

## OBJECTIVE:

Leveraging my broad background in hardware and software design in a high-tech, challenging environment where quality is the highest priority.

## PROFESSIONAL SUMMARY

Electronics: BSEE, MSEE, 4 yrs digital design, 10 yrs analysis, PCB layout, testing/debug, EMI/EMC, 8 .. 32-bit  $\mu$ Processors, CPLDs, control loops, ultrasound imaging

Software: 10 yrs C++, C-sharp, Visual Basic, Delphi, assembler for x86, PowerPC, DSP; Windows, WindowsCE, RTOS; D-COM, ActiveX, STL, ODBC, SQL, MFC

Management: Project Management 10 yrs, Software department 7 yrs, IT Department 5 yrs

Documentation: Authored all project documentation from proposals, hardware and software specifications, Hazard analysis, FMEA to Test specifications

## PROFESSIONAL EXPERIENCE

### 4/04 – Present **Kestrel Labs** *Software Engineer*

Software to support research & development for several pulse oximetry projects. Software includes embedded-C as well as C-sharp programs for processing and recording data in real time. Processors include floating point DSPs and ARM-7 controllers.

### 8/03 – Present **E and S Design** *Consulting Software Engineer*

Develop software for medical products. Projects have included embedded code for an eye-scanning machine and data monitoring and recording software on a PC for a prototype surgical monitor.

### 8/94 – 8/03 **Evergreen Research, Inc.** *Director Software Development / Director Information Systems*

As a partner in this small consulting firm performed project management, system architecture, software and hardware design, along with managing the software department (up to 6 programmers) and IT department (4 servers, 30 workstations). See attached project descriptions for examples of projects I participated in.

### 8/92 – 4/94 **University of Florida – Department of Anesthesiology** *Research Assistant*

Designed and built a system that displays running costs of anesthesia intra-operatively, involving gas flow modeling, ergonomics, database-management and development of a Windows based user interface.

### 2/89 - 12/89 **Philips I&E – Breda, the Netherlands** *Electronic Engineer*

Designed and built a long-range intercom system using state-of-the-art technology like ISDN data transmission and CODEC audio compression techniques. Work entailed system design, electronic circuit design, testing, documenting and supervision of five technicians.

## EDUCATION

- 9/89 - 4/94     **M.S. Electrical Engineering** at Eindhoven University of Technology, The Netherlands  
Specialization: Medical Electrical Engineering; top 5% in class
- 9/84 - 8/89     **B.S. Electrical Engineering** at HTS Dordrecht, The Netherlands.  
Specialization: Information technology.

## PERSONAL

Born 12 May 1967 in Dordrecht, The Netherlands. Have U.S. citizenship.

## PROJECT DESCRIPTIONS

### **Biometry / Pachymetry eye measurement device**

*Project Manager, Software Lead, Hardware Lead.*

This ultrasound optometry device measures eye dimensions down to 1 micron.

- Designed single-board solution including Motorola PowerPC core, analog front-end, graphic printer controller, LCD backlight inverter, Ethernet, USB, PC card, TV / Video output, sound, touch-screen, I<sup>2</sup>C EEPROM, SDRAM, Flash program memory
- Ported Windows CE kernel to Motorola PowerPC, created custom drivers.
- Managed PCB layout effort to pass EMI / EMC test specifications
- Managed Application software development

**Result:** Product is most accurate device in its market today.

### **Computerized Perfusion Controller (Heart - Lung Machine)**

*Software Lead*

An embedded PC based system for control and monitoring of pumps and sensors during extra-corporeal bypass perfusion procedures.

- Developed Software Requirements Specification, Software Design Description
- Performed Hazard analysis
- Designed touch-screen based user interface

**Result:** project was terminated because the client company was acquired by competitor

### **Automated Manufacturing test system**

*Project Manager, System Architect, Programmer*

This system for burn-in testing surgical generators is comprised of 15 test stations controlled by a PC via a proprietary RS-485 network. The modular design is adaptable to new devices, suitable for burn-in testing as well as embedded software verification testing. Test protocols can be coded in VB script or Java; Since the protocols are interpreted at run-time the test system itself can be validated independently, avoiding re-validation for every protocol change.

- PC software design uses VB for the user interface and C++ ActiveX modules and DCOM. Entire test system can be run and monitored remotely through LAN
- Proprietary RS-485 communication protocol requires only simple 8-bit micro-controllers in test stations

**Result:** System is currently in use for production as well as engineering support

### **Calculation Engine for Total Parenteral Nutrition prescriptions**

*Project Manager, System Architect, Programmer*

This software component computes the formula for a TPN based on clinically expressed inputs. It provides unit conversions, calorie and ion balancing and rule checking. It produces a Bill of Materials for an automated TPN compounding, and summary nutrition information, administration rate and volume information for the order.

- ActiveX COM component developed in C++ and STL, UI in VB and Borland Delphi

- Database design; SQL statements and stored procedures; ActiveX help file integration

**Result:** This software component is currently marketed, and it is used by the proprietor as the basis of a new pharmacy order entry system.

## **Stem cell Culturing System**

*Project Manager, System Architect, Programmer*

The AastromReplicell™ System is a human cell production system providing GMP-compliant manufacturing and automated process control for the commercial-scale production of cells to be used in medical practice.

- Gas mixing control, fluid control, motion control, temperature control, control & monitor separation, real-time proprietary OS, medical record keeping facility; C++ / x86 assembly code
- Proprietary redundant RS-485 network

**Result:** System was successfully brought to market