## Personal Information

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## Introduction

Having gain years of experience from an Apprentice Electrician to a SCADA and Telemetry Engineer, numerous relevant Engineering role between, also achieving a First Class Honours Degree in Computer Science.

I am now ready and interested in becoming an Embedded Systems Engineer.

In the past I have experience with complex instrumentation, which is used within high volume manufacturing and within the Water industry for measurement and analysis.

Recently I have regained an interest in Electronics and it relationship to programming. As an interest and a hobby I am developing my own CNC machine. The intent is to develop a large machine for use in my other hobby; Wood Working. I have developed a small prototype machine for proof of concept using parts from old computers i.e. DVD and Floppy disk stepper motors. I have used electronic circuit boards, components and have applied embedded code using C/C++.

I relish the opportunity to mix with other talented engineers giving me the opportunity to improve my engineer skills.

As a consequence of my engineering background and hobbies I have a good working knowledge of electronics, both analogue and digital,

I am very keen and enthusiastic to strengthen my existing skills and learn new skill.

## Summary of Qualifications

NCFE Level 2 Certificate in Photography

2015 to 2016, East Durham Collage.

Computer Studies, Bachelor of science (BSc) First class Honours

2001 to 2006, University of Sunderland.

POST Supervisory and Leadership Course, Certificate in Management Studies.

1992 to 1993, The Institute of Supervisory Management at NSK Bearings Europe Ltd.

City & Guilds of London Institute. Certificate in Thyristers in Power Control.

1991, Pera International.

Certificate in Advanced Programmable Logic Control (P.L.C.) Systems.

1990, Hartlepool Collage of Further Education

City & Guilds of London Institute. Certificate in Computer Aided Engineering, Computer Aided Draughting (C.A.D.).

1989 to 1990, New Collage Durham.

City & Guilds of London Institute. Certificate in Computer Aided Engineering: Industrial Robot Technology.

1985 to 1986, Gateshead Technical collage.

City & Guilds of London Institute. Computer Aided Engineering: Pneumatic Systems.

1985 to 1986, Gateshead Technical collage.

City & Guilds of London Institute. Computer Aided Engineering Electrical/ Electronic Systems.

1985 to 1986, Gateshead Technical collage.

British Education Technician Council, Higher National Certificate (BETC HNC), Certificate in Electrical Engineering

1979 to 1983, Hartlepool Collage of Further Education.

Four year Apprenticeship, Maintenance Electrician.

1979 to 1983, Headwrightson & Co. Ltd.

Certificate in Broad Based Training & Electrical / Electronic Engineering. (First year of Apprenticeship).

1979 to 1980, Headwrightson & Co. Ltd.

## School Qualifications

St Bede’s R.C. Comprehensive School. Peterlee, Co. Durham

Ordinary Level:

· Grade A: Art

· Grade B: Metalwork

· Grade B: Geometrical and Engineering Drawing.

Certificate of Secondary Education:

· Grade One: Technical Studies

· Grade One: Mathematics

## Professional Memberships

Member of the Institute of Engineering and Technology (MIET)

**Work Positions Held:**

Time served Maintenance Electrician, Paint-shop Manufacturing Staff, Multi-skilled Maintenance Technician, Shift Maintenance Electrical Technician, Electrical Design Technical Engineer, Senior Project Engineer, SCADA and Telemetry Engineer.

## Skills

### Industrial:

SCADA systems; SCX6 SCADA using regional telemetry with widely distributed points, RS-View, Joy-watcher (WEB based) and my own e-Factory (WEB based). Extensive PLC experience, both hardware and software design in accordance with IEC61131-3 (in-depth function block and SFC programming). PLC's include Omron, Mitsubishi, Allen Bradley, Telemecanique. The use of AutoCAD and Promis-e for machine control system design. I have work on many types of systems associated with high volume production and manufacturing processes also in heavy engineering. With knowledge of control systems including relay, electronic logic based control systems. Experience with measurement transducers, instrumentation, actuators and variable speed and servo drives, SSD, ABB, Omron, Mitsubishi, Yaskowa, Parker, Panasonic, Hitachi. I also have mechanical engineering experience with hydraulic and pneumatic systems. I have experience of panel wiring on Gas Turbine generators.

### Software and Programming languages:

C++, Javascript and XML with PHP for AJAX web application, Microsoft Access database development with VBA, Structured Query Language (SQL). Using Visual Basic 6 and Active-X Data Objects (ADO) technologies. I developed a Data Acquisition (DAQ) system for the automatic collection of data from production machinery. Development of DLL components using Object Oriented Analysis (OOA) and Object Oriented Design (OOD) techniques to interface production machine protocols with a database via a network, typically MySQL. Dynamic Web development for Intranet using PHP, HTML, DHTML and XML. The use of windows Application Program Interface (API) primarily for the development of Graphic User Interface (GUI), Java / Swing and the use of design patterns, C#, Java / Swing, XML, HTML, DHTML, PHP, Javascript, Vbscript, ASP, VBA, Visual Basic, Borland C++, 86 Assembler, C#, VB.NET, IEC61131-3; Ladder, FBD, SFC, ST.

### Networking:

I have experience of many different types of networks from RS422, RS485, Modbus, Controller-Link, Host-Link, Device-Net, TCP/IP, UDP/IP, Ethernet, Internet and Intranet and others. The configuring of Web-servers and database-servers.

### Managerial:

Management through the complete life cycle of Electrical and IT projects. Co-ordinating with customers and contractor to achieve targets to schedule and budget, Deputising for Plant Engineer / Engineering manager for the smooth running of Maintenance department. The Design, implementation, maintenance and upgrade of a Planned Preventative maintenance system for use in the Maintenance Department and Production areas. This is used extensively for external and internal auditing in accordance with TS16949 (formally QS9000).

### Databases:

MySQL, MS Access, Oracle, MS SQL, SQL92 SCX.

## Employment History

### Aug 2008 to Present Day. Northumbrian Water Ltd. (Water Treatment)

*(Water Utilities Industry)*

(SCADA and Telemetry Engineer)

**Duties:**

* General supporting and maintaining SCADA and associated control systems across the full NWL region. Support of the ‘Regional Control System’ main Control Centre at Washington.
* Specific responsibility and support of SCADA and control systems for one Water Treatment Works (Lumley WTW) and four Sewerage Treatment Works (Horden STW, Seaham STW, Sedgeletch STW, Hendon STW, Browney STW). Also, responsibility for the development and support for the ‘SLM’ CSO flood warning and monitoring system.
* Carrying out minor capital works related to SCADA and control system upgrades. Playing an active role in identifying processes that better utilize the SCADA system assisting in reducing business costs, manage risks and improve customer services levels.
* Training stakeholders on the use and application of SCADA standards and procedures and ensuring applications continue to meet business needs.
* Design and development of Schneider SCX6 SCADA Telemetry system across the whole region for sewer level monitoring. Data logged to Oracle Database.
* Carry out Duty Standby duties on rota basis once every seven weeks.

### May 2007 to Aug 2008. Oracle Drive Systems Limited.

*(Automotive, Food, Plastics, Packaging, Steel, Heavy engineering Industries)*

(Senior Project Engineer)

**Duties:**

Management through the complete life cycle of projects;

* Identifying the customer requirements.
* Specification of control systems.
* Defining / working to specification.
* Design of control system, production of electrical schematic diagrams.
* Manage building of control panels to specification.
* Design and development of control system software.
* Debug and commission system off and on site.
* Production of technical construction files.
* Working within defined budget and schedule.

### Feb. 1988 to May 2007. NSK Bearings Europe Ltd.

*(Automotive Industry)*

(Electrical Design Technical Engineer)

**Duties:**

* Design, build test and commissioning of Automated machine control systems
* Support to Plant Engineer, deputation and supervisory duties.
* Supporting the general running of the Electrical Department.
* Management through the complete life cycle of IT and Electrical projects.
* Support of Planned Preventative Maintenance system.
* Supervision and control of external contractors.

### Feb 1987 to Jan 1988. William Morrice Fine Arts.

*(Paper Printing Industry)*

(Multi-skilled Maintenance Technician)

**Duties:**

* Shift Electrical/Mechanical breakdown cover.
* Planned Preventative Maintenance.

**Aug. 1986 to Jan 1987.Nissan UK Ltd. Automotive Industry**

*(Automotive Industry)*

(Paint-shop Manufacturing Staff)

### Sep 1978 to Oct 1985. Headwrightson & Co. Ltd.

*(Heavy Fabrication Industry)*

(Maintenance Electrician and Four year Electrical Apprenticeship)

**Duties:**

* Shift Electrical breakdown cover.
* Planned Preventative Maintenance.

**Types of equipment:**

* Welding equipment
* Overhead cranes.
* Large material handling equipment motors and drives.

# Projects (not definitive):

**‘Hawkeye(SLM) SCADA System’ (Water Industry)**

This is the development of a SCADA system for Northumbrian Water Limited. It is a regional telemetry system. The system consists of two rack mounted servers connected to a bank of PSTN modems. The system runs Serck controls SCX6 SCADA software on Windows server 2003. Hawkeyes’ are simple single channel loggers that are installed in Combined Sewer Outflows (CSO's) and Main Sewers throughout the Northumbrian Water region.

**‘e-factory’ (Automotive Industry)**

A project spanning four years, which is a SCADA (WEB based) application designed using

Dynamic Web pages having been developed with PHP, Javascript and XML providing AJAX capability incorporating PLC object based methodology complying to IEC61131-3. This is a project to monitor production machine and line performance in order to facilitate continuous improvement. Data is viewed using a web browser on the company’s Intranet. The machines are connected together with an industrial network. The Lines are connected to a private LAN. COM Components have been developed to collect data from the machines for storage in a MySQL database. A MYSQL database is also used as a WEB based Content Management System. Web design is in accordance with WC3 requirements.

**‘Central Hydraulic System’ (Steel industry)**

A centralised hydraulics supply system consisting of four ABB ACS800 AC Inverter drives controlling hydraulic pump sets. The pump duty cycles are automatically controlled using an Allen Bradley PLC. A Red-Lion HMI SCADA system was developed for system management and control. A private local Ether network using a Modbus TCP/IP protocol is used for distributed control and data collection. The HMI SCADA is connected to a GEM80 network to transfer system status data to the central GEM80 monitoring system.

**‘Chiller pumps system’ (Plastics industry)**

Energy saving project, this was to replace existing standard factory coolant pump system with Industrial variable speed drives (SSD) to control pressure within the system pipe work. This is achieved by controlling the pressure using a pressure transducer and PID control loop taking advantage of "Fan Low". Operation and monitoring and control is by a HMI (Pro-Face) controlling devisees across a MODBUS network.

**‘Hydrothermal pressure release’ (Petrochemical Industry)**

This is a project that required the addition of a pressure control valve to release / control pressure in a laboratory test instrument /machine. The machine is controlled using a PLC (Allen Bradley) located in an explosion proof chamber. Control is by a computer based SCADA (RSView) application located outside the chamber. Pressure is controlled using a PID control loop.

**‘Robot work-cell Palletiser’ (Food packaging industry)**

This is a project to modify pallet flow control with in a robot work-cell. It involved the modification of the PLC (Mitsubishi) program after modification the conveyor transfer layout and the addition of an automated wrapping machine.

**‘Plastic Extruder’ (Plastic industry)**

This involved the design of control logic’s using function block programming and commissioning of a Variable Speed Drive (SSD).

**‘Tomato packing machine’ (Food industry)**

This is a process improvement project requiring the analysis of the existing operation, identification of problems with the implementation of improvement solution, which involved the reprogramming of the Servo-Drive (SSD) and PLC (Mitsubishi) program modifications.

**‘Proportional Hydraulic feed control’ (Automotive industry)**

This project replaces the existing hydraulic feed control on automatic grinding machines. It is a hydraulic proportional feed control system replacing six multi-port valves and four flow control regulators with a single valve controlled by the machine PLC system. This was the primary contributor to a £4m / year increase in production output.

**‘Grinding Feed Controller’ (Automotive industry)**

This project was feasibility study. Designed as a plug-in unit to control grinding and dress feed cross-slide position control consisting of a motion controller (Parker), mini PLC (Omron) and HMI (Pro-Face). It controlled a servo-drive with the motor connected to a ball-screw via a harmonic drive. Feedback was achieved with an optical linear scale (Hydenhain) mounted on the cross-slide.

**‘Machine Safety Upgrade’ (Automotive industry)**

Involving risk assessments, safety related practices and standards, for example EN1050, EN292, EN954, EN60204. Responsibility for the correct implementation of Safety related Parts of control systems, design of safety circuits, training of Electrical Maintenance personnel in the application of Safety Related Part of a machine and risk assessment, categorisation and requirements of Safety Related Part on machinery.

**‘Semi-High-Speed’ (Automotive industry)**

A large project at NSK Bearings, which spanned over five years, delivered on time and to budget. It was actually a programme of improvements consisting of many smaller sub-projects. The program was to upgrade approximately 110 outdated production machines in the grinding section to meet the demands of modern production. My role in the team was control system software development and electrical design, test and commissioning (Omron PLC’s, Omron HMI’s, Mitsubishi VSD and Servos).

**‘MT Datalog’ (Automotive Industry)**

A maintenance database client-server application used throughout the plant and used for TS16949 (formally QS9000) accreditation. The main features are machine Breakdown recording, Work-order control, Planned Preventative Maintenance and spare parts control. In a recent version upgrade multi-language (Japanese and Polish) support has been added.

**‘Off-line Noise-test’ (Automotive Industry)**

A project to rebuild a bearing noise test machine using only the electronic boards and to design, builds, test and commission the electrical control system. A 19” rack was constructed to house 12 electronic band-pass filter and peak-hole cards. The board edge connectors were wired using wire-wrap technique. The data communication to the boards has an 8bit-data bus and 8bit-address bus. The main control system is a PLC (Omron) consisting of 32 analogue input, 4 analogue outputs and multi-channel digital I/O. To interface between the digital I/O and the electronic data buses, I designed and built an electronic interface card. The data was displayed on a HMI (Omron), its appearance being similar to a graphic equaliser.

## Quality Circles / Improvement Group Activities / Awards

Dynamite Award 2015. ‘Innovative use of existing technology’, SLM System Northumbrian Water.

'Auto 2000 +' Winner of NSK Group Activity, Michelin excellence award

(Management driven category) 2001, 2002.

'Polished Act' Winner of NSK Group Activity 1996 Awards

At Headwrightson, Craft Apprentice of the Year Award 1979