

## **QINETIQ**

**February 2000 – February 2003**

### **Principal Software Engineer**

- Led a small team to develop a Windows Application for 'Shell/Norway Oil Production' to optimally find and evaluate proposed deep ocean pipeline routes using similar techniques developed for fast aircraft routing based on costing a series of optimally chosen routes. To ensure a fast accurate solution to the problem the force and moment calculations for pipe chasm spanning stress calculations were simplified by using candidate characterization functions which were only increased in complexity if two optimal routes had the same cost. The application was developed in C++ using Borland C++ Builder 6.0 Professional and terrain and pipeline visualization was achieved using OpenGL.
- Led a small team for research, development and flight-testing of an integrated 'Terrain following and Threat Avoidance' real time routeing 'Capability Demonstrator'. A VME multiprocessor rack with PC750 Power PC cards running vxWorks real time kernels, communicating with aircraft/simulation I/O via Arinc 429/IEEE 1553 interfaces and database DTED map data. Written in C using Wind River's Tornado II IDE, the system has levels of real time routeing generating deterministic and non-deterministic routes optimally or fixed phase routeing managed by a dynamic event queue generated by pilot selected mission scenarios or other flight circumstances.
- Design and implementation of a real time Windows based virtual monitoring and logging application for handling Ethernet UDP messages from a number of multi processor VME racks. Written in C++ using the Borland C++ Builder IDE, the application spawned multiple display and logging threads as required with dedicated buffering threads ensuring minimal data loss.
- Use of Matlab/Simulink for aircraft model simulation, design and implementation of LabVIEW generic VI's and CIN nodes for communicating and monitoring VME processor racks.