

BRAD STEPHEN CARLBERG, P.E.
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PROFESSIONAL SUMMARY

Registered Professional Control Systems Engineer with over thirty years' experience in Process Control Engineering specifically with Distributed Control Systems, Programmable Logic Controllers, and Human Machine Interfaces combining extensive experience with both Hardware and Software Design, Programming, Implementation and Startup, including Advanced Continuous and Batch Control Programming.

TECHNICAL EXPERTISE

DUTIES INCLUDED: Provided Engineering Consulting Services including: Detailed Studies; Specifying and Requisitioning of Hardware; Factory Checkout and Loop Check and Tuning. Developing And Implementing Configuration and Human Machine Interface (HMI) Graphics using Ci Technologies SCADA MMI/HMI version 5.4; WonderWare FactorySuite including InTouch 7.0; Rockwell Software RSView, RSLogix, and RSBatch; Siemens/TI Simatic Net, APT and TISoft; Honeywell Picture Editor and Bailey Computer Aided Design Engineering Workstation (CADEWS) and Screen Oriented Display Generator (SODG), and Continuous and Batch Honeywell Control Language (CL) Programming. Generation of Database; Instrument Index; I/O List; Instrument Loop Sheets; P&ID's; Data Sheets; Cause and Effect Charts, Alarm/Interlock Lists; Process Functional Specifications; IJB Termination, Layout, And Wiring Drawings; and Maintenance Work Orders. Training of Operators, Maintenance, And Instrument Personnel. Created Software Integration Plan, Software Requirements Specifications, Software Design Description, and Software Requirements Traceability, and Software Configuration Management Plans per IEEE & NRC guidelines. Software Quality Assurance, specifically NQA-1 2008/2009 requirements.

EQUIPMENT & SOFTWARE EXPERIENCE: Triconex 1131 TriStation, Bently-Nevada 3500 Vibration Monitoring System, Rockwell Software RSView, RSLogix, PanelBuilder, and RSBatch; **CiTect** SCADA, MMI/HMI version 5.4; **WonderWare** FactorySuite including InTouch 7.1; Schneider Automation Monitor Pro (Factorylink) HMI and Modicon Quantum PLC using Concepts programming software. Distributed Control System (DCS), Human Machine Interface (HMI), and Programmable Logic Controllers (PLC) specifically Honeywell TPS/TDC 3000 and Bailey Net/Infi 90, Emerson (Westinghouse) Ovation; and Rockwell Software RSView32. Programmed Bailey Multifunction Processors/Controllers (MFP/MFC) including Fiber-Optic Central Communication Ring; Honeywell Advanced Process Manager (APM), Honeywell Logic Manager and Honeywell IPC620, Allen-Bradley 5 Series, and Siemens S5 Simatic PLCs. Honeywell Personal Computer Network Manager (PCNM) communicating with Millwide Computer (MIS) like IBM AIX and VAX 11/780. Used Allen-Bradley DriveTools™ software to program 1336 plus, 1336 Force, and PowerFlex variable-frequency AC drives. Programmed Operator Interface Graphics for INDELEC PLANT-VIEW communicating with Gould Modicon 584 PLC. Utilized Wonderware InSQL and Microsoft SQL Server 7 and Northwest Analytical Quality Analyst 5.1 for SPC analysis. Programmed Visual Basic, Microsoft Office including Access 2.0 and Project; AUTOCAD, DBASE and Datatrieve, Intergraph INTools, MS VISIO.

PULP & PAPER EXPERIENCE: Programming, Developing, Implementing, & Commissioning of Application Module-Based Bleach Plant And Brown Stock Washing & Recycle Advanced Control Packages. Engineering Design for Greenfield Paper Mills, Bleached And Unbleached Kraft Mills & Sulphite Pulp Mills including Paper Machines, 450 TPD Secondary Fiber Mill with Automatic Control Of Pulpers, Stock Preparation including Starch Cooker, Multiple-Effect Black Liquor Evaporators, Brown Stock Screening, 500 TPD Brown Stock Washers, 600 TPD Multiple-Stage D/C-Eo-D-E-D Bleach Plant, 8 TPD R-3 & 30 TPD R-8 Chlorine Dioxide (CLO2) Generator, Causticizing and Lime Kiln & Lime Kiln Safety Systems, Power And Recovery Boilers, Extruder Machine "Flying Splice".

OTHER PROCESS INDUSTRY EXPERIENCE: Designed Variable-Frequency AC Drive for Hog Fuel Boiler Fuel Feeders. Programming, Developing, Implementing, And Commissioning for Manufacturing Bulk Chemical Handling Facility, 250 GPM Hazardous Industrial Waste Treatment Facility, Gas Desulfurization Plant, High Fructose Corn Syrup Batch Plant, Cogeneration Plant, Cogeneration Plant Fuel Handling System; Taconite Pelletizing Plant including Furnace Grate Speed Control, Concentrator, Precipitators, Limestone Addition; and Resin Batch Reactors. Commissioning Coker Off-Gas Boilers & Ash Handling Systems.

EDUCATION

Bachelor of Science / Mechanical Engineering; February, 1984 **WA State University; Pullman, WA**

Ci Technologies CiCode & Advanced CiTect Course; Charlotte, North Carolina *June, 2002*

WonderWare Basic InTouch Course; Mobile, AL *July, 2000*

Registered Professional Control Systems Engineer; License No. 43988, State of WA Issued October 18, 2007 Expires August 9, 2020

Registered Professional Engineer; License No. 23362, State of AL Issued January 21, 2000 Expires December 31, 2019

Rockwell Software Basic RSView Course; Birmingham, AL *September, 1998*

The Dale Carnegie Course; Mobile, AL *September, 1993*

Bailey Configuration (CADEWS) & Graphics (SODG) Courses; Vancouver, BC Canada; *April & December, 1990*

PUBLICATIONS

"Implementing a Cellular Router & Controller with Embedded Webserver in a Rural Water Company Pumphouse"; November, 2017; ISA Process Control & Safety Symposium; Houston, TX

"Optimizing Your Process Through Lignin Management"; November, 2015; ISA Process Control & Safety Symposium; Houston, TX

"Manage your KPIs over the Web and Smartphones" November, 2013; ISA Automation Week 2013 Nashville, Tennessee

"Ethernet I/O" October, 2010; ISA Automation Week 2010 Houston, Texas

"Optimization in the Pulp & Paper Mill" October, 2008; ISA 2008 Houston, Texas

"Configure Your Ethernet I/O System: A "Hands-On Tutorial" October, 2003; ISA 2003 Houston, Texas

"Ethernet PLC's Reduce Oxygen Consumption (Tutorial)" September, 2001; ISA 2001 Houston, Texas

"Automated Recovery Boiler Sootblowing Control System" March, 2001 TAPPI PCE&I/ISA PUPID Joint Symposium; San Antonio, TX

"Recycled Advanced Control Package" March, 1996 TAPPI Recycling Symposium; New Orleans, Louisiana

PROFESSIONAL RECORD

September, 2018 – Present. Contract Equipment & Tool Engineer 4 for the Panel Bonding Assembly of the 777X Composite Wing Center to **Boeing Commercial Airplane Division** in Everett, WA.

January, 2017 – April, 2018. Provided Control Systems (Metso DNA, ABB Bailey, & Emerson DeltaV DCS's) expertise to Maintenance Electrical & Instrumentation Department of **Port Townsend Paper Corporation** in **Port Townsend, WA**.

August, 2016. Provided Honeywell Experion expertise to **Andritz Automation** for Checkout and Startup of new Recovery Boiler, Evaps, Demineralizer and STG at **Georgia-Pacific** in **Brewton, AL**.

May - July, 2016. Provided Honeywell TDC3000 expertise for mill DCS system and process support including Logic Manager (LM) and Process Manager (HPM) configuration, Logic Blocks, and PM- & AM-CL code) for **Weyerhaeuser (now I-P)** in Port Wentworth, GA.

March – April, 2016. Provided Honeywell TDC3000 expertise to **Andritz Automation** to create SAMA diagrams to document existing configuration (including Basic Controller & HPM configuration, Logic Blocks & AM-CL code) for upcoming migration from TDC3000 to Experion for **International Paper** in **Bogalusa, LA**.

December, 2015 – February, 2016. Lead Distributed Control System (DCS) Commissioning Engineer for [Worley Parsons](#) and [Pasadena Water & Power](#) in Pasadena, CA for the Glenarm Repowering Project providing DCS expertise for the Gas Turbine, Steam Turbine, & Balance of Plant (BOP) areas utilizing Emerson (Westinghouse) Ovation DCS.

September, 2015 – October, 2015. Consulting Control Systems Engineer to the [Hanford Mission Support Alliance \(a Lockheed Martin/Jacobs/WSI company\)](#) at the [Volpentest Hammer Federal Training Center](#) providing [Siemens TP1900 Touch Panel](#) & [WinCC HMI](#) & [S7-1200 PLC](#) expertise (in a Totally Integrated Automation (TIA) Portal environment) to modify the Operator & Instructor HMIs.

April, 2015 – May, 2015. Provided Honeywell TDC3000 expertise (including native window, Picture Editor graphics & AM- & PM-CL code modifications & troubleshooting) to commission recovery boiler upgrades including 74% solids upgade, new Precipitator transformer/rectifier, & new sootblowers for Weyerhaeuser (now I-P) in Oglethorpe, GA.

June, 2014 – October, 2014. Consulting Control Systems Engineer to MPC (Modern Process Control) Consulting, Ltd. for Education City project in Doha, Qatar.

October, 2013– Present. Consulting Control Systems Engineer to Potlatch Mutual Water Company responsible for designing, programming & commissioning Pumphouse Alarming Modernization project in Potlatch, WA.

Hyundai Engineering & Construction – Process Plant Division; Seoul, South Korea; November, 2012 – July, 2013.
Technical Advisor for the Controls & Instrumentation Department working on the LUKOIL Kandym Collections Facility project near Karakul, Uzbekistan and the Refineria Batalla de Santa Inés refinery project in Venezuela.

US Army Corps of Engineers; August, 2012. Contract Control Systems Engineer commissioning Rockwell ControlLogix PLC and Rockwell FactoryTalk SE/ME for the Gulf Intercoastal Waterway West Closure Project near Belle Chasse, LA.

Maverick Technologies; Charlotte, NC; May, 2012 – June, 2012. Independent Contracting Consultant for the recommissioning of the International Paper mill in Franklin, VA providing ABB (Bailey) Infi-90 Distributed Control System (DCS) expertise to mill startup team in the evaporators and power & recovery areas.

Invensys-Triconex; Lake Forest, CA; February, 2011 – April, 2012. Contract Applications Engineer for creating Software Integration Plan, Software Requirements Specifications, Software Design Description, and Software Requirements Traceability Matrix per IEEE & NRC guidelines for submittal to Pacific Gas & Electric (PG&E) and Nuclear Regulatory Commission (NRC) as part of relicensing procedure for the Diablo Canyon Nuclear Power Plant Safety System Replacement Project.

BSC Engineering; Richland, WA; May, 2010 – June, 2010. Provided Rockwell expertise for ControlLogix PLC and Rockwell FactoryTalk ME HMI controlling Foundation Fieldbus transmitters and ABB ACS550 drives via DeviceNet for WA River Protection Solutions Small Scale Mixing Demonstration.

Schweitzer Engineering Laboratories, Inc.; Pullman, WA; September, 2009 – April, 2010. Senior Project Engineer - Automation to Engineering Services for substation automation [Aha Macav Power services](#) implementing the SEL-2032 Communications Processor to communicate between protective relays and the ClearView HMI.

Bechtel International Inc.; Asab, United Arab Emirates; May, 2009 – August, 2009. Startup Engineer for the [Asab Gas Development Project Phase 2](#) providing control system expertise for commissioning of Yokogawa ProSafe-RS SIS and Tyco Simplex 4100U PLC for Fire and Gas control system at Liquefied Natural Gas (LNG) plant.

Bechtel National Inc.; Richland, WA; February, 2007 – April, 2009. Senior C & I Engineer in Richland, WA for the Waste Treatment Plant/River Protection Project at the Hanford Nuclear Reservation site. Created Software Functional Specification (SFS) for Balance of Facilities (BOF) area and Software Lifecycle Documents for Low Activity Waste (LAW) and High Level Waste (HLW) areas. Certified in Software Quality Assurance, specifically NQA-1 2008/2009 requirements

Honeywell Canada Ltd.; Fort McMurray, Alberta Canada; July, 2005 – May, 2006. Contract Control Systems Engineer to [Syncrude Canada Ltd](#) UE-1 project utilizing expertise with Honeywell TDC 3000, Wonderware InTouch, Modicon Quantum PLCs, Triconex 1131 TriStation Burner Management Systems, and Bentley-Nevada 3500 Vibration Monitoring System performing Site Acceptance Tests (SATs) & commissioning of the Coker Off-Gas Boilers & Ash Handling Systems.

Air Liquide Process & Construction; Houston, TX; January, 2004 – May, 2005. Contract Control Systems Engineer to corporate control systems group configuring ABB Bailey **Infi-90 Harmony DCS** Controller & Graphics for the POSCO Iron & Steel project and configuring **Wonderware InTouch** and **Modicon Quantum PLC** for the **Irving Oil** project.

BSC Engineering; Daphne, AL June, 2000 – December, 2003 Consulting Process Control Engineer for projects including: **Escambia County Utilities Authority** Main Street Wastewater treatment plant in Pensacola, FL for the Anoxic/Oxic PLC Alarm project utilizing Moore Industries Net Concentrator System and Wonderware InTouch 7.1 HMI and Modicon Quantum PLCs. ABB Instrumentation for the Water Pollution & Control

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Project Hypochlorite Modernization utilizing **Ci Technologies** CiTect SCADA HMI 5.40 Human Machine Interface (HMI) and **Modicon** Quantum PLCs for the **Northeast Philadelphia** Water treatment plant.

American Electric Power for the **Houston Pipeline/Louisiana Interstate Gas** pipelines SCADA system utilizing Wonderware InTouch 7.1 Human Machine Interface (HMI), Standard Automation EFM Manager, and various Remote Terminal Units (RTU) including Fisher ROC, Flow Automation, Daniel.

Ultramar Diamond Shamrock through **Process Control Associates, Inc.**; in Houston, TX for their Three Rivers Refinery Diesel Hydrotreater project converting ABB Multifunction Processor (MFP03) to Honeywell High-Performance Process Manager (HPM).

Mead Coated Board Inc in Phenix City, AL through **Orion CEM, Inc.** in Alpharetta, GA. Configuring ABB LAN-90 and Multifunction Processor (MFP03) for their Recovery boiler process optimization project. **ABB Instrumentation** for the Anoxic/Oxic and Secondary Clarifier process modifications Responsible for designing, configuring, & commissioning Wonderware InTouch 7.1 Human Machine Interface (HMI) and Modicon Quantum PLCs for the **Escambia County Utilities Authority** Main Street Wastewater treatment plant in Pensacola, Florida.

Ford, Bacon & Davis; Mobile, AL September, 2000 – April, 2001. Consulting Process Control Engineer to **Riverwood International**, West Monroe, LA Configuring Honeywell TDC3000 for their #4 Recovery Boiler Sootblower & TRS and **Inland Container** in Rome, GA for their Hot Stock Refiner & Screens projects utilizing Honeywell TDC3000 Control language (CL) programming and Allen-Bradley PLC/5 via the Honeywell EPLCG.

GE Industrial Systems; Pensacola, FL November, 1999 – April, 2000. Senior Systems Engineer responsible for the commissioning of the Fortrel polyester Bale line Control System utilizing Rockwell Automation RSVIEW and PanelBuilder 900/1200/1400 Human Machine Interface (HMI) and Allen-Bradley 5/PLCs for the **Wellman Chemical** plant in Bay St. Louis, Mississippi.

BSC Engineering; Daphne, AL April, 1999 – May, 1999. Consulting Process Control Engineer responsible for the upgrade of the Pelletizer Control System with Monitor Pro (Factorylink) HMI and Quantum PLC using Concepts programming software for **Kerr McGee** Synthetic Rutile processing plant in Theodore, AL. Provide engineering support for **Honeywell** TDC3000 Distributed Control System (DCS) in the North & South Powerhouses to

Mobile Energy Services Corporation in Mobile, AL. Provide engineering support for Wonderware FactorySuite including InTouch 7.0 (HMI) to **GAF Building Products** in Mobile, AL. **Raytheon Engineers & Constructors**; Birmingham, AL; April, 1998 – March, 1999.

Contract Process Control Engineer responsible for assessment & remediation of the Distributed Control Systems at 63 Kraft Foods plants in North America as part of Year 2000 compliance. **Elsag Bailey Process Automation**; Hong Kong; November, 1997 – December, 1997

Contract Engineer ABB Bailey DCS expertise to commission the Principal Collection & Treatment System for the Hong Kong Government Strategic Drainage Department. **Beloit Corporation**; Jacksonville, FL August, 1997 – September, 1997. Contract Engineer to for Greenfield mill for Indah Kiat Pulp & Paper in Parawang, Indonesia. **Weyerhaeuser Paper Company**; Oglethorpe, GA March, 1997 – May, 1997. Contract Engineer implementing

Brown Stock Washer & Bleach Plant Advanced Control Packages. **Honeywell IAC**; Phoenix, AZ; May - October, 1995 & February - December, 1996. Contract Pulp & Paper Applications Engineer Completing Projects for **Wisconsin Tissue Mills, Inc.**; Menasha, WI: Recycle/Bleach Plant Packages & **Potlatch Corporation**; McGehee, AR: Winder/Unwinder PLC Replacement

SELF-EMPLOYED; Daphne, AL September, 1993 – April, 1995. Consulting Engineer to **British Petroleum**; Prudhoe Bay, Alaska; **Westcoast Energy, Inc.**; Fort Nelson, British Columbia Canada; **Rainy River Forest Products, Inc.**; Fort Frances & Kenora, Ontario Canada; **Minnesota Corn Processors**; Columbus, Nebraska; **Boise-Cascade Corporation**; Emmett, Idaho

INSTRUMENT CONTROL SERVICES; Pensacola, FL December, 1991 – August, 1993. Systems Engineer Completing Projects for **Weyerhaeuser Company**; Plymouth, North Carolina; **Mead Paper Company**; Chillicothe, Ohio; **Boise-Cascade Corporation**; Jackson, AL

H.A. SIMONS LTD.; Vancouver, BC Canada July, 1989 – November, 1991. Control Systems Engineer Completing Projects for **Boise-Cascade Corporation**; St. Helens, Oregon; **Celulosa Del Pacifico, S.A.**; Mininco, Chile; **Cypress Northshore Mining**; Silver Bay, Minnesota; **Daishowa Canada Ltd.**; Peace River Pulp Division Peace River, Alberta; **Alberta-Pacific Forest Industries Inc.**; Athabasca, AB

CS TECHNOLOGIES; Poughkeepsie, NY February, 1987 – July, 1989. Instrument Engineer Completing Projects for **Potlatch Corporation**; McGehee, Arkansas; **Federal Paper Corporation**; Versailles, Connecticut; **Insulating Materials Inc.**; (Formerly G-E Resins) Schenectady, New York; **Interstate Paper Corporation**; Riceboro, GA; **IBM Corporation**; Poughkeepsie, New York

WRIGHT SCHUCHART HARBOR; Tacoma, WA February, 1986 – July, 1986

Instrument Engineer Completing Projects For: **ARCO EXPLORATION**; Prudhoe Bay, AK

ATLANTIC GULF; Woodinville, WA August, 1985 – December, 1985

Field Engineer completing cogeneration construction projects for **Fairhaven Power**; Samoa, CA

AMERICAN TECHNICAL SERVICES; Eugene, OR February, 1985 – May, 1985

Junior Controls Engineer Completing Projects for **Weyerhaeuser Company**; Springfield, Oregon and **GA-Pacific**; Monticello, MS

WEYERHAEUSER COMPANY; May, 1984 – October, 1984. Technical Summer Intern in Cosmopolis, WA Sulphite mill

Summers 1977 – 1981. Summer Relief Laborer in Power & Recovery Department in Springfield, OR Kraft mill

PROFESSIONAL MEMBERSHIPS

INTERNATIONAL SOCIETY OF AUTOMATION (ISA); **Industries & Sciences Department Vice President - Elect (2018 - 2019)**; **Richland Section President**; **Geographic Assembly Chairman (2016 - 2017)**; **Society Executive Board Member** & **District 9 Vice President (DVP) for WA, OR, ID, MT, WY, UT, & AK (2014 - 2015)**; **Pulp & Paper Industry Division (2001 - Present)**; **Technical Conference Committees (1997 - 2016)**; & **CSE PE Review Course Instructor (2015)**. Member of **ISA18, Instrument Signals and Alarms, ISA99, Industrial Automation and Control Systems Security, and ISA101, Human-Machine Interface** Standards Committees

References Available Upon Request, In Confidence