

Steven T. Manz III

stevenmanz063018@gmail.com

423-767-1092

Education

Clemson University, Clemson, SC

M.S. in Electrical Engineering – Focus in Photonics and Applied Electromagnetics

Dec 2020

Coastal Carolina University, Conway, SC

B.S. in Applied Physics – Focus in Engineering and Mathematics

July 2018

Experience

Wolfspeed, Durham, NC

Electrical Engineer II

Jan 2021 – Present

- **Automated High-Power Test Platform Development**

- Meticulously interpreted oscilloscope manually and automatically to ensure precise matching of input and output voltage with expected converter values.
- Designed and developed an automated high-power test platform for semiconductor system performance assessments, leveraging PyQt5 and PyVISA with SCPI commands.
- Led a team of junior developers in crafting a comprehensive solution to extract device parameters from specific layout designs.
- Demonstrated a high attention to detail for safety reasons, given the extremely high voltage testing and the high-stress environment.
- Created a full-stack application encompassing both front-end (PyQt5) and back-end (Klayout API) development for streamlined device parameter extraction.
- Collaborated with internal and external stakeholders to ensure alignment and support expected switching analysis, contributing to project success. Utilized switching data analysis to craft comprehensive competitive reports, exceeding customer expectations.

- **Data Analysis and Integration**

- Acquire data from external sources and maintained databases (SQL, Azure DevOps, SOS)
- Cultivated in-depth proficiency in Python, Pandas, NumPy, Excel, and MATLAB, seamlessly integrating these tools to deliver optimal solutions for complex challenges.
- Use of XML script for deployment and management of KLayout/Python GUI Application

- **MATLAB Toolbox Expertise**

- Utilized multiple MATLAB toolboxes, including Optimization, Machine Learning, Signals, and Image Post-Processing, to enhance project outcomes.

- **Database Expertise**

- Proficiently utilized SQL for comprehensive database management and efficient querying, ensuring data integrity and accessibility.
- Implemented Power BI for data visualization, reporting, and data cleaning, fostering a deeper understanding of project data while supporting ongoing development efforts.
- Conducted ETL (Extract, Transform, Load) processes to manage JSON files containing Device Parameters of Die Layouts generated in KLayout.

- **Script Development and Device Modeling**

- Developed and maintained MATLAB/Python scripts for data automation and device modeling.
- Provide weekly and monthly reports to support efforts and goals.
- Contributed to the formulation of a Physical Modeling Methodology for next-generation devices.

- **Cutting-Edge Blood Flow Analysis and Device Enhancement**

- o Employed a combination of incoherent and coherent light sources to navigate through tissue, accurately locating arteries and veins while calibrating blood speed.
- o Utilized MATLAB to extract and process data from images, implementing smoothing, thresholding, and variance detection techniques.
- o Implemented OpenCV to establish continuous real-time blood flow capture and speed recording based on predetermined variances.

Relevant Projects

Automated High Power Test Strategy (Python)

Jul 2023 – Present

- **Tools:** Python (PyQt5, Pandas, Numpy, PyVISA, OpenCV, PyTesseract, SMTPlib, Email, Threading)
- **Description:**
 - o Independently developed a comprehensive test setup using PyVISA to interface with essential components, including a power supply, power analyzer, electric load, temperature sensor, and oscilloscope.
 - o Produced weekly updates to verify the accuracy of testing procedures, while also ensuring the scripts remained robust, capable of safely shutting down all devices in the event of an error.
 - o Proficiently utilized SCPI commands and internal device libraries to orchestrate the precise control of each instrument, aligning with the automated test strategy.
 - o Effectively deployed the application on Linux and Windows for all KLayout users.

Automated Device Parameter Extraction Tool through KLayout API (Python)

May 2023 – Present

- **Tools:** Python (PyQt5), KLayout API (pya)
- **Achievements:**
 - o **Leadership:** Led a team of junior developers in the creation of a comprehensive solution for extracting device parameters from a specific layout design.
 - o **GUI Development:** Developed a user-friendly front-end interface, enhancing user accessibility. Enabled users to pinpoint the location of device parameter definitions on the layout by selectively hiding layers and placing rulers at specific positions.
 - o **Real-Time Adjustment:** Empowered designers and other internal customers to identify critical device design parameters swiftly, facilitating real-time adjustments to the layout.
 - o **Data Management:** Engineered a robust system for generating and saving device parameters in JSON format. Transformed the JSON data into a structured SQL database, providing a repository of design information for future development.

Email Detection and Movement Application (Python)

Jul 2022 – Present

- **Tools:** Python (PyQt5, PyTorch, Pandas, IMAPlib, SMTPlib, Email, BeautifulSoup, Flask, Django), Power BI, SQL
- **Description:**
 - o Created an email management application in Python, harnessing a range of libraries and tools for efficient operation.
 - o Employed Power BI for robust data interpretation, ensuring actionable insights from email data.
 - o Implemented a SQL database to meticulously track and manage email data for enhanced organization and analysis.
 - o Developed a neural network using a binary classification method, serving as an effective Machine Learning algorithm to classify emails as either Spam or legitimate, resulting in streamlined email sorting.
 - o Enabled email key generation, particularly beneficial for mail systems with two-factor authentication, granting secure access to various email accounts using the email key and a dedicated IMAP server.

Relevant Skills

Technical Skills

- Acquired data from external sources and maintained databases (SQL – MySQL, PostgreSQL, Azure DevOps, SOS, Cloud, Linode, Ubuntu, Debian)
- Created Machine Learning models for binary and multiclass systems (Python, PyTorch, Sci-kit learn, Tensor-flow, NumPy, Convolution, Max Pooling, RELU)
- Computer Vision implementations (MATLAB, Image Processing Toolbox, Python, OpenCV, PyTesseract)
- Proficiently utilized SQL for comprehensive database management and efficient querying
- Seamlessly integrated various tools and libraries (Python, Pandas, NumPy, Excel, MATLAB) for optimal data analysis and visualization
- Utilized Power BI for data visualization, reporting, and data cleaning.
- Linux and Windows deployment via XML script and SOS database

Data Management Skills

- **Project Leadership:** Led a team of junior developers in various projects.
- **Collaboration:** Worked closely with internal and external stakeholders to align goals and ensure project success.
- **Documentation:** Proficient in generating weekly and monthly reports to support project efforts and goals.
- **Agile Development:** Utilized Azure DevOps for efficient project management and version control.
- **Safety Awareness:** Demonstrated a high attention to detail for safety reasons, particularly in high-voltage testing and high-stress environments.
- **Problem Solving:** Contributed to the formulation of a Physical Modeling Methodology for next-generation devices.