



Mechanical Engineering & Mechanics

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The Unsteady Flow Interactions Laboratory in Lehigh University's Department of Mechanical Engineering and Mechanics under the direction of Dr. Keith Moored invites applications from highly motivated individuals for a postdoctoral research associate position. This position is supported by a sponsored MURI project from the Office of Naval Research and an ARPA-E collaborative project. The ONR project seeks to understand the science behind the fluid-structure interactions of caudal fin swimmers that lead to their high-speed, high-efficiency swimming, while the ARPA-E project seeks to develop a high-efficiency bio-inspired energy extraction device for riverine environments.

A postdoctoral researcher would be expected to contribute to both projects, which will cover topics of bio-inspired flow of bio-propulsion scaling laws, non-uniform fin flexibility and fin-fin interactions, as well as energy extraction in dual-foil systems, and non-sinusoidal motion trajectories of oscillating hydrofoils. We address these topics with a combination of our in-house fluid-structure interaction boundary element method (BEM) solver, and in-house as well as collaborative experiments. A postdoctoral research associate would be expected to produce original research in bio-inspired propulsion/energy extraction, mentor graduate and undergraduate students, work effectively with other postdoctoral researchers, and communicate effectively. These projects are also highly collaborative outside of Lehigh among the team members, which include West Chester University, the University of Virginia, Princeton University, Harvard University, Virginia Tech, and Sandia National Labs. Applicants should have a PhD in Mechanical and/or Aerospace Engineering or a related area and have experience in some of the following areas: computational modeling, experimental fluid mechanics, bio-inspired locomotion, and unsteady flows.

The anticipated start date is March-June 2021 with 1 year of initial support and the potential for a 2 year extension. For those interested in applying for the postdoctoral position please send the following to kmooored@lehigh.edu: (1) a CV and (2) a cover letter describing why you are a well-qualified candidate for the position.