

Abstract Submitted
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Swimming gait driven by proprioceptive feedback.¹ JESUS SANCHEZ-RODRIGUEZ, CHRISTOPHE RAUFASTE, MEDERIC ARGENTINA, UCA, CNRS, INPHYNI UMR 7010 — We have developed an elementary theoretical model of aquatic locomotion, based on [1] and [2]. We link the locomotion velocity to the kinematic of the foil. The amplitude and the beating frequency of the tail are still chosen by the swimmer and we would like to propose a simple mechanism which selects them. Here, we suppose that the tail motion proportionally depends on the normal force felt by its body. We have constructed a robotic compliant fish which is attached to a force sensor. We vary the feedback intensity and we measure the resulting thrust, amplitude and frequency. Our theoretical model accurately predicts the experimental outputs.

[1]Theodorsen, T. (1935) NACA Report 496,

[2]Garrick, Isadore E. "Propulsion of a flapping and oscillating airfoil." (1937). NACA

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