

Biography.

Name: Ian Overington

Status: Retired (1990) from
Sowerby Research Centre,
British Aerospace PLC,
Bristol BS12 7QW.

Qualifications: B.Sc. (Electrical Eng.),
Leeds University, 1952.

Societies: Past Associate of the Royal Photographic Society.

Member of the Institute of Physics.

Member of the Institute of Electrical Engineers.

Member of Committees of Commission Internationale de l'Eclairage (CIE) from 1980 to 1990.

Background.

On graduation in 1952, Ian Overington joined the then Bristol Aeroplane Company (later to be merged with other aircraft companies to become British Aircraft Corporation and eventually British Aerospace PLC) as a member of the Guided Weapons Research and Development Team. In the late 1950's he became responsible for scientific application of cine photography, particularly as applied to in-flight recording of missile behaviour and spatio-temporal photometry.

In the early 1960's the foregoing led to studies of naked eye air-to-ground visual acquisition. This later broadened to include ground -to-air acquisition and vision via a variety of visual aids (telescopic sights, TV displays, thermal imagers, image intensifiers etc.). In those studies he was supported directly by a team of some 15 physicists, engineers and support staff, whilst receiving *indirect* support from a growing human factors team of ergonomists and psychologists carrying out related studies.

In the late 1960's, as a result of difficulties experienced in fitting field trials data to existing models of visual threshold performance, major interest in optical image evaluation and modelling of visual processes began to develop. These interests continued and expanded during subsequent years.

In 1972 he was appointed Chief Optics Engineer at the Bristol factory of the then British Aircraft Corporation (Guided Weapons Division). This post was essentially a consultancy position, in order that he could spend most of his time continuing day to day research. During the early 1970's this research led to the formulation & refinement of a multi-parametric mathematical model of the thresholds of human visual performance for essentially simple objects which subsequently became known by the code name ORACLE.

In the mid 1970's he was invited to attempt to set up a computer simulation of the early neural networks, in order to assist understanding of visual performance when viewing highly structured scenes, as opposed to simple objects. In the 1980's this led to the development of a high fidelity, unified approach to early computer vision which has performance limits very closely matching those of human vision. Subsequent to 1983 this work was carried out within the then newly established Sowerby Research Centre of British Aerospace PLC at Filton, Bristol, the new facilities significantly aiding progress of the research. Much of the research in

the mid 1980's was carried out as part of the British government/industry/university collaborative projects set up to develop advanced computer techniques under the Alvey Directorate. During this collaborative activity he was able to interact not only with researchers both in industry and universities in the UK, but also to a limited extent with visiting researchers from abroad, including David Marr of MIT fame and John Canny, the 'inventor' of the Canny Edge Detector which has since become effectively a standard for such operations.

As a result of his research in the 1960's and early 1970's he has been an Associate Member of the Royal Photographic Society (RPS), a member of the Institute of Physics and an Associate Member of the Institution of Electrical Engineers (IEE) for many years. Also late in 1979 he was invited to sit on two committees of the CIE, one of which he remain a member of until his retirement.

Before retirement in 1990 he published many scientific papers (approximately 35), covering a wide range of topics which included Photographic Photometry, optical image evaluation, atmospheric optics, visual threshold performance modelling, the display/observer interface and various aspects of computer vision. However, these represented only a small fraction of his technical report output. More thorough and detailed treatments of many of the topics are contained in a large number (approximately 70) of British Aerospace Reports (mostly cited in the various open publications). It may still be possible to obtain a number of those by application to British Aerospace PLC, PO Box 5, Filton House, Bristol BS12 7QW.

He also published a general reference book 'Vision and Acquisition' in 1976, drawing together many aspects of his and many other people's work in the general field of visual function and performance. This book also collected together a vast quantity of references to other literature covering a very wide range of topics related to the overall subject of vision and its interaction with the world around.

In the period immediately running up to his retirement he carried out the basic preparation of a second book 'Computer Vision: a unified, biologically-inspired approach' which aimed to draw together under one cover the important aspects of what had by then become a wide-ranging computer simulation of the majority of aspects of early human vision. These latter had themselves by then been demonstrated to provide a very versatile & high resolution image processing facility. The book was completed after retirement and was published in 1992.

Since retirement, in addition to the publication of the second book, he has been fortunate to be able to apply some of his techniques of biologically-inspired image processing to applications of forest management (in conjunction with Massey University, New Zealand) and in the field of measurement of the physical stress / strain relationships of yarns & ropes (in conjunction with his son, Martin S. Overington & Tensile Technology International (TTI)). He has also been able to demonstrate some of the powerful capabilities which can be applied to stereo depth mapping and high resolution data extraction from satellite imagery. Finally, since 2004 he has been able to offer a Research packaged version of his main software for trial usage and has created a website (www.simulatevision.co.uk) devoted to his extensive research work.