

CLIVE A. JACKSON BSc., MSc., Ph.D., C.Eng., MIET

ACHIEVEMENTS

2002 IEE Maxwell Award (Best paper in Journal IEE Proceedings on Microwaves, Antennas and Propagation – see [publications](#) list).

BAE Systems principal technical expert, consultant and UK/NATO authority on wind farm effects on radar and options for mitigation.

BAE Systems principal technical expert on radar spectrum management and sharing with communication systems.

Lecture to IEE Essex branch 'Tilting at Windmills - Windfarm effects and some not-so Quixotic solutions'

Reviewer IET International Conference on Radar Systems 2007.

Member of NATO Industrial Advisory Groups NIAG SG/87(2005) and NIAG(IEG)A(2007)0010

EXPERIENCE / ROLES

2000 **Alenia Marconi Systems / AMS / BAE Systems Insyte**

→ Now **Eastwood House, Glebe Road, Chelmsford, Essex**

Wind farms technical authority

The issue of wind farm impact on radar performance has emerged as the major obstacle to development of the UK's wind energy. Civil and military radar stakeholders typically object to wind farm developments.

- I have taken the lead on the majority of BAE Systems wind farm work for both wind farm and radar stakeholders including the UK MoD, DTI and British Wind Energy Association.
- In close collaboration with the UK MoD and RAF, I have provided guidance for trials activities and co-ordinated the collection of a large set of radar / wind farm data during major air defence radar trials.
- I have undertaken detailed system analysis, radio propagation modelling and trials data analysis in order to understand and predict radar / wind farm interactions.
- I have successfully identified the causes and synthesised practical mitigation options in a number of definitive studies.
- I have influenced radar and wind farm stakeholders at a high level, in particular the UK MOD where I had an impact on policy making.
- I have become the recognised company and UK/NATO authority on the subject and published a number of reports and papers (see [publications](#)).

Radar spectrum management technical authority

The communications industry desire to make use of the L and S radio spectral bands. In these bands ~30% of the spectrum is currently allocated to radar systems and is currently unavailable. I have been involved in or lead a number of externally funded spectrum studies. These large studies have investigated radar vulnerabilities, the possible impact of communications systems interference and the potential impact of radar transmissions on communications systems:

- Spectrally Efficient Radar Systems: A 5-way collaborative civil study with a value of circa. £370K, involving teams from industry and academia, for Ofcom, where I successfully won the contract, negotiated work share with all the partners, project managed and technically lead the teams and was responsible for the successful delivery of the study.
- SPECTROC: A 3-nation European collaborative defence study with a value of circa. £300K, for the Western European Armaments Group (WEAG). I project managed and technically lead the UK team's contribution and was responsible for the successful delivery of the 3rd and final work package.
- I have become the company's technical authority in this area, making recommendations for technology development both within the company and to stakeholders such as Ofcom.

Future technology engineering

The Engineering Capability and Technology group identifies and develops future technologies and techniques and is mainly funded through private venture (PV) capital. Working on a number of large and small PV and external projects in this group has been invaluable experience for

developing the skills required to build and maintain my technical authority roles outlined above.

Systems engineering and modelling

All of the technical work I have undertaken has required a good understanding of both system engineering design and systems engineering principles:

- I have been able to exploit and extend my systems and performance modelling skills, which require a high level of competence in mathematical modelling.
- Modelling ballistic missile trajectories and tracking performance assessments, in close collaboration with Italian colleagues both in the UK and Rome, in support of a successful long range fixed air defence radar bid to NATO with a value in excess of €30M.
- Successfully developed large models, used to validate system performance on the S1850M major naval radar contract.
- My current role is the Modelling Validation Authority on SWMLU; one of Insyte's major defence contracts with a value of circa. £400Million.

1992 **Sonardyne International Ltd, Blackbushe Business Park, Yately, Hampshire**

→ 1995 **Electronic Test Engineer**

Sonardyne designs and manufactures underwater acoustic positioning equipment. I worked during each University summer holiday until my full time postgraduate education commenced.

EDUCATION

1996 **Ph.D. Radio Communications (3.5yrs full time and 3.5yrs part time)**

→ 2003 *Radio Systems Laboratory, Department of Engineering, University of Leicester*

Superresolution direction finding algorithms were used to analyse signals propagated over disturbed high latitude ionospheric communications paths. Significant observed directional trends in both delay and Doppler were found to be caused by scattering from irregularities embedded in turbulent bulk convection flows. Spatial filtering, using 2 or 3 element arrays, was shown to improve the potential performance of HF modems under such disturbed conditions. [A paper based on this work was awarded the IEE Maxwell Premium award for the best paper published in IEE Proceedings on Microwaves, Antennas and Propagation for the year 2000 – 2001.](#)

Thesis title: COMBINED CHANNEL SOUNDING AND DIRECTION FINDING STUDIES OF HF RADIO PROPAGATION EFFECTS OBSERVED OVER HIGH LATITUDE COMMUNICATIONS PATHS.

1995 **MSc. Aerodynamics (Full time taught and research)**

→ 1996 *Department of Aerospace Science, College of Aeronautics, Cranfield University*

Taught: 10 modules incl. High & low speed aerodynamic theory, Computational Fluid Dynamics, Flight Control theory, Missile aerodynamics and several module projects.

Research: The effect on drag of discontinuities along the trailing edge of a wing was tested using a 3D model in a low speed wind tunnel and compared with predictions based on computational models and a proposed theory of induced drag.

Thesis title: INVESTIGATION OF THE EFFECT OF SPANWISE CAMBER AND CHORD DISCONTINUITIES ON THE INDUCED DRAG OF A WING.

1992 **BSc. Hons. Physics (2.2)**

→ 1995 *Department of Physics, University of York*

Main subject: Experimental Physics (F300)

Final Year Project: INVESTIGATION OF THE HALL EFFECT IN A LOW DENSITY PLASMA.

1990 *Farnham College, Farnham, Surrey*

→ 1992 4 A Levels: Physics (A), Chemistry (B), Biology (B), Mathematics (B)

1986 *Heath End School, Farnham, Surrey*

→ 1990 10 GCSEs grade A-C, incl. 3 separate sciences, Mathematics and Latin

ADDITIONAL SKILLS

- ◆ Excellent communication skills in presentations / lectures, large and small meetings and in one-to-one situations with customers and colleagues

- ◆ Quick learner – able to learn and adapt to new technologies and challenges
- ◆ Good working knowledge of Windows, Linux, Irix and Solaris operating systems including both Microsoft and OpenOffice.org office tools.
- ◆ Skilled user of Mathcad, Octave and GEDAE modelling tools and familiarity with C and FORTRAN programming languages.
- ◆ User of Matlab since 1996, most of the modelling and simulation work I have done at AMS/Insyte and the analysis for my Ph.D. research and subsequent publications was carried out using Matlab.

EXTERNAL INTERESTS

I am an assistant leader with the local Cub and Scout sections organising evening activities and helping at camp events. I am also a keen and frequent dancer, in particular intermediate/advanced Salsa and beginner Ballroom. In addition I have been a keen dinghy sailor for many years and compete at weekends as often as possible.

REFERENCES

References and [Publications](#) list are available upon request.