David Li

Embedded Software Engineer

Audubon, PA - Email me on Indeed: indeed.com/r/David-Li/80aae8cc85418d4b

Experienced Embedded Software Engineer, recognized as an expert in developing application embedded software and hardware drivers for mission critical applications such as power grid and avionics systems. Familiar with all facets of the product development life cycle from design through implementation, testing, debugging, and market introduction. Excellent team player, highly effective and results driven professional with the ability to take a leading role in complex technical projects. Six Sigma certified with strong background in math, signal and image processing.

TECHNICAL SPECIALTIES

Microcontrollers: HCS12, MSP430, […] ADSP2100, ARM.
Microcontroller Development Tools: Motorola MC68000 development tools, Analog Devices ADSP2100 development tools, Cosmic ZAP for HCS12, and CrossWorks CrossStudio for Texas Instrument MSP430 processor.
Operating System: CMX-Tiny, VxWorks, Linux.

WORK EXPERIENCE

Embedded Software Engineer

Innovative Solutions and Support - Exton, PA - December 2012 to October 2014

As a member of a multi-national project team, interfaced with team members in India, US, and Switzerland to design a DCPU (Data Concentrator Processing Unit) for Pilatus aircraft PC-24 controls.

- Developed DCPU hardware drivers including ADCs, DACs, DUARTs, and ARINC-429 (avionics interfaces).
- Wrote drivers to interface with Actel FPGA developed to DO-254.
- Developed an Automated Test Program to expedite hardware testing.
- Assisted a team in India to help with its FPGA VHDL development.
- Helped a team in US with its application software development.
- Developed software algorithms to calibrate the DCPU hardware.
- Participated in DO-178 DAL A software quality assurance verification.

Software Controls Engineer

KOMAX SOLAR AG - York, PA - March 2011 to October 2012

Controls software design of Robot/Machine Vision/PLC/HMI integration for a standard product for automated assembly of solar module production.

- Programmed Rockwell PLC for solar cell stringers and layup systems using RSLogix 5000.
- Programmed Siemens PLC for solar panel laminator using SIMATIC STEP 7-Micro/WIN.
- Programmed HMI's using Siemens SIMATIC WinCC flexible.
- Programmed ABB robots in RAPID for panel layup and bussing system using RobotStudio.
- Installed automated robotic manufacturing/assembly systems for solar panel production.

Software Controls Engineer

Aragon System Product - Horsham, PA - August 2010 to March 2011

Designed and developed software features for monitoring and control systems used by the newspaper and publishing industries.

Software Development Consultant

GE ENERGY - Hatfield, PA - February 2010 to May 2010

Upgraded the Emissions Monitoring and Testing System by using Linux operating system and ARM processor. The system was widely used to reduce hazardous gas emissions to meet the Environmental Protection Agency Standard.

Sr. Design Engineer

HONEYWELL PROCESS SOLUTIONS - Fort Washington, PA - August 2000 to July 2009

Embedded software lead engineer worked with four team members from India and the United States, developed wireless and wired corrosion sensors that made corrosion on-line monitoring possible for industries automation.

• Led a multi-national software team on the development of Corrosion Data Logger from concept to market introduction and the project was within budget and schedule.
• Developed a wireless corrosion sensor for industrial control and automation. The sensor was capable of producing real time corrosion data for process control.
• Upgraded a popular Universal Digital Controller with newer generation of microprocessor and migrated all software functionalities to the new controller, greatly reduced the product cost.
• Designed and implemented complex control algorithms for the new ARM based Hybrid Controller. The algorithms included Sequencer and Alarm or Event Email Notification.
• Extended functionality of a multi-loop controller by adding new control function blocks. This enhancement significantly increased the competitiveness in the controller market.

Development Engineer

ABB AUTOMATION - Allentown, PA - August 1997 to August 2000

Developed and maintained four different microprocessor based power relay products. Added new features and new product that increased sales by millions of dollars.

• Led the development of a microprocessor based Distribution Protection Unit. The new product filled the functionality gap between the two most popular product lines, therefore, dramatically increased market share.
• Completed multiple software releases incorporating new features and quality enhancements for direct release into mission critical power grid applications.
• Implemented a recloser functionality for the microprocessor based Microshield over Current Protection Unit. With the implementation of this new feature, the sales have been increased by 20%.
• Prepared software design documents for product developments and feature enhancements.

Research Associate

RUTGERS UNIVERSITY - New Brunswick, NJ - March 1996 to August 1997

Researched a NASA project: Plant-based Life Support in Space.

• Developed a machine vision system, which integrated fluorescence imaging and other sensing techniques, to detect plant abnormalities caused by environmental perturbations.

Research Assistant

UNIVERSITY OF ILLINOIS - Urbana-Champaign, IL - August 1991 to March 1996

Conducted research for natural pigment production.

• Created an innovative machine vision system for measuring degree of cell aggregation, cell population, and its pigment concentration. The system minimized the risks of cell contamination and eliminated the sampling system clogging, reduced the time to obtain results from 24 hours to 3 minutes, and laid foundation for bioprocess control in natural pigment production.

Power Engineer

LA PLATA ELECTRIC ASSOCIATION - Durango, CO - February 1990 to August 1991

Trained in power system analysis.
• Designed a computer simulation model used to optimize the power system operation.

Power Engineer

HEILONGJIANG POWER COMPANY - Harbin, CN - July 1987 to February 1990

Worked for provincial power company.
• Supported the design, installation, and testing of a power grid.
• Initiated the development of a computer network for the provincial power grid metering to improve efficiency and reduce costs.

EDUCATION

Ph.D. in Agricultural Engineering

University of Illinois - Urbana-Champaign, IL
1996

M.S. in Electrical and Computer Engineering

Shenyang Agricultural University
1987

B.S. in Electrical and Computer Engineering

Shenyang Agricultural University
1984