

Daniel C. Lander, Ph.D.

CONTACT INFORMATION

Rensselaer Polytechnic Institute
School of Civil and Environmental Engineering
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EDUCATION

Rensselaer Polytechnic Institute, Troy, NY, USA

August 2012 - May 2017

Ph.D., Civil and Environmental Engineering

- Defence date: 31 April 2017
- Dissertation title: *Influence of freestream and forced disturbances on the shear layer of a square prism*
- Interdisciplinary research between Department of Civil and Environmental Engineering and the Center for Flow Physics and Control (Mechanical, Aerospace and Nuclear Engineering)
- Advisers: Professor Chris W. Letchford & Professor Michael Amitay
- GPA: 3.61 (4.0 scale)

The University of Sydney, Sydney, NSW, Australia,

February 2004 - December 2009

B.E./B.Com., Combined Degree in Engineering and Commerce

- Honours in engineering
- Undergraduate thesis title: *A Hexagonal pressure probe for wind tunnel velocity measurements*
- Engineering major: Civil engineering (emphasis on coastal and wind engineering); Commerce major: Economics.

TEACHING

Rensselaer Polytechnic Institute, Troy, NY

Lecturer

Jan 2018 - Present

- ENGR - 2250: Thermal and Fluids Engineering I (S18 & F18);
- ENGR - 2050: Introduction to Engineering Design and Professional Development (S18 & F18);
- CIVL 6390 - Wind Engineering (S19);

Adjunct professor

July 2017 - Jan 2018

- ENGR - 2250: Thermal and Fluids Engineering I (Su III & F17);

Teaching Assistant

September 2015 - May 2017

- CIVL - 2670: Introduction to Structural Engineering (F15 & F16)
- ENVN - 4310: Applied Hydrology and Hydraulics (S17)

PROFESSIONAL

Rensselaer Polytechnic Institute (CEE), Troy, New York, USA

May 2017 - Jan 2018

Postdoctoral Research Associate

- Preliminary coordination and experimental preparation of NSF project: *Model to Full-Scale Validation of Peak Pressure Mechanisms in Buildings that Cause Cladding Failures and Windstorm Damage*.
- Analysis and preparation of research articles.

Center for Flow Physics and Control, Troy, New York, USA **September 2012-May 2017**

Research Assistant

- Conduct experiments in low speed tunnels using advanced measurement techniques SPIV, hotwire and unsteady pressure
- Develop platforms in LabVIEW for measurement and control of experiments
- Develop algorithms in MATLAB to interrogate 1D, 2D and 3D measurements

VIPAC Engineers and Scientists, Sydney, Australia **September 2010-August 2012**

Project Engineer

- Design engineer in the Building and Infrastructure Group
- Energy modelling of residential, industrial and commercial building environments
- Thermal simulations used to meet mandatory standards of sustainable buildings

The University of Sydney, Sydney, Australia **June-September 2010**

Researcher

- Wind tunnel operation and preparation for commercial experiments
- Development of MATLAB post-processing GUI
- Prepare and conduct SPIV experiments

Centre Scientifique et Technique du Bâtiment, Nantes, France **April-July 2010**

Stagiaire (internship)

- Development and implementation of digital correction algorithm for 1000-channel 1024Hz pressure measurement system for obtaining aerodynamic loads
- Development of MATLAB GUI

AWARDED GRANTS **Rensselaer Polytechnic Institute**, Troy, NY

Lead author of project description

- Principle Investigator: Chris Letchford (quote: *Daniel was solely responsible for developing the intellectual merit and scientific method of the grant and for assembling the broader impact arguments for the work.*)
- Program: National Science Foundation (NSF), **Engineering for Natural Hazards (ENH)** using the Natural Hazards Engineering Research Infrastructure (NHERI)
- Award date: June 29, 2017
- Award no.:1727401
- Project title: *Model to Full-Scale Validation of Peak Pressure Mechanisms in Buildings that Cause Cladding Failures and Windstorm Damage*
- Award total: \$371,753

PROFESSIONAL AND ACADEMIC MEMBERSHIPS • American Physical Society (APS) (2015-present)
• Australasian Wind Engineering Society (AWES) (2010–present)
• American Association of Wind Engineering (AAWE) (2012–present)

HARDWARE AND SOFTWARE SKILLS Instrumentation, Control, Measurement and Analysis:
• **MATLAB**
• **LabVIEW** and **National Instruments**

Drawing and solid modelling:

- Solidworks
- NX Unigraphics

Desktop Editing and Productivity Software:

- T_EX (L^AT_EX, B_IB_TE_X),
- Microsoft Office (Visual Basic for Applications)
- GIMP, Adobe Illustrator, Photoshop, Indesign

REFEREED
JOURNAL
PUBLICATIONS

- [1] Lander, D.C., D.M. Moore, M. Amitay, C.W. Letchford. (2018) Scaling of Square Prism Shear Layers. *J. Fluid Mech.* 849, doi:10.1017/jfm.2018.443
- [2] Lander, D.C., C.W. Letchford, M. Amitay, G.A. Kopp. (2016) Influence of the bluff body shear layers on the wake of a square prism in a turbulent flow. *Phys. Rev. Fluids* 1, doi:10.1103/PhysRevFluids.1.044406
- [3] Letchford, C.W., Lander, D.C., Case, P., Dyson, A., and Amitay, M. (2016) Bio-mimicry inspired tall buildings: The response of cactus-like buildings to wind action at Reynolds Number of 10^4 . *Journal of Wind Engineering and Industrial Aerodynamics*, 150: 22-30,. doi:10.1016/j.jweia.2016.01.001
- [4] Menicovich, D., D.C. Lander, J. Vollen, M. Amitay, C.W. Letchford, A. Dyson. (2014) Improving aerodynamic performance of tall buildings using Fluid based Aerodynamic Modification. *Journal of Wind Engineering and Industrial Aerodynamics*, 133 263-273,. doi:10.1016/j.jweia.2014.08.011

IN PREPARATION

- [5] Lander, D.C., C.W. Letchford, M. Amitay. Diffusion Length of Bluff body Shear Layer.

SELECTED
CONFERENCE
PUBLICATIONS

- [6] Lander, D.C., C.W. Letchford, M. Amitay. Diffusion length of bluff body shear layer. In: *7th Conference on Bluff Body Wakes and Vortex-Induced Vibrations, BBVIV-7*, Carry-le-Rouet (Marseille), France, 3-6 July 2018
- [7] Lander, D.C., D.M. Moore, C.W. Letchford, M. Amitay. Characteristics of the instability of a shear layer formed on a square prism. In: *13th Americas Conference on Wind Engineering* University of Florida, Gainesville, Florida, USA May 21 -24, 2017
- [8] Lander, D.C., C.W. Letchford, M. Amitay, G.A. Kopp. Periodic reverse flow separation from the trailing edge of a square prism. In: *4th American Association for Wind Engineering Workshop* Florida International University, Miami, Florida, USA August 14 -16, 2016
- [9] Lander, D.C., C.W. Letchford, M. Amitay, G.A. Kopp. The influence of freestream turbulence approach trajectory on the bluff body aerodynamics of a square prism. In: *8th International Colloquium on Bluff Body Aerodynamics and Applications*, Northeastern University, Boston, Massachusetts, USA June 7 -11, 2016
- [10] Lander, D.C., C.W. Letchford, M. Amitay. Bluff body shear layer control of the 2D square prism wake. In: *8th International Colloquium on Bluff Body Aerodynamics and Applications*, Northeastern University, Boston, Massachusetts, USA June 7 -11, 2016
- [11] Lander, D.C., J. Baker, C.W. Letchford, M. Amitay, G.A. Kopp. The effect of freestream turbulence on vortex formation wake of a square cylinder. In: *Proceedings of the 14th International Conference on Wind Engineering*, Porto Alegre, Brazil, June 21 -26, 2015.
- [12] Menicovich, D., D.C. Lander, J. Vollen, M. Amitay, C.W. Letchford, A. Dyson Improving aerodynamic performance of tall buildings using fluid based aerodynamic modification: preliminary results. In: *Proceedings of the 12th Americas Conference on Wind Engi-*

neering, Settle, USA, June 17 -19, 2013.

- [13] Cochard, S., D.C. Lander. A wind-tunnel investigation of the wake behind a wind-turbine in a turbulent boundary-layer flow. In: *Proceedings of the 17th Australasian Fluid Mechanics Conference*, Auckland, New Zealand, December 5 -9, 2010.

REFERENCES
AVAILABLE TO
CONTACT

Professor Chris W. Letchford (e-mail: letchc@rpi.edu; phone: +1-(518)-276-6941)

- Professor and Department Head **Civil and Environmental Engineering**, **Rensselaer Polytechnic Institute**
- ★ *Prof. Letchford was my doctoral supervisor.*

Professor Michael Amitay (e-mail: amitam@rpi.edu; phone: +1-(518)-466-0058)

- James L. Decker '45 Endowed Chair in Aerospace Engineering and Director, **Center for Flow Physics and Control**, **Rensselaer Polytechnic Institute**
- ★ *Prof. Amitay was my doctoral co-supervisor.*

Professor Greg Kopp (e-mail: gakopp@uwo.ca; phone: +1-(519)-661-2111)

- Professor and Associate Dean (Graduate and Postdoctoral Studies), Department of Civil and Environmental Engineering, **Boundary Layer Wind Tunnel Laboratory**, **Western University**.