

# Kevin Shannon

Current role: Freelance Web / Software Developer

On-line CV: <http://www.kevinshannon.uk>

Qualifications: BSc Physics (Hons) Upper Second Class Liverpool University  
Advanced CPD in Computing (ASP.NET, VB.NET and C#)  
Liverpool John Moores University

Year of birth: 1960

Nationality: British

## KEY SKILLS

- Specification/design/implementation of web and client/server software applications (including multi-user web-enabled database applications).
- Computer systems integration/specification/analysis/development.
- Strategic decision support and corporate asset/liabilities management.
- Safety and risk management.
- Mathematical modelling of complex processes related to plant/system safety and performance and strategic business management.

## CAREER HISTORY

2007 – Present	2007 Director of KS Software Solutions and KPS Web Solutions - Provision of web development and software systems development services to a variety of UK and International clients applying multiple different web / software and database development tools and technologies including:  HTML 5/CSS3, PHP 5/7, Javascript, ASP.NET, ASP, XML/XSL, C#/VB.Net, MS SQL Server, MySQL, Oracle and MS Access.
2000 – 2007	Principal Software Systems Consultant - Design and development of various software tools for a variety of diverse decision support and safety management applications for various customers using a several different software development tools and technologies including:  ASP.NET, ASP, XML/XSL, Javascript, C#/VB.Net, MS SQL Server, MySQL, Oracle and MS Access.

1995 - 2000	Senior Safety and Risk Management Consultant Assessment of the safety of UK rail transportation systems.
1987- 1995	Senior Safety Assessor Assessment of AGR safety and performance using computer based models.
1985 - 1987	Reactor Physicist, AEA Technology Seconded to Scottish Nuclear.
1981 - 1984	Physicist, National Nuclear Corporation Assessment of the safety and performance of the Heysham 2 and Torness nuclear power stations.

## SELECTION OF PROJECT EXPERIENCE

### RAIL INDUSTRY – 1998 to present

2007-present – Design, development and implementation of an application to process OHL condition monitoring data recorded on the Network Rail New Measurement Train (NMT) and Southern Measurement Train (SMT) This has included the development and implementation of an algorithm to search and identify peaks/troughs in stagger and to match these up to the positions of the OHL supporting structures. Software package also determines if height/stagger is in exceedence at structure position. All derived data can be easily exported so that it can be merged with track geometry traces in the form of PDF files so that it can be published for viewing by OHL engineers.

2006-2007 – Design, development and implementation of an enterprise database and various software packages for the processing/analysis/viewing of track geometry, video recording, structure gauging etc for Queensland Rail and Tube Lines/Metronet. This has included the specification, design, development and implementation of a multi-terabyte enterprise level database system to store all data to be recorded on a large number of condition monitoring systems on the Queensland Rail (QR) Road/Rail Vehicle (RRV) and the Tube Lines Asset Inspection Train (AIT). It has also involved the development of a client/server and web based viewing tool to enable the large volumes of data stored in the database to be viewed by a number of users across the QR and Tube Lines/Metronet enterprises.

2004-2006 – Design, development and implementation of various software packages for data processing/analysis of track geometry/OHL condition data for Network Rail. This has included the specification, design, development and implementation of programs to alert operators of the Network Rail New Measurement Train (NMT) to the existence of significant track geometry faults (immediate action reporting), a program to generate route context (RS) files which are vital to the process of identifying the location of track faults, and a complete data processing and analysis route for reporting OHL condition data including the identification of exceedences.

2005-2006 – Design, development, implementation, support and maintenance of the Short Circuit Analysis Tool (SCAT) service for Network Rail. This has included the specification, design, development and implementation, and subsequent support and maintenance of a web-based system for recording and analysing short circuit faults that occur on the West Coast Mainline South. The

service enables managers and technicians to enter data on the fault, what electrical sections are effected etc and to request a data download (using a dial-up component) of fault event data from any affected relays. The service provides a variety of reports which display and summarise this data.

2003-2004 – Requirements specification and design of the CDDS data warehouse/data mart(s) for Network Rail track quality management. This project has involved the specification of requirements for and design of a data warehouse/data mart(s) to store all data associated with track quality management for decision support within Network Rail. The Condition Data Distribution System (CDDS) is intended as a replacement for the currently used industry standard application for track quality management (Trackmaster) and in addition will also provide a replacement for the current spreadsheet based ORR EIS reporting system. The system has been designed to be fully compliant with NR's Information Management (IM) strategy.

2002-2005 – Design, development, implementation, support and maintenance of Engineering Innovation Database (EID) web application for Network Rail.

This project involved the design, development and implementation of a web-enabled database application for the Engineering Innovation Team within Network Rail to facilitate the sharing of information between the team and its partners in other organisations. The web application has been developed using a combination of Active Server Pages (ASP) and COM components to provide a web-based interface to data stored in a back-end Oracle database. Data in a variety of different database and document formats can be uploaded by users (on demand) and subsequently shared with other users using a common consistent browser independent interface.

2000-2001 – Design and development of Electronic Safety Case (ESC) for London Underground. This project has involved the design and development of an Electronic Railway Safety Case, for London Underground. The electronic safety case (ESC) has been developed using XML/ XSL technology and the Javascript language in order that the ESC can be rendered in both HTML (for the web) and PDF format (for hardcopy publishing) from the same XML based structured document content source.

2000-2001 – Accident/Incident Investigations at BP Amoco Grangemouth Complex. Extraction and analysis of accident/incident data stored on the BP Grangemouth Total Loss Control (TLC) incident database to identify underlying common root causes of accidents/incidents at the BP Grangemouth Complex. Project also involved a detailed review and analysis of the root causes of several major and serious incidents that had occurred over the previous 12 months at the Complex.

2000 – SPAD reporting and investigation tool (SPRINT). Design and development of a methodology and software tool for reporting and investigating Signals Past at Danger (SPADs – Trains failing to stop at red signals). The application enables information on the factors contributing to SPADs to be gathered by using a distributed application and stored in XML format, enabling this information to be easily transferred between the Train Operating Companies (TOCs) and Railtrack for input into the Safety Management Information System (SMIS).

2000-2001 – Railtrack National Autumn Delays Improvement Research (NADIR) project. Design and construction of large RDBMS database to store and analyse large volumes of data on the root causes of train delays during the Autumn ‘leaf fall’ period. Analysis of data to highlight root causes of delay and measure effectiveness of various measures put in place to mitigate delays. This work resulted in significant recommendations for Autumn 2000 which were subsequently adopted by the Railway industry.

2000-2001 – OPEX/CAPEX costs model for Union Railways. Design and development of a methodology and software tool (using Visual Basic 6.0 and MS Access 97) for predicting future OPEX and CAPEX costs on the Channel Tunnel Rail Link.

1999-2000 – Asset usage costs model for Railtrack. Design and development of a methodology and software tool (using Visual Basic 6.0 and MS Access 97) for assessing track usage charges based on complex track damage mechanism models. This model has subsequently been applied by Railtrack to assist in the process of deriving appropriate track access charges for the current Periodic Review.

1997-1999 – Safety approval of airport rapid transit system. for BAA. Production of all safety submissions to and management of safety approvals process for extension to Stansted Airport Tracked Transit System with HM Railway Inspectorate. Establishment and maintenance of the TTS Hazard Log for control and management of all identified hazard and safety issues. Testing and commissioning manager for ‘cutover’ between existing system and extension. Project was completed to time and cost and gained full unconditional approval from HMRI with minimum disruption to other airport activities.

1999-2000 – Autograph Software Package. Design and development of a software package (using Visual Basic 6.0) to chart and analyse data recorded by an Autograph Trolley (a self propelled device for measuring the geometry of rail track). The application uses a resolution independent, multiple document interface (MDI) to enable the user to examine data recorded from the track prior to and following track maintenance. The package enables a speedy and accurate assess the effective of the maintenance to be carried out.

1998-2000 – Whole life asset plan development for LUL. Design and development of a methodology (ASTRAL) and prototype software tool (WLAP-P model) for a major transport infrastructure company (using Visual Basic 6.0 and MS Access 97) to assist in formulating strategic options for track replacement/renewal.

The model developed has been used (by the author) to derive key infrastructure renewal investment profiles needed to support of the Private and Public Partnership (PPP) agreements that have subsequently been formulated between LUL and the InfraCos.

## NUCLEAR/ELECTRICITY SUPPLY INDUSTRY – 1985 to 1998

1997-1998 - Strategic asset replacement system for Yorkshire Electricity. Design and development of a methodology and software tool (using Visual Basic 4 and MS Access 2.0) for a major electricity distribution utility which enables strategic options for replacement of key operational assets and their effect on safety and quality of supply to be studied, costed and evaluated.

1996-1997 - Strategic waste management system for UKAEA. Design, development and testing of a methodology/software tool (using MS Access 2.0) for a major nuclear liabilities management company which enables strategic options for the decommissioning of nuclear facilities and management of radioactive wastes to be studied, costed and evaluated.

1995-1996 – Analysis of Cl-36 in decommissioning waste destined for storage in the UK Nirex repository. Analyst and co-author into a report on the quantity and distribution of Cl-36 isotope arising from the decommissioning of the UK's nuclear reactors destined for long term storage in the UK Nirex repository.

1995-1996 – Level 1 decommissioning study for B52 facility. Authoring of the Level 1 decommissioning and waste management study for the B52 facility on the Sellafield site (the former WAGR PIE Facility).

1988-1995 - AGR Safety programme for Nuclear Electric and Scottish Nuclear. This work involved a number of projects as part of a programme of safety and performance related work including:

- The development and application of mathematical models (using Fortran 77) to various steady state and transient heat transfer situations in Advanced Gas Cooled (AGR) and Magnox nuclear reactors.
- Independent assessment of a many Category 1 and 2 Safety Case Submissions to the Nuclear Safety Committee on behalf of a major Nuclear Power generation Company.

1985-1987 - Secondment to Scottish Nuclear at Torness Nuclear Power Station Seconded to the Station Performance section at the power station during the commissioning of the Reactor 1. This included:

- The development of a methodology/software tool to derive reactor and channel powers and flows (using Fortran 77) as an input to the Reactor Management System to demonstrate compliance with Operating Rules.
- Participation in the loading of fuel stringers into Reactor 1 (shift working).
- Secondment to the NNC Commissioning Team which included the organisation and carrying out of output demonstration tests during reactor power raising.

## PROFESSIONAL TRAINING

- Engineering Safety Management (Yellow Book) training (Praxis Systems)
- CDM Regulations training (AEA internal course)
- Advanced CPD in Computing Liverpool John Moores University

## OTHER INTERESTS

- Keen squash/racketball and hockey player at Northern Club, Crosby
- Masters swimming at Crosby Swimming Club
- Blogging
- Club Treasurer and Webmaster for Northern Club web site