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LIFT ENHANCEMENT FOR PROPULSORS

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Swimming and flying may provide insights for improving hydrodynamic performance, thereby increasing the stealth, efficiency and/or maneuverability of manmade vehicles. Recently, Bandyopadhyay et al have examined lift enhancement on a small propellor by actively cambering the blades via a biomimetic material. Our work investigates via numerical simulation the underlying hydrodynamic issues associated with this type of motion of the blades. Several aspects of the flow will be discussed, particularly the time history of the force on the blades in relation to the flapping motion.