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Summary

Raf's research is focussed on the continuing development of adaptive algorithms to improve the flow analysis with PIV and extending it to three dimensions. In addition he works on techniques to post process the obtained experimental data.

Biography

Raf Theunissen obtained his MSc degree from Delft University of Technology (TUD) in the Netherlands in 2003 while conducting his research on optical flow measurements at the von Karman Institute for Fluid Dynamics (VKI). In 2004 he received his Research Master degree at the VKI for research on pulmonary lung flows using Particle Image Velocimetry (PIV) and Particle Tracking Velocimetry (PTV). His work on adaptive sampling and windowing interrogation methods in Particle Image Velocimetry earned him his PhD in 2010 in a collaborative framework between TUD, the VKI and the Vrije Universiteit Brussel (VUB). Before joining the department in September 2010, Raf worked as a gas turbine development engineer for nearly two years at Alstom Ltd in Switzerland.

Keywords

- algorithms
- flow analysis

Memberships

Organisations

Department of Aerospace Engineering

Other sites

- Aerospace

Research Groups

- Fluid and Aerodynamics - Core

Recent publications

- Theunissen, R & Worboys, R, 2019, 'Near-Wake Observations behind Azimuthally Perforated Disks With Varying Hole Layout and Porosity in Smooth Airstreams at High Reynolds Numbers'. *Journal of Fluids Engineering*, vol 141.
- Simonini, A, Theunissen, R, Masullo, A & Vetrano, MR, 2019, 'PIV adaptive interrogation and sampling with image projection applied to water sloshing'. *Experimental Thermal and Fluid Science*, vol 102., pp. 559-574

- Elsahhar, W, Ali, SAS, Theunissen, R & Azarpeyvand, M, 2018, 'An experimental investigation of the effect of bluff body bluntness factor on wake-vortex noise generation'. in: *24th AIAA/CEAS Aeroacoustics Conference 2018: Proceedings of a meeting held 25-29 June 2018, Atlanta, Georgia, USA. Held at the AIAA Aviation Forum 2018*. American Institute of Aeronautics and Astronautics Inc. (AIAA), pp. 1818-1829
- Arena, G, Groh, R, Theunissen, R, Weaver, P & Pirrera, A, 2018, 'Design and testing of a passively adaptive inlet'. *Smart Materials and Structures*, vol 27.
- Swanson, E, Theunissen, R, Rust, A, Green, D & Phillips, J, 2018, 'An experimental study of the flow structure and acoustics of jets: Implications for volcano infrasound'. *Journal of Volcanology and Geothermal Research*, vol 363., pp. 10-22
- Masullo, A & Theunissen, R, 2018, 'On dealing with multiple correlation peaks in PIV'. *Experiments in Fluids*, vol 59.
- Jawahar, HK, Azarpeyvand, M, Theunissen, R & Silva, C, 2018, 'Aerodynamic and Aeroacoustic Performance of Three-element High Lift Airfoil fitted with Various Cove Fillers'. in: *2018 24th AIAA/CEAS Aeroacoustics Conference*. American Institute of Aeronautics and Astronautics Inc. (AIAA)
- Theunissen, R & Edwards, M, 2018, 'A general approach to evaluate the ensemble cross■correlation response for PIV using Kernel density estimation'. *Experiments in Fluids*, vol 59.
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- Elsahhar, W, Theunissen, R & Azarpeyvand, M, 2018, 'Near wake vortex shedding and noise control using sweeping jet actuators'. in: *2018 Flow Control Conference*., pp. 3373

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