KEVIN PINTO
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SUMMARY OF SKILLS

Engineer with exceptional technical experience in software, hardware, manufacturing and business. A track record of innovation, execution and delivery of successful solutions in Business Intelligence, Visualization, Manufacturing, Factory Automation and Process Control.

Skills – Details

Business Intelligence, Analytics and Visualization

- Pioneered the use of QlikView business intelligence product in semiconductor manufacturing.
- Experienced with entire lifecycle of developing QlikView and Qlik Sense dashboard applications, including collecting user requirements, data load scripts, data transformation and modeling, prototyping dashboards with end users, publishing to QlikView server with documentation.
- Also see: QlikView BI Summary (pdf)
- Familiar with Tableau

Manufacturing and Factory Automation and Integration

- 15 years of Manufacturing Execution System (MES) experience.
- Experience with implementing and integrating complex and distributed system architectures.
- Experience with several interface technologies including TCP/IP sockets, CORBA, DEC Message Queue (DMQ) message bus, Hume Datahub in-memory database and Distributed Message Hub message bus, COM+ and Web Services using SOAP over HTTP.

Semiconductor manufacturing and automation

- Applied Materials Fab300 Manufacturing Execution System (MES) for 300 mm wafer processing.
- SiView Manufacturing Execution System (MES) for 300 mm wafer processing.
- WorkStream Classic and Open, Callable WorkStream Interface (CWI).

Process Control

- Run to Run (R2R) Process Control through feedforward, feedback and cascaded control using integrated and external metrology (**also see Patents below**).
- Advanced Process Control, including Fault Detection & Classification using Principal Components Analysis (PCA) and Partial Least Squares (PLS).
- Statistical Process Control.

Software Development

- Visual C# .NET design and development
- Java and JUnit, including designing and building object models
- ODBC, OLE DB, SQL, DB2, Oracle, PostGres
- Web Services
- C and C++ including dynamic link library (DLL) construction; Eclipse/CDT for C++ development.
- Git source code and version control
- Build automation using Hudson / Jenkins to build, deploy and test complex multi-tier applications
- Shell scripting with bash and Python
- LabView, including Internet, SPC and SQL toolkits.

Operating systems and networks

- Windows, Unix, Linux (Red Hat & Ubuntu), AIX, VmWare, Secure Shell (SSH), Samba

PATENTS

Co-inventor:

- *Formula-Based Run-To-Run Control.* [US Patent 7292906](#)
- *Fault detection and classification (FDC) using a run-to-run controller.* [US Patent 7477960](#)
- *Method of operating a system for chemical oxide removal* Application [US Patent 7877161](#)

EXPERIENCE

KP Automation, Austin, Texas
Independent Consultant, Jan 2003 – present. Selected projects are listed below.

Haas / Wesco / Incora, Austin, Texas
QlikView Architect and Consultant, 2013 - 2022

- Comprehensive consulting services to BI team using Qlik products to support supply chain operations
- Built or provided support to numerous dashboards including:
  - Quotes, Bookings and Sales vs Budget and COGS for hardware and chemicals, including unbilled revenue estimates for accurate revenue projections.
  - Oracle CRM
  - On Time Delivery of product to customers
  - Corporate General Ledger from SAP and JD Edwards ERP systems
  - Accounts Payable and Receivable including overdue accounts from SAP and JD Edwards
  - SAP FICO module data
  - Human Resources including confidential salaries joining disparate HR systems
  - Executive Leadership Team summary views
  - Database explorer and data dictionary builder for JD Edwards ERP and other databases.
  - Migrated 24 key reports from legacy Cognos system to QlikView for $440K annual savings.
  - Provided support to Excess & Obsolete Parts dashboard to manage $200M reduction strategy.
  - Provided support to development of automated sales margin analysis tools.
- Notable technologies and methodologies used:
  - QlikView, Qlik Sense, Qlik NPrinting, Qlik GeoAnalytics, Qlik Cloud
  - Daily incremental loading from DB2, Oracle, PostGres and SQL Server into QVD files using ODBC and OLE DB to support three-tier architecture
  - Web service calls to obtain data from cloud locations
  - Implemented REST API to enable customer to obtain customer's data from Qlik Sense
  - Active Directory user and group list using scripting
  - Encrypted data transfers and Access Control for sensitive information.
  - Dynamic user-customizable table report with over 70 dimensions and 40 metrics available.
  - Maps of customer, supplier and warehouse locations and sales using GeoAnalytics
  - Cleanup of address book and master data to work correctly with map technology.
  - International currency conversions using exchange rate feeds
  - Simple and complex time window comparisons
  - Load script include file for commonly used tasks
  - Python helper scripts
- Qlik system administration support including:
  - Installation, upgrade and support of Qlik Server cluster, GeoAnalytics and NPrinting
  - Wrote utilities and monitoring dashboards to monitor users, licenses, ETL success, dashboard usage and server resource usage to support 99.9% uptime.
  - Created a remote database loader to improve WAN transfers of large datasets between datacenters.
  - Version control of QlikView dashboards, scripts and config files using Python and Git.
- QlikView end-user and developer training and mentoring in the US and UK.
  - On-site hands-on training for 40 developers in 5 locations

- o Helped develop best practices and templates for new dashboards.
- o Mentored and guided junior BI staff, serving as expert resource.
- o Developed excellent working relationships across the customers' organizations.

GlobalFoundries, Malta, New York
QlikView Developer Consultant, 2015
- Provided expert consulting services to onsite QlikView BI team.
- Built and extended specialized dashboards for:
  - o Fab-wide Fault Detection and Classification (FDC) dashboard for Fab Process Control team
  - o Incremental loading of very large FDC data sets.
  - o Litho module recipe validation
  - o Manufacturing system ticketing requests

Rare Moon Media, Inc., Lenexa, Kansas
QlikView Architect, April 2013 – May 2014, via Cogent Company
- Greenfield implementation of QlikView Small Business Edition Server at a financial services company.
- Notable tasks included:
  - o Requirements gathering and analysis of customer data warehouse and business.
  - o Architecture and design of QlikView server and integration with SQL Server data warehouse.
  - o Developed incremental loaders, and custom build system (not Publisher) with Jenkins CI and Mercurial source code control. Development of the first business dashboards.
  - o Installed and configured QlikView Server, including iPad offline support.

eRecycling Corps, Irving, Texas
QlikView Developer Consultant, Jan 2013 – December 2014, via Cogent Company
- Re-architecture of a large legacy QlikView dashboard using best practices.
- Development and deployment of localized dashboards for European customers.
- Architected and implemented QlikView Core Reports, a generic set of dashboards to be deployed to different customers with minimal customizations for a consistent user experience and data set.
- Notable features included:
  - o Configuration via script variables for each organization.
  - o Configurable bulk loading from multiple databases into QVDs
  - o A three layer architecture of database extracting, transforming and dashboarding
  - o Load script Plugin points to enable customization without having to modify QVWs
  - o Customization in the user-facing GUI using variables and expressions.

GLOBALFOUNDRIES, Austin, Texas and Malta, New York
Manager, Manufacturing Technology, June 2009 – July 2012 (Employee)

- Manager of subject matter expert group, with 5 SME reports and funding manager for 11 developers
- Managed $2M strategic projects to performance in Fab Controls, Visualization and Setup Improvement.
- Started up new Visualization strategic program, providing QlikView business intelligence (BI) and analytics technology to enable users to discover and analyze semiconductor manufacturing real-time data and improve factory performance. Team selected technology and provided 300mm fabs with infrastructure, data warehouse and training support. **Believed to be the first ever application of any BI technology to the semiconductor manufacturing industry**.
- Started up new Setup strategic program, to streamline and automate master data setup across the factory. Selected new workflow and business rule technology (JBOSS BRMS) to assist the master data business process, reducing cycle time and scrap risk due to incorrect setup.
- Program Manager of 300mm MES program. Performed major version upgrade of SiView MES including deployment to running Production fab and subsequent support and vendor management.
- Program Manager of Automated Reticle Dispatch and Delivery project, steering software and system

architecture to accomplish first-ever automated delivery of reticles to lithography scanners.

Client: Spansion LLC, June 2008 – Jan 2009

Consultant, Software Development, Semiconductor Manufacturing

Consultant to Manufacturing Execution System (MES) team, SP1 300mm semiconductor fab, Aizu, Japan

- Consultant to MES team managing Applied Materials Fab300 / FastRamp MES
- Provided technical coordination between MES team and teams managing other integrated applications such as Advanced Process Control (APC) and Sapphire data warehouse.
- Assisted Sapphire data warehouse team in understanding MES architecture and data model and obtaining customer-requested engineering data.
- Worked directly with engineering customers in Aizu, Japan to obtain requirements for data warehouse
- Developed interface between Fab300 MES and iCADA RSM Reticle Management System using workflows, COM+ component and Web Service.
- Enhanced Space SPC system Java plugin to enable complex wafer-site calculations
- Developed Visual C#.NET object-oriented FactoryTest framework and test suite for automated and regression testing of MES and other factory applications

Client: Advanced Micro Devices (AMD), March 2004 – April 2008

Project Manager, Software Development, Manufacturing Systems Technology, Austin, Texas (now part of GLOBALFOUNDRIES)

Project manager for SiView Manufacturing Execution System (MES) team

- Project manager of SiView MES customization team which customized IBM SiView client-server application at source code level with new features requested by 300mm Fab 36 in Dresden.
- Delivered <u>50</u> major and minor releases to the fab in less than four years.
- Helped to create the team by interviewing and hiring contractors and employees, and guide them through orientation and personal development according to the needs of the project.
- Performed day to day project management of a peak staff of 16 developers and QA engineers in Dresden, Germany and Austin, Texas.
- Used Microsoft Project to maintain project plans and tasks using Work Breakdown Structure and assigned work to individual resources using Microsoft Project reports.
- Responded quickly to Production issues, sometimes delivering critical fixes in under 24 hours.
- Planned and scheduled short-, medium- and long-term software deliverables and roadmaps.
- Represented the team to senior management. Developed and presented executive reports.
- Participated in Business Process Management (BPM) manufacturing initiative and set up LEAN-oriented monthly software delivery schedule.
- Daily interaction with customers in 300 mm Fab 36 in Dresden, Germany. Organized a monthly review session with the customers to select the next month's deliverables. Facilitated the customers' different user groups to discuss and arrive at a mutually acceptable list of deliverables.
- Helped create and continuously evolve a Software Development Life Cycle (SDLC) for the project from requirements through QA. Moderated design reviews and discussions with customers and team members. Created design, test and other artifacts for the life cycle and a document repository using SharePoint Portal Server and InfoPath forms.
- Directed the creation of an automated test suite and framework using JUnit. The framework was based on object oriented design patterns for reuse of test code for lots, equipment, etc. that allowed for the transaction- and data-oriented SiView system to be tested using object-oriented and data-independent techniques. Features included unattended nightly tests, automated test data setup and teardown.
- Developed standards and conventions for usage of CVS source code management system (SCCM).

Project manager for other factory automation applications:

- Electronic Lot Shipping – J2EE web-based application to logically transfer lots between front-end and back-end MES systems. Provided project management and technical leadership.
- Decision Records – .NET web-based application for tracking wafer quality and non-conformance.

Project Coordinator, IBM Intellectual Property Workshops
- Organizer and coordinator of workshops and consultations transferring intellectual property from IBM's East Fishkill 300mm factory to AMD in early 2004.
- Organized 10 workshops, 10 consultations and 71 attendees from AMD's Austin and Dresden sites.

Client: Tokyo Electron America (TEL), January 2003 – February 2004

Semiconductor Run to Run Process Control experience
- Worked on Run to Run Process Control project as a consultant and *co-inventor of patents* (see Patents section)
- Helped visualize, design, implement & install a Run to Run process control system with key features:
    - Installed and tested on a Tokyo Electron 300mm plasma etch tool running in Production.
    - Context-sensitive execution of controllers based upon lot and wafer context.
    - Feedforward control using metrology integrated into a semiconductor process tool.
    - Feedback control using metrology integrated into a semiconductor process tool.
    - Multiple cascaded controllers.
    - Flexible framework allowing for easy extension and use of external (host-provided) metrology.
    - Host-based modification of controller targets via SECS/GEM.
- Designed control system using Java applet GUI, controller definition and history in Realtime Datahub and IBM DB2 databases, and controller process in LabView. Wrote SQL object wrapper in LabView.

TRW, Austin, Texas.
Software Engineer, January 2001 – January 2003. Client: Tokyo Electron America (TEL)

Advanced Process Control (APC) and Fault Detection and Classification (FDC) experience
- Worked on Advanced Process Control project as a consultant, helping develop a tool-level APC system for TEL 200mm and 300mm plasma etch tools.
- Wrote software requirements based upon knowledge and experience with semiconductor process engineering, semiconductor manufacturing and EI development.
- Developed diagnostic tools and prototyped XML-based data interchange applications.
- Developed spectral analyzer for Optical Emission Spectroscopy data.
- Built customizable LabView interface to APC system for end user to develop custom applications.
- Tested critical data collection modules.
- Supervised the deployment of several APC systems in 200mm and 300 mm fabs for client, including installation and configuration from start to finish. Verified that the installed system met all performance requirements.
- Assisted the end users of the system to configure their APC server to meet their specific needs.
- Trained client and fab Process Engineers in the use of the APC system.
- Trained client's Field Engineers to install and support the APC system.
- Provided demonstrations of the APC system to prospective purchasers.

Fairchild Semiconductor Corporation, West Jordan, Utah. (formerly a National Semiconductor factory)
Senior Process Engineer, PVD (Physical Vapor Deposition), MOS 3 fab, November 1994 – January 2001

Equipment and process experience
- Equipment and process engineering owner of Varian M2i cluster PVD tool, Varian 3000 series tools, SFI CTOC sputter tools, Varian/CPA XM-8/90/2000 sputter tools and other sputter equipment, used for

deposition of Aluminum alloys, Nickel, Silver, Titanium, Titanium-Tungsten and Platinum.
- Equipment owner of XRF (X ray fluorescence) and 4-pt. probe metrology tools.
- WorkStream and SPC owner for sputter area. Experienced with Statistical Process Control, Design of Experiments, Gauge Reliability and Repeatability, 8D Team Problem Solving and ISO-9000 and A100 quality standards and practices.

Factory automation project experience
- Co-developed host controller software to link and interlock Varian 3000 series tools to the WorkStream MES system. Reduced misprocessing scrap rate to near zero. Developed a custom hardware monitoring solution due to lack of a SECS/GEM interface.
- Developed Windows NT 4.0 device driver to communicate with a legacy ISA data acquisition card manufactured by HYT, and used to collect in-situ particle data. Used the WinDK device driver toolkit and the SoftIce real-time kernel debugger during development.
- Co-developed host controller software for SEZ 101 spin etcher tools. Software included recipe selection and process start using SECS/GEM, and monitor wafer test data upload to WorkStream using EDC (Engineering Data Collection) function calls.
- Developed host controller software for CPA XM-2000 sputter tools, using ActiveX / COM technology for the host-equipment interface. The host controller performed recipe selection, process start, end of process detection and equipment failure and alarm detection.
- Developed a structured code library in the graphical language LabView, to perform communications between floor PCs and WorkStream, using the intermediate technologies of DEC Message Queue (DMQ) and Callable WorkStream Interface (CWI) operating over a TCP/IP network.

Semiconductor equipment controller and interface experience
- Experienced with SECS-I, SECS-II, SML, GEM as part of site factory automation team.
- Experienced with using SECS to perform tool state detection, PPID selection, and process start.
- Experienced with detection of end of process and equipment alarms and halts, through requesting equipment events or monitoring tool state.
- Experienced with using ActiveX / COM technology to interface with equipment controllers based on Windows 98, Windows NT and Windows 2000.
- Familiar with Programmable Logic Controllers (PLCs), ladder logic, and the HMI/SCADA software programs Lookout and RSView, and their use as equipment controllers. Basic experience with modifying Lookout and RSView equipment controller code.

Host controller and user interface experience
- Extensive development of professional and intuitive graphical user interfaces, including toolbars, menus, dialogs and online help, conforming to SEMI standards.
- Developed PA-system software based on off-the-shelf Windows audio technology. A recorded message informs production staff about equipment alarms and the end of process, as a complement to the signal tower, and ensures a quick response. Improved OEE by an estimated 5%, at virtually no cost.

Manufacturing Execution System (MES) experience
- Six years of experience with WorkStream as a process engineer, area super user, and CWI programmer.
- Developed LabView interface library to MES for querying entity and lot status, and making go-no go decisions for routine lot processing.
- Developed custom code for permitting lot processing based on custom entity status situations, such as test wafer frequency, PMs and setups.
- Wrote code for timing lot processing time, for OEE improvement and process timeout detection.
- Wrote reusable code for transmitting data using WorkStream Engineering Data Collection (EDC) and event logging. Experienced with the correct setup of WorkStream SPC charts to correctly detect and handle SPC violations due to data transmitted through CWI.
- Wrote dispatch station code to optimize the inventory list according to user-configurable criteria.

- Experienced with the setup and use of multiple facilities, routes, shipping, route-to-route transfers and GTS tables for data storage.

Engineering data analysis and infrastructure experience
- Experienced with the analysis of engineering data using RS/1, Cornerstone and Mbayse.
- Familiar with the architecture and API of the Documentum document management system. Wrote Web server scripts to easily extract documents from the EDMS and perform simple queries.
- Pioneered MOS 3's intranet (internal Web) in early 1995. Wrote server end programs in C to automate the conversion of 1,200 existing MOS 3 process specifications and controlled documents, daily electronic passdowns, SPC charts and process route listings into HTML format with hyper links, for easy access on FSC's internal Web via Netscape.
- Designed, supervised installation and administered Windows NT 3.51 workstation and printer network (50 workstations and 2 servers) for entire engineering department.
- Responsible for written automation documentation and training of automation sustaining technicians.
- Designed curriculum for Microsoft Project training class and conducted hands-on training in Microsoft Project and using Gantt charts for project management for 60 engineers.

PRIOR WORK EXPERIENCE

Arizona State University, Tempe, Arizona
Graduate Research Assistant, Dept. of Chemical Engineering, September 1992 - October 1994
- Worked on atomic force microscopy of adjuvants and other biological substances to deduce a relationship between structure and immunological function, with the help of molecular modeling.
- Successfully adapted tapping mode atomic force microscope equipment and enabled it to be used in liquid, a first for the university, paving the way to image living cells in their natural environment.

Indian Organic Chemicals Ltd., Bangalore, India
Systems Analyst, Software Division, July 1991 - September 1992
- Designed and implemented a Novell Netware 3.11 LAN-based copy protection solution.
- Interacted closely with Marketing Dept. to provide technical support at customer sites. Helped design and implement customer feedback systems.

Reliance Industries Ltd., Patalganga, India
Co-op Chemical Engineer, Linear Alkyl Benzene plant, June 1990 - August 1990.
- Studied the production of Linear Alkyl Benzene, used in the production of detergent and soaps.

EDUCATION

Master of Science in Chemical Engineering, Arizona State University, Tempe, Arizona, 1994.

Bachelor of Engineering in Chemical Engineering, Karnataka Regional Engineering College (now National Institute of Technology, Karnataka), Surathkal, India, 1991.