Postdoctoral Research Associate:
Instrumentation and Algorithm Development for Flow Measurements

The Advanced Flow Diagnostics Laboratory (AFDL) and Applied Fluids Research Group (AFRG) at Auburn University have an opening for a postdoctoral research associate with a focus on advanced instrumentation and algorithm development for experimental fluid dynamics applications. Under the direction of Dr. Brian Thurow and Dr. Vrishank Raghav, the AFDL and AFRG focus on the development and application of advanced flow diagnostics to further our understanding of unsteady and 3D flow fields including biomedical flows, rotating flows, internal flows, plume-surface interactions, droplet-laden flows, compressible flows, reacting flows, and more. Current sponsors include NSF, NIH, NASA, AFOSR, ARO and AFRL.

The primary role of this position will be to support collaborative activities in both laboratories with opportunities to contribute to ongoing projects focused on both aerospace and biomedical applications with a focus on advanced instrumentation and algorithm development for experimental fluid dynamics applications. Responsibilities will include planning and leading experiments; instrumentation and algorithm development, data acquisition, and data analysis; mentoring and support of graduate and undergraduate students; preparation of peer-reviewed journal articles, conference publications and technical reports; presentation of work at professional conferences; and participation in the development of new research ideas and research proposals. Candidates will also be highly encouraged to use this opportunity to gain experience with new experimental techniques, such as light-field imaging, and new fields of research such as biomedical fluid dynamics.

Applicants must have a doctoral degree in aerospace engineering, mechanical engineering, biomedical engineering, electrical engineering, computer science or a related discipline and must have an outstanding academic record. The successful candidate will have experience or strong interest in the development and/or application of image-based flow diagnostics such as PIV, LIF, BOS or similar measurement techniques. Fundamental knowledge of fluid dynamics as well as basic image processing algorithms is required. Experience with tomographic/3D experimental methods is not necessary, but is preferred. In addition, knowledge of software such as C/C++, CUDA, SOLIDWORKS (CAD), LabVIEW, MATLAB, and Tecplot is desired. The candidate will also possess strong oral and written communication skills.

The initial appointment has a flexible start date with a duration of one year, with the possibility of extensions based on availability of funds and performance. Interested applicants should send, via e-mail: a cover letter describing their background, interest in the position and career goals; their C.V.; electronic copies of at least two representative publications; and a list of 3 references to:

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