Junhao Ke

junhao.ke@sydney.edu.au
(+61) 0 451 559 391
Faculty of Engineering and Information Technology
The University of Sydney
New South Wales 2006

Education

The University of Sydney — NSW, Australia
Doctor of Philosophy — *March 2017 – (Expected) October 2020*
Advisors: Dr. Nicholas Williamson & Prof. Steven Armfield

The University of Sydney — NSW, Australia
Master of Professional Engineering — *March 2015 – December 2017*
Advisors: Dr. Nicholas Williamson & Prof. Steven Armfield

East China University of Science and Techonology — Shanghai, China
Bachelor of Engineering — *September 2010 – July 2014*

Research Interests

Computational Fluid Dynamics, Statistical Computing, Turbulent Data Analysis

Publications

Ke, J., , Williamson, N., Armfield, S. W., McBain, G. D., & Norris, S. E. (2019). Stability of a temporally evolving natural convection boundary layer on an isothermal wall. *Journal of Fluid Mechanics*, 877, 1163-1185.

Ke, J., Williamson, N., Armfield, S. W., Norris, S. E., & Kirkpatrick, M. (2018). Direct numerical simulation of a temporally developing natural convection boundary layer on a doubly-infinite isothermal wall, *In Proceedings of IHTC-16. Begell House.*

Work in Progress

Ke, J., Williamson, N., Armfield, S. W., Norris, S. E., & Komiya, A. (2020). Law of the wall for a temporally evolving vertical natural convection boundary layer. *Journal of Fluid Mechanics.* (Under review)

Ke, J., Williamson, N., Armfield, S. W., Norris, S. E., & Komiya, A. Integral modelling of a temporally developing natural convection boundary layer.

Talks

Direct numerical simulation of an unsteady natural convection boundary layer adjacent to a doubly-infinite isothermal wall. In 10th Australasian Natural Convection Workshop, Auckland, New Zealand, 30 November-1 December 2017.

Direct numerical simulation of a temporally developing natural convection boundary layer on a doubly-infinite isothermal wall. In 16th International Heat Transfer Conference, Beijing, China, 10-15 August 2018.

DNS study of a parallel vertical natural convection boundary layer. In Australia-Japan Fluid Dynamics Workshop, Sydney, Australia, 31 January-1 February 2019.

DNS of a temporally evolving vertical natural convection boundary layer. In 17th European Turbulence Conference, Torino, Italy, 3-6 September 2019.

Application of an integral model to an unsteady natural convection boundary layer. In 11th Australasian Natural Convection Workshop, Sydney, Australia, 9-10 December 2019.

Honors & Awards

Best Student Paper Award in 10th Australasian Natural Convection Workshop *2017*

Natural Convection Supplementary Scholarship, Faculty of Engineering and IT, USyd *2016*

USyd-IS Strategic Scholarship Award, USyd *2016*

Dean's Excellency Award, Faculty of Engineering and IT, USyd *2015*
Merit Academic Award, Faculty of Engineering and IT, USyd *2015*
Third Prize Scholarship, East China University of Science and Technology *2014*
Fei-yang Award, East China University of Science and Technology *2014*

Teaching Experience

Teaching Assistant *March 2015 – Present*
Faculty of Engineering and IT, USyd NSW

- Delivered tutorial and led discussion sessions to reinforce material covered in lectures. Course includes: Fluid Dynamics II (MECH3261), Thermal Engineering II (MECH3260), Advanced Computational Fluid Dynamics (AMME5202)

Research Experience

Advanced Fluid Information Research Center *September 2019 – October 2019*
Institute of Fluid Science, Tohoku University Sendai, Japan

- Set up large scale CFD simulations using Fortran-90 on Japanese supercomputing system
- Statistical analysis for the data obtained

Industry Experience

Project Engineer *November 2015 – February 2016*
Department of Research & Development, Inalfa Co., Ltd. Shanghai, China

- Experiment design & validation
- Statistical analysis for experimental data
- Algorithm development for acoustic analysis programs

Assistant Manager *June 2014 – December 2014*
Department of Construction & Excavation Machinery, Yanmar Engines Co., Shanghai, China

- Statistical analysis for recurrent event data
- Inventory control

Service

Volunteer of China Open Day (USyd) *2015*

- Providing assistance on behalf of the faculty of Engineering and IT with the USyd global student recruitment team.

Language

English (fluent), **Japanese** (fluent), **Mandarin** (native) and **Shanghai Dialect** (native)