

## KEITH NORMAN ATKINSON PhD

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Expert **Mathematical Modeller** with a fundamental understanding of the principles and construction of computational fluid dynamics (CFD) software. PhD in fluid dynamics with an extensive record of CFD code writing in C++ and other languages. Experienced in the design of test rigs for fluid flow experiments and data acquisition using LabView. Experienced in the use of development tools, including Visual Studio, MatLab and IDL, to create applications which simulate engineering systems or provide digital signal processing or solve complex mathematical equations.

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### CAREER SUMMARY

**Atkinson Science Ltd**

**Director**

**1 May 2014 –**

Atkinson Science was founded by Keith Norman Atkinson in May 2014. The company uses state-of-the-art CFD software to simulate fluid flows in aerospace, building services and construction. The company also creates Windows and Web applications to enable its clients to increase their productivity or exploit a scientific advance. The company draws on the experience of its founder, who has been solving problems in applied science for 37 years. By visiting the company Web site [www.atkinsonscience.co.uk](http://www.atkinsonscience.co.uk), you can browse a range of CFD case studies or try some of the free-to-use Web applications on the site.

**BSRIA Ltd**

**CFD Consultant**

**22 Feb 2010 – 30 Apr 2014**

#### *Responsibilities:*

- Preparation of fee proposals to clients for CFD and thermal modelling studies of occupied spaces and the built environment
- Execution of modelling studies and delivery of reports and presentations to clients
- Creation of client-specific modelling software
- Support in mathematics and scientific fundamentals across BSRIA
- Preparation of marketing material, including news reports and case studies

#### *Key achievements:*

- Computational studies of flow, temperature and humidity in occupied spaces, including an open-plan office, a banked lecture theatre, a bio-science laboratory, a warehouse complex, a data centre, a flight-simulator room and a grid-transformer station
- Flow, heat and mass transfer modelling of HVAC components, including supply diffusers of various kinds, a cooled concrete ceiling and an ultrasonic humidifier
- Creation of client-specific software tools (Windows applications), including an interstitial condensation calculator and an earth-air heat exchanger modelling tool (calculates the soil temperature at any depth and time and returns the daily and yearly heating and cooling benefits)

## KEITH NORMAN ATKINSON PhD

**QinetiQ Ltd**

**Senior Consultant – CFD**

**4 Jan 1999 – 30 Sep 2009**

Responsible for the technical leadership of a wide range of CFD projects for the MoD and defence and aerospace customers

*Key achievements:*

- Team leader for combustion instability analysis of a low-emissions gas turbine for a Ukrainian gas turbine manufacturer.
- Development of computational models of a wide range of fluid flow and heat transfer processes, including:
  - flow around a hypersonic vehicle,
  - supersonic combustion of hydrogen,
  - flow and combustion in a ramjet engine,
  - combustion in a kerosene-fuelled furnace,
  - airliner depressurization,
  - solar radiation into a freight container,
  - chemical decomposition of hydrogen-rich pellets (to power a fuel cell),
  - dispersion of volatile compounds,
  - radiation from the plume of a gas-turbine engine,
  - heat transfer in a variety of substances including the human body
- Responsible for the maintenance of a Linux PC cluster and the purchasing of ANSYS CFD software licences
- Responsible for the maintenance of a SQL Server database
- Senior developer of the following databases:
  - AERO2k aviation emissions database for the EU and the UK Department for Transport,
  - fuel samples database for Airbus Industries

**University of Brighton**

**Senior Research Fellow**

**1 May 1994 – 31 Oct 1998**

Responsible for the supervision of post-graduate research students in fluid dynamics and heat transfer and the development of research income

*Key achievements:*

- Supervised four PhD students (two to the award of a PhD by the end of my contract)
- Generated £104,650 in research funding from T & N Technology Ltd, Denso Marston Ltd, Ricardo Consulting Engineers Ltd, and the University of Brighton
- Developed and maintained a CFD modelling centre
- Created CFD models of flow and heat transfer in heat exchangers and internal combustion engines

## KEITH NORMAN ATKINSON PhD

**University of Surrey**

**Research Fellow**

**1 May 1987 – 30 Apr 1994**

Carried out fundamental research on the modelling of turbulent fluid flows

*Key achievements:*

- Created a finite-volume CFD code
- Implemented and tested a TVD convection scheme in the CFD code
- Developed and tested zonal turbulence models in the CFD code and in AEA Harwell's FLOW3D CFD code
- Developed a fluid flow rig and data acquisition system to determine the responsiveness of turbine flow meters to flow pulsations.

**Rolls-Royce Ltd**

**Senior Theoretical Scientist**

**28 Sep 1982 – 31 Dec 84**

Made improvements to the company's through-flow and blade-to-blade methods for computing flow in axial-flow turbomachinery

*Key achievements:*

- Developed a more accurate over-tip leakage model for the through-flow program
- Improved the accuracy of the through-flow program by incorporating passage-averaged terms from the blade-to-blade program

## EDUCATION

PhD in Fluid Dynamics, Imperial College, Department of Mechanical Engineering  
BEng (Hons) Class II Div I, University of Liverpool, Department of Mechanical Engineering