David Pih
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Summary:
I am an accomplished engineer with extensive experience working in mechanical, electrical, software, project, and systems engineering fields. I have proven success completing projects in small and large organizations in NPI or sustaining environment. I am a technical lead with keen ability in providing solution and new designs. My industry experiences range from medical devices to technology including high-volume consumer products (display, cellphone camera, hard disk drive), semiconductors (MEMS; IC), optical communications systems, computer systems, and components.

Skills: Automation | Systems Engineering | Software Development | Mechanical Engineering | Project Engineering

Education:
Bachelor of Science, Mechanical Engineering, University of California at Berkeley
Master of Science, Electrical Engineering, San Jose State University

Experiences:
2022-2024 Test Engineer at Google
Test development: Developed and integrated display metrology test automation using Radiant Colorimeter API in Python; developed test automation for test data automatically uploaded to Google Cloud using Google Drive API in Python; developed Python / LabVIEW program for ssh into a Chrome Box for automating Android-based camera captures and uploading the test data and image files automatically to cloud storages; developed a Python program for the automatically generating the test program based on phases and measurement names.
Test Infra: Implemented test infrastructure for data upload in Python; provided training internal and external (OEM in USA, Mexico & China) engineers on how to use the infrastructure software; developed deployment plan and hold meetings with stakeholders on deploying the infrastructure.
Sustaining & Optimization: Resolved production line down issues to bring back production line; developed test procedure templates and implemented for all test documents. Performed retrospective studies on calibration results for optimizing existing calibration process.

2016-2022 Principal Test Engineer at Boston Scientific
NPI: Developed new optical test automation system in LabVIEW from beginning to transfer for high-power laser lithotripsy system; developed laser firing and control algorithms, instrument control, data analysis as well as signal processing algorithms for optical sensor data. The automation software underwent continuous integration and continuous deployment. The automation test system was projected to save company $6.6 million over 10 years. Successfully completed pilot project and transferred technology to another site for further development.
NPI: Ported, modified, debugged, and developed new electrical test system integration and automation in LabWindows/CVI and TestStand / SQL database for intravascular ultrasound imaging system and enabled annual saving of $2.4 million after new tester went into production at a new vendor. Also worked to develop test methods for FFR (Fractional Flow Reserve). Simulate circuit performance and robustness in R & Python. Applied statistical analysis in developing test specifications.
Sustaining: Performed tester builds and produced qualification documentation for existing and new hardware. Authored software and hardware design specification and description. Performed investigations for several medical device product lines for product failures and safety.
Training for others: As a site Engineering Essential lead, developed session to share engineering knowledge and best practices. As a medical device investigation course instructor, recruited instructors and taught the investigation class.

2007-2016 Principal Mechanical Engineer / Systems Engineer / Project Engineer at Hospira (now ICU Medical)
Successfully implemented mitigations and completed design changes for infusion pumps. Worked as a project lead for multiple systems engineering projects simultaneously. Performed Ansys FEA for mechanical stresses, Spice, Monte Carlo simulations in Matlab / LabVIEW, DOE, mechanical and electrical tolerance studies to discover the failure modes as well as specification robustness, specification change, error budge and margin studies. Proposed and implemented mechanical, electrical or/and software design fixes. Developed programs to perform data acquisition, control and automation for the engineering and verification tests. Implemented improved or new sensor signal processing algorithm from training data and verification of new software algorithms. Produced statistical sampling plan and performed statistical analysis.
Managed multiple projects at a time for complex infusion pumps. Provided schedule updates and obtain project funds to sustain projects. Prioritized projects based on urgencies. Performed design control processes to implement mitigation or design solutions. Worked with project teams to carry projects from design input and output, traceability matrix, hazard analysis, DFMEA, risk assessment, to development plan, V&V protocols (including sampling plan selection and justification) / executions / reports and design transfer.
As a subject matter expert in various technical areas, helped in drafting responses from regulatory agencies; also worked with Quality on various Notice-to-Managements. Drafted and prepared for audit/inspection playbooks.

2006-2007 Test Automation Architecture / Developer at Flextronics (Contractor)
Managed image characterization test development project from start to transfer to Flex Malaysia. Developed fully automated mobile phone camera sensor/module characterization tests in controlled temperature environment. Used C API to develop low-

level raw image decoding and manipulation for test integration and applications. The tester included fully automated image acquisition, image analysis, data saving and report presentation in one integrated software package in LabVIEW / Matlab.

2005-2006 Test Software Engineer (Consultant) at NetLogic Microsystems (now Broadcom)
Developed automation software for characterization test of digitally controlled power IC in a controlled thermal environment in Visual Basic / LabVIEW. Developed GUI and I^2C automation program for embedded mixed-signal devices using I2C/SPI Host Adapter.

2004-2005 Contractor at Cisco Systems
Performed Telcordia product verification testing (GR-253) for Cisco ONS optical networking equipment. Developed more efficient optical receiver sensitivity test algorithm in LabVIEW. Authored software design specifications and developed test software.

2001-2003 Member of Technical Staff at Vitesse Semiconductor (now Microchip)
Designed and developed fully automated Telcordia optical parametric tester for long-reach OC192 (10G SONET) transponders. Designed and built test hardware and software in LabVIEW. Documented test plan, operating procedures, equipment and test specifications. Rapidly transferred advanced optical test technologies from optical engineering to manufacturing. Wrote integrated tuning, test automation software to optimize transponders' receiver sensitivity and decision threshold tuning process. Designed and developed automated optical test systems for 64x64 photonic switches. Developed algorithms for testing embedded system. Developed systems characterization tests.

1999-2001 Senior Test Engineer at Nortel Networks
Developed device verification test system for Xros MEMS-mirror modules; this enabled Xros to build photonic switching system that led to Nortel's acquisition of Xros a few months later. Performed Orcad schematic design for Internal Communications Module in the Nortel Optera Connect PX photonic switch system. Developed verification test systems for electro-optic systems; wrote test plans; performed hardware interface design, and automated tester software development in LabVIEW. Developed and debugged test boards. Produced build packages and documentations for manufacturing.

Software:
Electrical: Analog Devices LTspice, C / ARM Keil µVision IDE, Cadence OrCAD Capture and PSpice AD, NI LabVIEW, LabWindows/CVI, & TestStand
Software: Atlassian Bitbucket GIT & JIRA, Tortoise GIT / SVN, Microsoft GitHub, Visual Studio; Visual Basic; Minitab, PTC MathCAD, MathWorks Matlab; VMware; Octave, R, SQL; Python; Colab; Jupyter Notebook; Bash; Docker; Google Drive API
Mechanical / Design Control: Ansys Mechanical WorkBench FEA, Autodesk AutoCAD, Dassault COSMOS/M & SolidWorks & ENOVIA, Siemens Flotherm; PTC Windchill; SAP; IBM Agile

US Patent Granted:
#US6177805, High-Density Test Connector for Disk Drives in a High-Volume Manufacturing Environment
#US9468718, Means and method for detecting free flow in an infusion line