

Will Trojak

Research Curriculum Vitæ

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Education

- 2016–present **Ph.D**, *University of Cambridge*, Department of Engineering.
Title: Numerical Analysis of Flux Reconstruction
Supervisor: Prof. Stewart Cant
Advisor: Prof. Paul G. Tucker
- 2015–2016 **M.Eng**, *University of Cambridge*, Department of Engineering, *first class (hons)*.
Dissertation title: High-Order Unstructured Computational Fluid Dynamics
Supervisor: Prof. Paul G. Tucker
Awards: Shell Best Project Prize
Accredited for: Aeronautical, Mechanical and General Engineering
- 2012–2015 **BA**, *University of Cambridge*, Department of Engineering, *first class (hons)*.
Awards: first year computing prize (C++ based stock trading)

Teaching Experience

- 2018–present **Supervising**, *Part IIb*, Masters Dissertation.
Overseen by Prof. Stewart Cant I am supervising a Masters student for their dissertation on 'Optimal Flux Reconstruction Correction Functions for Implicit LES'
- 2018 **Demonstrating**, *Part IIb*, 4A2 - Computational Fluid Dynamics.
- 2017–2018 **Supervising**, *Part Ia*, P1 Mechanics.
- 2017 **Demonstrating**, *Part IIb*, 4A2 - Computational Fluid Dynamics.

Experience

- June–September 2016 **Lead Software Engineer**, *Amberbox Inc.*, London Office.
I was in charge of the software development for a low power gunshot detector, using regression analysis to detect shootings, reporting them to security services through a web interface.
- June–September 2015 **Undergraduate Researcher**, *University of Cambridge*, Department of Engineering.
Research and development of a Flux Reconstruction implementation for use in my master dissertation.
- June–September 2014 **Undergraduate Researcher**, *University of Cambridge*, Institute for Manufacturing.
Research and development of a large scale force breakup water jet demonstrator
- 2012–2015 **Officer Cadet**, *Cambridge University Air Squadron*.

Journal Publications

1. W. Trojak, R. Watson, and P.G. Tucker. High Order Flux Reconstruction on Stretched and Warped Meshes. Accepted Manuscript *AIAA Journal*.
2. W. Trojak. Generalised Sobolev Stable Flux Reconstruction. *Journal of Computational Physics*, Submitted May 2018.
3. W. Trojak. Generalised Lebesgue Stable Flux Reconstruction. *Journal of Computational Physics*, Submitted June 2018.
4. W. Trojak, R. Watson, A. Scillitoe, and P.G. Tucker. Effect of Mesh Quality on Flux Reconstruction in Multi-Dimensions. *Journal of Scientific Computing*, Submitted September 2018.
5. W. Trojak, and F.D. Witherden. A New Family of Weighed One-Parameter Flux Reconstruction Schemes. *Computer Methods in Applied Mechanics and Engineering*, Submitted September 2018.

Conference Papers

1. W. Trojak, R. Watson, and P.G. Tucker. High Order Flux Reconstruction on Stretched and Warped Meshes, Paper AIAA-2017-0521, *55th AIAA Aerospace Sciences Meeting*, Grapevine Texas, Jan 2017.
2. W. Trojak, R. Watson, and P.G. Tucker. Temporal Stabilisation of Flux Reconstruction on Linear Problems, Paper AIAA-2018-4263, *Fluid Dynamics Conference, AIAA AVIATION Forum*, Atlanta Georgia, June 2018.
3. R. Watson, W. Trojak, and P.G. Tucker. A Simple Flux Reconstruction Approach to Solving a Poisson Equation to Find Wall Distances for Turbulence Modelling, Paper AIAA-2018-4261, *Fluid Dynamics Conference, AIAA AVIATION Forum*, Atlanta Georgia, June 2018.
4. J. Tyacke, R. Watson, W. Trojak, and P.G. Tucker. High Fidelity Turbomachinery Simulation. *12th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements*, Montpellier France, Sept 2018.

Oral Presentations

1. W. Trojak, R. Watson, and P.G. Tucker. High Order Flux Reconstruction on Stretched and Warped Meshes, Paper AIAA-2017-0521, *55th AIAA Aerospace Sciences Meeting*, Grapevine Texas, Jan 2017.
2. W. Trojak, R. Watson, and P.G. Tucker. Temporal Stabilisation of Flux Reconstruction on Linear Problems, Paper AIAA-2018-4263, *Fluid Dynamics Conference, AIAA AVIATION Forum*, Atlanta Georgia, June 2018.

Computer skills

- Fortran - 77-08 standards including: OpenMP, coarrays and MPI. Attended Knights Landing (KNL) vectorisation course run by Archer and Intel HPC DevCon 2017.
- CUDA Fortran - including CUDA toolkit libraries for GPU acceleration. Attended courses on OpenACC and CUDA Fortran.
- git - both for code base and latex management
- linux

- matlab
- python

Private git repositories on request (bitbucket.org/WillTrojak), public git at github.com/WillTrojak

Referees

On request