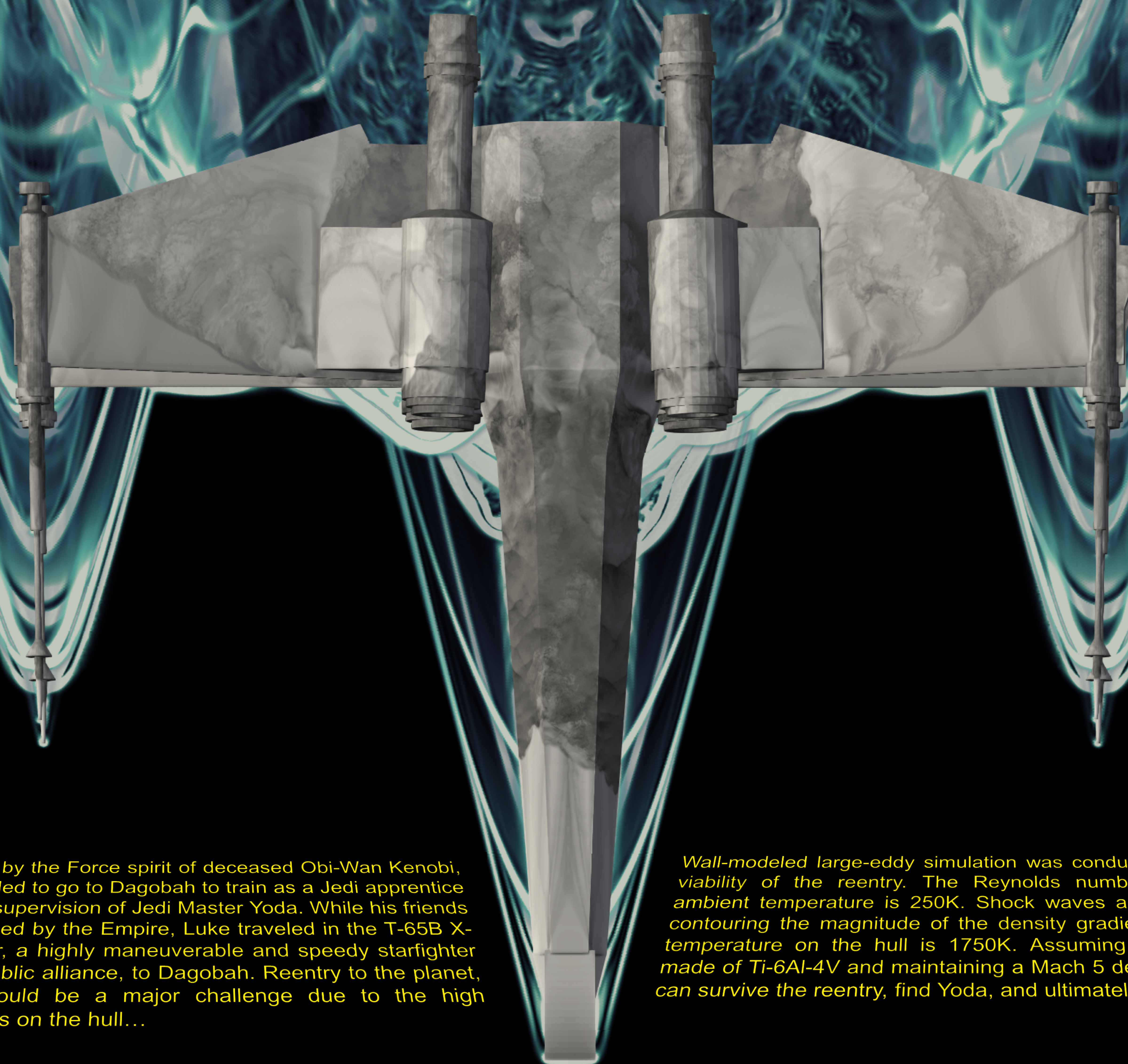


CAN THE X-WING SURVIVE THE REENTRY TO DAGOBDAH?

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Instructed by the Force spirit of deceased Obi-Wan Kenobi, Luke decided to go to Dagobah to train as a Jedi apprentice under the supervision of Jedi Master Yoda. While his friends were pursued by the Empire, Luke traveled in the T-65B X-wing fighter, a highly maneuverable and speedy starfighter of the Republic alliance, to Dagobah. Reentry to the planet, however, could be a major challenge due to the high temperatures on the hull...

Wall-modeled large-eddy simulation was conducted to test the viability of the reentry. The Reynolds number is 10^6 , and ambient temperature is 250K. Shock waves are visualized by contouring the magnitude of the density gradient. The highest temperature on the hull is 1750K. Assuming that the hull is made of Ti-6Al-4V and maintaining a Mach 5 descent rate, Luke can survive the reentry, find Yoda, and ultimately become a Jedi.