Bryan Martinez

ENGINEERING PORTFOLIO

Bryan Martinez – **Computer Engineer**

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Education

- BS Computer Engineering – UTSA

Certifications

- Certified Entry-Level Python Programmer – Python Institute
- Controls and Instrumentation – Penn State (In Progress)
- Software Development – UCLA (In Progress)

Engineering Experience

- Network Engineer – Optum | 2/13/23 - Present
- Network Engineer – Cisco | 3/25 - 3/26

Engineering Projects

- Network Port-Matrix Automation – Python
- Engineering Data Acquisition Framework – Python
- Engineering Portfolio Website – HTML, CSS, JavaScript

Technical Skills

- Computer Programming – Python, C, C++, Java, HTML, CSS, JavaScript, Verilog HDL
- Controls and Instrumentation – Sensors, Symbology, PLC Programming
- Aerospace Engineering – Rocket Design, Rocket Engine Design
- Mathematics – Calculus, Algebra, Linear Algebra

Network Port-Matrix Automation

Project Description: The Network Port-Matrix Automation Tool was developed using Python, to replace a manual network switch-port allocation process. This tool was specifically designed for wireless access point (WAP) devices that connect to network switches, to provide wireless connectivity. Standard connection requirements include: WAPs must be connected to the final ports of each switch, WAPs must be distributed evenly across switch stacks for load-balancing and redundancy purposes (minimize risk), WAP hostnames must be configured according to their corresponding switch hostname and MDF/IDF designation. The final output is a port-matrix consisting of all WAP names paired with the switch-port they will be connected to for each site.

Project Demonstration:

Input: Site Code = RS824, Stack Count = 2, Switch Count = 6, WAP Count = 13

stkRS824a01a01-1
stkRS824a01a01-2
stkRS824a01a01-3

stkRS824b02a01-1
stkRS824b02a01-2
stkRS824b02a01-3

Output

```
Enter site code: RS824
Enter the WAP count for stkRS824a01a01: 7
Enter the WAP count for stkRS824b02a01: 6

stkRS824a01a01
wapRS824a01a01 -> Gi1/0/46
wapRS824a01a02 -> Gi2/0/47
wapRS824a01a03 -> Gi3/0/47
wapRS824a01a04 -> Gi1/0/47
wapRS824a01a05 -> Gi2/0/48
wapRS824a01a06 -> Gi3/0/48
wapRS824a01a07 -> Gi1/0/48

stkRS824b02a01
wapRS824b02a01 -> Gi1/0/47
wapRS824b02a02 -> Gi2/0/47
wapRS824b02a03 -> Gi3/0/47
wapRS824b02a04 -> Gi1/0/48
wapRS824b02a05 -> Gi2/0/48
wapRS824b02a06 -> Gi3/0/48

CSV file created: RS824_WAP_Port_Matrix.csv
PS C:\Users\Bryan\Documents\NP-MAT>
```

RS824_WAP_Port_Matrix.csv

	A	B	C
1	stkRS824a01a01		
2	wapRS824a01a01 -> Gi1/0/46		
3	wapRS824a01a02 -> Gi2/0/47		
4	wapRS824a01a03 -> Gi3/0/47		
5	wapRS824a01a04 -> Gi1/0/47		
6	wapRS824a01a05 -> Gi2/0/48		
7	wapRS824a01a06 -> Gi3/0/48		
8	wapRS824a01a07 -> Gi1/0/48		
9			
10	stkRS824b02a01		
11	wapRS824b02a01 -> Gi1/0/47		
12	wapRS824b02a02 -> Gi2/0/47		
13	wapRS824b02a03 -> Gi3/0/47		
14	wapRS824b02a04 -> Gi1/0/48		
15	wapRS824b02a05 -> Gi2/0/48		
16	wapRS824b02a06 -> Gi3/0/48		

RS824 WAP PORT-MATRIX CSV File

Engineering Data Acquisition

Project Description: The Engineering Data Acquisition Framework was developed using Python, to collect, validate and store sensor data such as temperature, pressure, and flow rate. The implemented sensor validation logic can detect and flag measurements that are out of range. The generated CSV file reports are timestamped, formatted, and can be used for further engineering analysis. The modular design workflow separates input handling, sensor validation, logging, and display functions for improved readability and scalability.

Project Demonstration:

Input: Pressure (PSI), Temperature (°C), Flow Rate (kg/s)

Output

```
PS C:\Users\Bryan\Documents\EDAF> python main.py
Enter recorded pressure: 124.1
Enter recorded temperature: 81.1
Enter recorded flow rate: 8.1

============================
EDAF REPORT
============================

Timestamp: 2026-10-30 11:49:09

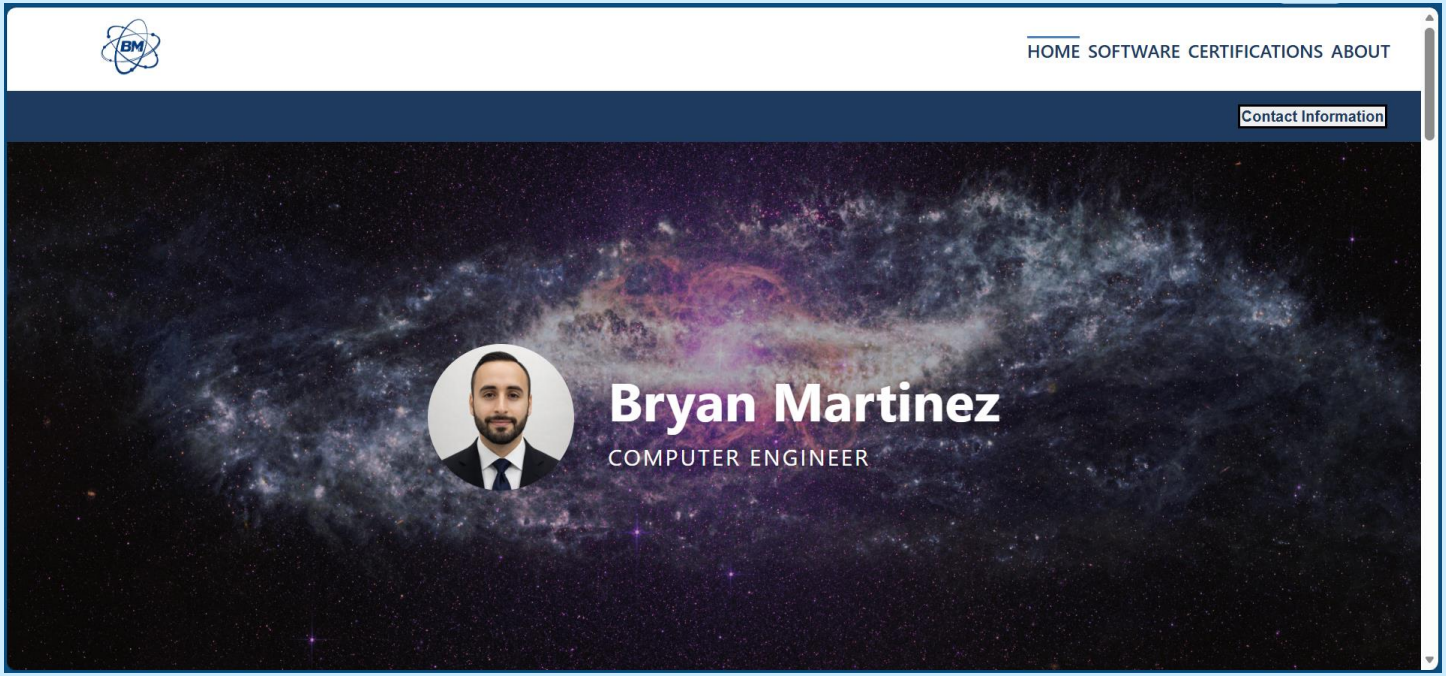
Pressure Sensor          124.1 psi    PASS
Temperature Sensor       81.1  °C     PASS
Flow Rate Sensor         8.1   kg/s   PASS

New CSV File Created
Sensor Data Logged Successfully
```

Sensor_Log.csv

	A	B	C	D	E	F	G
1	Date/Time	Pressure (psi)	Pressure Status	Temperature (°C)	Temperature Status	Flow Rate (kg/s)	Flow Rate Status
2	2026-10-30 11:49:09	124.1	PASS	81.1	PASS	8.1	PASS
3	2026-10-30 11:49:44	124.2	PASS	81.2	PASS	8.2	PASS
4	2026-10-30 11:50:10	301	FAIL	201	FAIL	11	FAIL
5	2026-10-30 12:44:52	124.3	PASS	81.3	PASS	8.3	PASS
6	2026-10-30 12:45:08	124.4	PASS	81.4	PASS	8.4	PASS
7	2026-10-30 12:45:29	124.3	PASS	81.3	PASS	8.3	PASS
8	2026-10-30 12:45:53	124.2	PASS	81.2	PASS	8.2	PASS
9	2026-10-30 12:46:07	124.2	PASS	81.2	PASS	8.2	PASS
10	2026-10-30 12:46:25	124.3	PASS	81.3	PASS	8.3	PASS
11	2026-10-30 12:46:37	123.9	PASS	80.7	PASS	7.9	PASS
12	2026-10-30 12:46:52	40.1	PASS	40.1	PASS	40.1	FAIL
13	2026-10-30 12:47:16	124.1	PASS	81.1	PASS	8.1	PASS
14	2026-10-30 12:47:33	-60.1	FAIL	-60.1	FAIL	-60.1	FAIL
15							
16							

Engineering Portfolio Website



Project Description: The Engineering Portfolio Website was developed using the Hyper-Text Mark-Up Language – HTML, the Cascading StyleSheet Language – CSS, and the programming language – JavaScript. Responsive layouts, navigation systems, interactive cards, modal contact elements, and section-specific styling were implemented to improve usability and visual consistency across the site.

Developing this website was meaningful because it was my first complete website development project. I learned new programming languages and strengthened my understanding of front-end development while discovering how much creativity and visual design are involved in building effective websites. It gave me the opportunity to transform ideas and visualizations into something tangible, functional, and uniquely my own. Most importantly, this portfolio became a way to showcase not only the work I have completed over the past several months, but the knowledge, experiences, and accomplishments I have built throughout my academic, professional, and personal journey.

Engineering Portfolio Website: BM-CPE.com

Bachelor of Science – Computer Engineering



The University of Texas at San Antonio

has conferred upon

Bryan Miguel Martinez

the degree of

Bachelor of Science

Computer Engineering

With all the rights and privileges thereunto appertaining.
In Witness Thereof, this diploma is granted by
Board of Regents upon recommendation of the Faculty.
Presented this tenth day of December, two thousand and twenty one.

Dean

President

Chancellor

Chairman, Board of Regents

PCEP – Certified Entry-Level Python Programmer

