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Work Experience:

Ciena Corporation/Tibit Communications, Inc.   January 2022 - November 2025

Sr. Hardware Engineer (Design Verification/Validation Test Engineer) - Responsible for defining and developing design verification testing (DVT) plans and procedures for the Ciena/Tibit 10Gbps DML/EML OLT/ONU MicroPlugs. Constructed DVT stations using optical measurement equipment and developed automation software in Python per product requirements. Built Python drivers for measurement instruments to streamline testing and data collection. Analyzed optical and electrical measurements, verified data normality, confirmed compliance with customer specifications, and produced data-driven results for the product data sheet and DVT report. Designed and developed automation software in Python for High Temperature Operating Life (HTOL) and mask margin tests. Contributed to calibration software development for the Ciena/Tibit 10Gbps DML OLT MicroPlug. Designed and developed test stations and software for the manufacturing center and provided technical documentation and support for test-related issues.

IDEX Health & Science, LLC   March 2019 - July 2020

Sr. Manufacturing Test Engineer - Responsible for defining and developing test processes for new product introductions as per product requirements. Implemented and supported optimum test strategies throughout each product's life cycle. Worked with the R&D and Advanced Engineering teams to implement product changes to enhance the design for testability. Developed test plans and procedures for the electro/mechanical systems. Created, reviewed, and approved test plans, test scripts, test fixtures, test station designs, and validation documents. Provided technical support to the production floor for manufacturing test-related issues. Created a data-driven failure analysis report for RMA units.

DELL EMC, Inc.   May 2017 - August 2018

Test Development Engineer - Responsible for developing diagnostic and utility tools to be used as part of the manufacturing test process. Tasked with supporting prototype evaluations, validation cycles, and delivering test software into production using a standardized test automation framework. Assigned to developing manufacturing test plans for functionality testing, monitoring test quality, and driving test improvements. Defined test objectives, development, and implementation for production system-level functional testing for Dell EMC server systems.

Keysight Technologies   December 2015 - May 2017

Test Engineer - Responsible for supporting and maintaining test measurement stations for the X-Series Agile Signal Generator (UXG) instruments. Tasked with supporting and setting the test line limits (TLL) for the Spectral and Pulse stations. Assigned to verify specifications for Harmonics, Subharmonics, and Spurious signals with a Spectrum Analyzer. Executed Pulse procedures by testing the UXG instruments for Pulse Amplitude Accuracy (Pulse power), Pulse Delay, Compression, Overshoot, and Video Feedthrough via a Digital Sampling Oscilloscope (DSO).

Keysight Technologies   July 2015 - November 2015

Contractor - Responsible for troubleshooting and resolving issues related to X-Series Agile Signal Generator (UXG) instruments.Utilized various measurement equipment such as: Spectrum Analyzer, Signal Source Analyzer, and Digital Sampling Oscilloscope to troubleshoot and resolve issues related to the instruments.

San Diego State University   August 2012 - May 2014
Teaching Associate - Instructor for the Engineering Electronics Laboratory EE330 Lab.
Taught the fundamental concepts behind the diode, operational amplifier (Op-Amp), bipolar junction transistor (BJT), and metal-oxide-semiconductor field-effect transistor (MOSFET). Conducted demonstrations for creating a linear triple-output power supply by soldering rectifier diodes, filters, and voltage regulators into a Printed Circuit Board (PCB). Instructed students on how to use various instruments including: power supplies, function generators, digital multimeters (DMM), and oscilloscopes, to generate and measure different types of signals.

San Diego State University   January 2012 - December 2012
Teaching Assistant - Graded projects and quizzes for Analysis and Design of Electronic Circuits.

San Diego State University   January 2012 - May 2012
Teaching Assistant - Graded homework, projects, and exams for Electrical Materials & Devices.

Education:

Master of Science in Electrical Engineering, M.S.
San Diego State University
Thesis: "Synchronization Requirements for Downlink Coordinated Multi-Point Joint Transmission"
Graduated in August 2014
GPA: 3.76

Bachelor of Science in Electrical Engineering, B.S.
San Diego State University
Graduated in May 2009
GPA: 3.4

Projects:

Design Verification Test Station [Ciena Corporation/Tibit Communications, Inc. - Petaluma, CA]
Role: Design Verification/Validation Test Engineer
Skills/Tools Used: Python, Git, Linux OS, Shell-Script, BitBucket, Data Analysis, Optical Variable Attenuator, Optical Power Meter, Optical Wavelength Meter, Keysight Digital Communication Analyzer (DCA), Optical Switch, Ciena's 5160 & 5164 Ethernet Switches, Teledyne 100G Loki Ethernet Traffic Generator, PLC Optical Splitter, Optical Add Drop Multiplexer (OADM), I2C, UART, Instrument Python Driver
Developed and automated test configurations to validate Tibit/Ciena MicroPlug OLT/ONU modules (10G SFP+ transceivers) across optical, electrical, traffic, and environmental conditions within controlled thermal chambers for C-Temp, E-Temp, and I-Temp ranges. Built Python drivers leveraging I2C, UART, and Ethernet protocols to interface with measurement instruments, enabling automated testing and reliable data acquisition. Built and maintained end-to-end test stations using optical power meters, optical variable attenuators, optical switches, optical wavelength meter, 2x4 PLC optical splitter, an optical add-drop multiplexer, Keysight Digital Communication Analyzer, Keysight power supplies, and Teledyne network traffic analyzer to measure DUT performance with accuracy and repeatability. Designed and executed verification test-steps in Python covering extinction ratio, optical output power, cross-point, jitter, mask margin, receiver sensitivity, RSSI behavior, power consumption, and traffic performance. Wrote and implemented a Python-based automated test using an MVC architecture: the model encapsulated test steps, test harness, state machine, netlist, and data processing; the view provided a GUI to display results, temperature corners, and step status; the controller handled user inputs, arranged test sequencing, and updated the view. Created post-processing pipelines to generate per-module CSV reports; summarized findings for

customers and informed data-sheet specifications for new MicroPlug designs. Improved measurement consistency, reduced manual rework, and increased qualification throughput.

Water Impedance Test Stand [IDEX Health & Science, LLC - Rohnert Park, CA]
Role: Test/Software Engineer
Skills/Tools Used: Visual Studio, C#, .NET Framework, Flow Meter, Pressure Transducer, Water Pump, Power Switch, COM Ports, Git Source Control, Minitab, Data Analysis
Assigned to develop an improved water-impedance test station for measuring pressure drop across multi-position valves. The project began with selecting appropriate test equipment such as a flow meter, pressure transducer, water pump, and test fixture based on the required specifications. After assembling the hardware for the test station, an automation software in C# was created for the testing process. Both the software and hardware were subsequently optimized to deliver more accurate and precise measurements than those obtained with previous test stations. To improve usability, a user-friendly graphical interface was designed to enable technicians and operators to operate the test stand more efficiently. Throughout development, empirical data were collected and subjected to statistical analysis, including linear regression (correlational) and repeatability testing. The analysis demonstrated that the new test station outperforms prior versions in both hardware reliability and software functionality, as well as creating substantial fiscal savings in overall build and design.

Automation Test Development [DELL EMC, Inc. - Santa Clara, CA]
Role: Test Development Engineer
Skills/Tools Used: Visual Studio, C#, Python, .NET Framework, DELL Servers, Linux, Mercurial, Putty, API, Cumulus Network
Tasked with developing automation diagnostic tools to test the DELL servers on a system level. The process consisted of writing the test in C# by converting some of the frameworks and libraries from Python. By developing the automation test in the C# environment, the test structure, reusability, efficiency, and reliability were improved. This results from the .NET framework's Just-In-Time (JIT) compiled native code, static typing, and advanced garbage collection, which together boost performance and reduce latency for compute-intensive tasks, yielding faster, more efficient testing.

Low-Frequency Oscillation [Keysight Technologies - Santa Rosa, CA]
Role: NPI Test Engineer
Skills/Tools Used: ADS, Spectrum Analyzer, Digital Multimeter, SCPI-Commands, C#, Signal Source Analyzer
Solved impedance mismatch of microwave components in the RF chain. The impedance mismatch resulted in low-frequency oscillation (LFO) signals that distorted the spectral purity of the desired signal. A systematic approach was used to identify the faulty component in the RF chain that was distorting the output signal. Discovered that the presenting issue was caused by the oscillation of the Limiting Amplifier. Resolved the issue by designing a PI-Pad in the Advanced Design System (ADS) software and placed it between the output of the Limiting Amplifier and the input of the Balun. This technique reduced the effect of the spurious signals on the desired signal, and in some frequency bands, the spurious signals were completely removed.

Delta Environmental [Keysight Technologies - Santa Rosa, CA]
Role: NPI Test Engineer
Skills/Tools Used: Matlab, Statistical Tools (Normal Distribution, Standard Deviation, Mean, Range, Confidence and Proportion Interval, Normal Plot, Histogram)
Determined the Delta-Environmental (DE) value for the X-Series Agile Signal Generator instruments in order to set the test line limits for the production testing. The DE is defined as the instrument performance drift over temperature. The procedure consisted of comparing the empirical data collected on devices under test at room temperature and testing. To accurately characterize the measured data, various statistical distribution systems were examined. Ultimately, the Gaussian distribution was used to represent the data.

Troubleshot and Debugged PCBs [Keysight Technologies - Santa Rosa, CA]
Role: Contractor
Skills/Tools Used: Digital Multimeter, Power Meter, SCPI-Commands, PCB Microscope
Identified a missing pin, which was used to ground a surface-mounted multiplexer chip. The chip was used to read the voltages from the ABUS nodes in the RF chain for self-test purposes. The missing pin damaged the DC bias diode. Adding the proper pin to the ground mitigated this issue.

CoMP Joint Transmission in LTE-A Systems [San Diego State University - San Diego, CA]
Role: Researcher
Skills/Tools Used: MATLAB, LTE-Advanced, OFDMA, Algorithm, Digital Signal Processing, Wireless Digital Communication,
Coordinate Multipoint Joint Transmission Master's research thesis evaluated the synchronization requirements for downlink Coordinated Multi-Point Joint Transmission in LTE - Advanced systems. For MATLAB simulation the Zaddoff Chu training sequence was used while the Automatic Gain Control, Schmidl and Cox algorithm, maximum likelihood detector, Arbitrary Interpolator, and decision direct channel estimation/equalization were used to maintain a constant output signal level, to initiate the frame detection process, to estimate the time offset, to estimate and correct any fractional time offset, and to conduct the channel estimation and equalization process.

Pool-Playing Robot [San Diego State University - San Diego, CA]
Role: Student
Skills/Tools Used: Oscilloscope, Schematic, Digital Multimeter, C programming language, Signal Generator
Designed a pool-playing robot that would detect red or blue balls with the use of a programmable camera and then shoot the ball into a particular pocket based on information from the ultrasonic sensors. I constructed the boost converter for the solenoid, the H-bridge for the clamp's motor, and the circuitry for the ultrasonic sensors. The project was ranked first amongst all the other competitors. The following link to my personal website provides more information about the project: https://amirhejazi.com/projects.html

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Technical Skills:

Programming & Scripting: Python, Shell Scripting, C++, C#, HTML, CSS, SQL, Access Database, Git
Data & Tools: MongoDB, Excel, Minitab, Data Analysis, Linear Regression, Gage R&R, Algorithms
Continuous Integration/Deployment: Jenkins, Team Foundation Server (TFS – VS), Bitbucket, GitHub, Embedded Firmware Development (OLT MicroPlugs), Python Driver Development (measurement instruments)
Measurement & Test Equipment: Spectrum Analyzer, Digital Sampling Oscilloscope, Electrical Power Meter, Digital Multimeter, ZeGage Optical Profiler, Signal Generator, Optical Variable Attenuator, Optical Power Meter, Optical Wavelength Meter, Keysight DCA, Optical Switches, Ciena 5160/5164 Ethernet Switches, Source Measurement Unit (SMU), Teledyne 100G Loki Ethernet Traffic Generator
Protocols & Interfaces: I2C, UART, SPI, USB, SCPI Commands
Optical Technologies: SFP, SFP+, QSFP+, Calibration & Validation of OLT MicroPlugs
Operating Systems: MacOS, Ubuntu, Red Hat, Windows
Additional Skills: Microsoft Visio, ADS, PSpice, Microsoft Office, Soldering

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Strengths:

Fast learner, self-motivated, great time management skills, good oral, written, & presentation skills, flexible, solution-focused, great team player, creative, enjoys challenges