

# Bernat Font Garcia

[b.fontgarcia@soton.ac.uk](mailto:b.fontgarcia@soton.ac.uk)

[b-fg.github.io](https://b-fg.github.io)

## Research interests

Computational fluid dynamics, turbulence modelling, deep learning and data-driven models, high-performance computing.

## Education

**Ph.D.** Candidate in Computational Fluid Dynamics, *University of Southampton* 2015-2020  
*Thesis:* Modelling of Flow Past Long Cylindrical Structures  
*Supervisors:* Dr. G.D. Weymouth, Prof. O.R. Tutty, Dr. V.-T. Nguyen  
*Visiting Researcher:* IHPC, A\*STAR, Singapore. Research attachment funded by the ARAP mobility scheme

**M.Sc.** Computational Fluid Dynamics, *Cranfield University* 2014-2015  
*Thesis:* High-order Shock-capturing Schemes for Micro Shock Tubes. [\[Download\]](#)  
*Supervisor:* Dr. L. Könözy  
*Double Degree with Ingeniería Superior in Aeronautical Engineering*

**Ingeniería Superior** Aeronautical Engineering, *Universitat Politècnica de Catalunya* 2012-2015  
*Mentor:* Prof. C.-D. Pérez-Segarra  
*Equivalent to Master of Engineering*

**Ingeniería Técnica** Aeronautical Engineering, *Universitat Politècnica de Catalunya* 2009-2012  
*Equivalent to Bachelor of Engineering*

## Experience

Visiting Researcher, Institute of High-Performance Computing, A\*STAR, Singapore 2017-2020  
Doctoral Researcher, University of Southampton, UK 2015-2020

## Publications

### Peer-reviewed journal articles

Font, B., Weymouth, G.D., Nguyen, V.-T. & Tutty, O.R. 2020 Deep-learning the spanwise-averaged Navier-Stokes equations. *Submitted in the Proceedings of the National Academy of Sciences of the United States of America*.

Font, B., Weymouth, G.D., Nguyen, V.-T. & Tutty, O.R. 2019 Span effect on the turbulence nature of flow past a circular cylinder. *Journal of Fluid Mechanics* 878, 306–323. [\[DOI\]](#)

### Peer-reviewed symposium proceedings

Font, B., Weymouth, G.D., Nguyen, V.-T. & Tutty, O.R. 2020 Turbulent wake prediction using deep convolutional neural networks *Accepted for the Symposium on Naval Hydrodynamics, Osaka, Japan*.

### Conference proceedings

Font, B., Weymouth, G.D. & Tutty, O.R. 2017 Analysis of two-dimensional and three-dimensional wakes of long circular cylinders. *OCEANS MTS/IEEE, Aberdeen, UK*. [\[DOI\]](#)

### Published abstracts

Font, B., Weymouth, G.D. & Tutty, O.R. 2016 Deep learning the spanwise-averaged wake of a circular cylinder. 72nd Meeting of the APS Division of Fluid Dynamics, Seattle, US. [\[Abstract\]](#)

Font, B., Weymouth, G.D. & Tutty, O.R. 2016 A two-dimensional model for three-dimensional symmetric flows. *UK Fluids Conference*, London, UK. [\[Abstract\]](#)

Font, B., Castells, I., Weymouth, G.D., Nguyen, V.-T. & Tutty, O.R. 2019 Turbulence dynamics transition of flow past a circular cylinder and the prediction of vortex-induced forces. *European Turbulence Conference 17*, Torino, Italy. [\[Abstract\]](#)

### Invited Talks

On two-dimensional and three-dimensional turbulence of wake flows, *Fluid Structure Interactions Group seminar series*, University of Southampton, May 2017, UK.

### Funded Research

University of Southampton FEE Education Hub PhD grant (2015)	GBP 28,353
A*STAR ARAP Research Mobility Programme grant (2015)	SGD 74,500

### Teaching and supervision

Supervisor of MSc projects, University of Southampton <i>Machine Learning Wall Model for Bluff Bodies Forces Calculation</i> <i>Accurate Flow Interpolation using Optimal Transport Theory</i>	2019-
Demonstrator, University of Southampton <i>Aerodynamics</i> : Nozzle lab <i>Propulsion</i> : Ramjet, turbojet and rocket engine labs <i>Aerothermodynamics</i> : Marking of lab reports	2015-2017
Private tutor <i>Mathematics, physics and programming tutor to High School and Undergraduate students</i>	2011-2014

### References

Gabriel D. Weymouth, Associate Professor, Fluid and Structure Interactions Group  
University of Southampton, UK  
[g.d.weymouth@soton.ac.uk](mailto:g.d.weymouth@soton.ac.uk)

Owen R. Tutty, Professor, Aerodynamics and Flight Mechanics Group  
University of Southampton, UK  
[o.r.tutty@soton.ac.uk](mailto:o.r.tutty@soton.ac.uk)

Carles-David Pérez-Segarra, Professor, Heat and Mass Transfer Technological Center  
Universitat Politècnica de Catalunya, Spain  
[segarra@cttc-upc.net](mailto:segarra@cttc-upc.net)

Vinh-Tan Nguyen, Senior Scientist, Institute of High Performance Computing  
A\*STAR, Singapore  
[nguyenvt@ihpc.a-star.edu.sg](mailto:nguyenvt@ihpc.a-star.edu.sg)

László Könözy, Lecturer, Centre for Computational Engineering Sciences  
Cranfield University, UK  
[laszlo.konozsy@cranfield.ac.uk](mailto:laszlo.konozsy@cranfield.ac.uk)