Ben Harker CV

Date of Birth 18.9.63

Personal statement	I am a practical and creative person; I find design and technical problem solving very satisfying and highly motivating. The physical world fascinates me and I have a good understanding of how things work. I have a keen interest in new technology and a thirst to constantly learn new skills and techniques.

Work history

1982 - 1983	After leaving school I worked for a traditional boat builder, John Millgate, in Peldon, Essex. During my time there we totally rebuilt a 100 year old Essex fishing smack which I sailed round Britain 4 years later. I was involved in all aspects of the construction from planking to making the spars.
1983 - 1985	BTEC National Certificate in Engineering and a College Diploma in Naval Architecture and Boat Building Technology; Cornwall College, Falmouth. It was on this course that I developed an interest in design and R&D type activities culminating in my filing a patent application for a counter-balancing mechanism for cranes.
1985 - 1990	Worked for a high quality architectural joiner in London – Matthew Marchbank Limited. Here I quickly learnt the skills necessary to produce very high quality furniture with modern equipment and by the time I left was in charge of virtually all workshop production. We specialised in making modern bespoke furniture, custom designed kitchens, and fitting out bars, night clubs and quality retail outlets. Some jobs were shipped as far afield as New York and Tokyo.
1990 - 2003	Freelance 3D computer modelling for architects and designers in and around London. I developed my own modelling techniques and learnt to customise AutoCAD through the use of its programming language (AutoLisp). I worked for many of the top London architects and modelled a great variety of buildings and structures including shopping centres, department stores, shop interiors, the 'Round House' in Chalk Farm and the Millennium Bridge. I also did a number of engineering design jobs when the opportunity arose. During the latter part of this period I rediscovered my ability to learn new things and taught myself electronics and how to program microcontrollers.
2003 - present	Started to provide engineering design, product prototyping and R&D services to companies with or without in-house capability. Examples are small scale custom machine design, test rigs, lab automation and product or process development and prototyping. I have worked in the following sectors: o Automotive o Pharmaceutical o Utilities o Construction o Industrial Safety o Agricultural o Creative Arts

Projects include:

- design of numerous automated test stations, environmental test fixtures and automated assembly fixtures
- design of a pick and place unload station
- design and build of working exhibition displays
- design and rapid prototyping of parts for an agricultural seed drill
- design and prototyping of a hand held pipe cutting device for the building trade (patented)
- design and prototyping of a new type of distribution manifold for the water industry
- development and implementation of a telemetry and auto control systems for model sailing yachts
- modelling and machining of a mould for the hull of a radical design for an A class model sailing yacht
- development (patented) of a remote device for monitoring crack movement in buildings and structures
- development and writing of Windows based GUI and compiler software for an industrial servo controller
- I also built my own 3 axis CNC machine from the bits of an abandoned 5 axis machine.
- development of a technique to capture and fix permanently sand from the beach so it can be displayed on a wall.

Areas of interest	Mechanical design, automation, motion control, sensors, telemetry, wireless communications, serial communications, the man machine interface, usability.
General skills and attributes	Ability to think in three dimensions and to visualise forces; good technical problem-solving ability; ability to think creatively; good communication skills; willingness to learn and acquire new skills; organised.
Technical Skills	Good professional knowledge of the following CAD software: SolidWorks, AutoCAD and Rhino. Other software skills include: Pic microcontroller programming, (Proton Development Suite), circuit design and PCB layout, (Diptrace); Windows programming (Visual Basic), PC interface design (LabView); CNC programming (OneCNC) Practical skills and knowledge include: interfacing microcontrollers to numerous types of sensors and ICs using communication protocols such as SPI, I2C, Analogue, RS232 and USB; production of prototype PCBs; good knowledge of pneumatics, stepper motors, servos, and moving coil actuators. Workshop skills include: milling; turning; grinding; TIG welding and CNC machining.
None work interests	Gliding, sailing, photography, architecture, art.
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