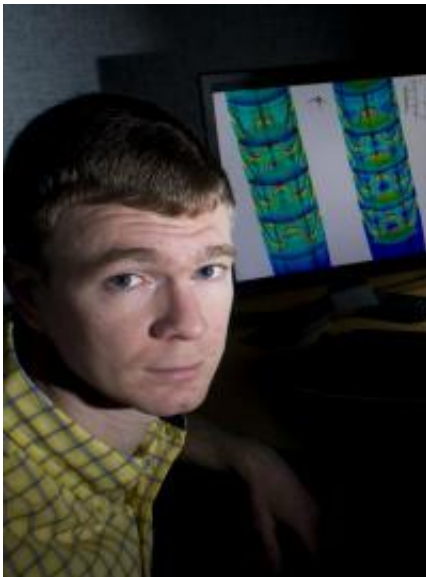


Virginia Tech mechanical engineers win measurement science best paper award

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John Charonko, a member of the mechanical engineering faculty at Virginia Tech, is lead author on the paper, "Assessment of Pressure Field Calculations from Particle Image Velocimetry Measurements." Credit: Virginia Tech Photo

For the second consecutive year, members of Virginia Tech's Advanced Experimental Thermofluid Engineering Research (AETHER) Laboratory in mechanical engineering, directed by professor Pavlos P. Vlachos, professor of mechanical engineering, have received the Outstanding Paper Award in fluid mechanics from the *Measurement Science and Technology Journal*, published by the American Institute of Physics.

John J. Charonko, of Blacksburg, Va., who received his bachelor's and master's degrees in [engineering science](#) and mechanics, and his doctorate in biomedical engineering, all from Virginia Tech, was the lead author on the article. It was co-written with Cameron V. King, a graduate student in [mechanical engineering](#) at Utah State University, Barton L. Smith, associate professor of mechanical engineering at Utah State University, and [Vlachos](#).

Charonko is currently a research assistant professor in the mechanical engineering department at Virginia Tech.

In [announcing the award](#), the editorial board of Measurement Science and Technology wrote that the paper addressed how to non-intrusively measure the pressure distribution at the interior of a flow field as, "one of the most challenging measurements" in this field of study. The board also credited the authors with "operating with the constraint of incomplete information," yet they "significantly advanced " these [fluid mechanics](#) measurements.

"The ability to accurately estimate the pressure field inside a flow, and its variations in space and time without having to physically introduce invasive instruments such as probes, significantly augments our ability to investigate the flow phenomena and can have great impact on the way experiments and simulations interface with each other," Vlachos said. "Receiving this award is a great honor and speaks to the continuing quality of research produced by our group, further establishing our role in the area of fluid measurement science. It is unique getting this award twice, let alone in consecutive years."

The title of the paper was: "Assessment of Pressure Field Calculations from Particle Image Velocimetry Measurements. "

Last year, Vlachos and his co-author, graduate student Adric Eckstein of

Salem, Va., received the same award for developing a new technique that is also expected to have substantial impact in the fluid-mechanics measurement field.

Vlachos has established a world-renowned program in experimental fluid mechanics and the development and use of digital particle image velocimetry for flow measurement. Applications for this research range from cardiovascular flows and biomedical devices to biologically inspired flows, to underwater weapons.

Throughout Vlachos' career, he has been the principal investigator (PI) or co-PI for 57 externally funded projects totaling \$13.9 million in research expenditures with his share at \$5.8 million. He has authored or co-authored 37 journal papers and 92 refereed papers in conference proceedings. His research so far has resulted in 10 intellectual property disclosures and four patents.

In 2009 he was appointed an associate editor of the *ASME Journal of Fluids Engineering*.

Provided by Virginia Tech

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