**Steven T. Manz III**

[stevenmanz063018@gmail.com](mailto: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.

*Scinovia Corp.*, Raleigh, NC

**Optical/Electrical Engineer Intern May 2020 – *Aug 2020***

* **Cutting-Edge Blood Flow Analysis and Device Enhancement**
  + Employed a combination of incoherent and coherent light sources to navigate through tissue, accurately locating arteries and veins while calibrating blood speed.
  + Utilized MATLAB to extract and process data from images, implementing smoothing, thresholding, and variance detection techniques.
  + 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**:
  + 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.
  + 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.
  + Proficiently utilized SCPI commands and internal device libraries to orchestrate the precise control of each instrument, aligning with the automated test strategy.
  + 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**:
  + **Leadership**: Led a team of junior developers in the creation of a comprehensive solution for extracting device parameters from a specific layout design.
  + **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.
  + **Real-Time Adjustment**: Empowered designers and other internal customers to identify critical device design parameters swiftly, facilitating real-time adjustments to the layout.
  + **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, BeatifulSoup, Flask, Django), Power BI, SQL
* **Description**:
  + Created an email management application in Python, harnessing a range of libraries and tools for efficient operation.
  + Employed Power BI for robust data interpretation, ensuring actionable insights from email data.
  + Implemented a SQL database to meticulously track and manage email data for enhanced organization and analysis.
  + 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.
  + 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.