# Personal Portfolio Intake Survey

## Academic Background

1. \*\*Graduate Program Details\*\*

- What master's program are you currently in?

- Which university?

- What year are you (1st year, 2nd year, etc.)?

- Expected graduation date?

**Academic Background**

Northeastern University, Boston, MA (September 2023-December 2025)

Master of Science, Wireless and Network Engineering

2. \*\*Academic Focus\*\*

- What's your area of study/research focus?

My area of study is Wireless and Network Engineering. I worked in a research lab for 9 months that focused on ORAN, but I worked more on creating web servers/pages for data visualization, deploying Docker containers with GNU Radio and web server environments, and organizing sensor data.

- Are you working on a thesis? If so, what's your topic?

No thesis

- Any notable coursework or academic projects?

I included my transcripts from my Bachelor’s and masters

- GPA or academic honors (if you want to include)?

Masters with a semester left Cum GPA: 3.840

3. \*\*Undergraduate Background\*\*

- What was your undergraduate degree?

- University and graduation year?

- Any relevant achievements or experiences?

**Academic Background**

University of Massachusetts Boston, Boston, MA (September 2018-May 2023)

Bachelor of Science, Computer Engineering (magna cum laude)

Bachelors graduated magna cum laude with a Cum GPA:3.557

Bachelors was awarded the Engineering Department's Outstanding Achievement in Engineering Award for exceptional academic and research work

**EXTRACURRICULARS**

University Of Massachusetts Boston, African Student Union

Secretary| Boston, MA | September 2022 – May 2023

* Demonstrated strong organizational skills by providing accurate minutes for all meetings, including details such as date, location, presiding officer, and business conducted
* Utilized technology to improve communication and collaboration within the e-board by creating and managing an MS Teams workspace, resulting in an increase in team productivity

## Professional & Technical Skills

4. \*\*Technical Skills\*\*

- What software/tools do you use regularly?

- Programming languages (if applicable)?

- Research methodologies or specialized techniques?

- Design software or creative tools?

Have used 1-5 times (in undergrad or grad) (mainly in class for projects)those underlined I was really good at and can relearn:

* **Languages:** R, VHDL, Assembly, TensorFlow, ns-3 network simulator
* **Development Tools:** RStudio, Keil uVision 5, Xilinx Vivado **,** Unity, Adam Pluto
* **Applications:** Red Hat OpenShift, LTspice, Waveform, Fusion 360, KiCad, AutoCAD
* **Experience with:** object-oriented programming
* **Device:** STM32L476 Cortex-M Microcontroller, AD2 board

Used often but haven’t used in a while or not good at it

* **Platforms:** Arduino, Raspberry Pi OS, VirtualBox
* **Languages:** MATLAB, C/C++, Java
* **Development Tools:** Photoshop, MATLAB
* **Applications:** Docker, Red Hat OpenShift
* **Experience with:** Machine Learning, digital and analog circuit design, interpreting schematics, PCB design, electronic test-and-measurement equipment, object-oriented programming, Signal Processing
* **Device:** STM32L476 Cortex-M Microcontroller, AD2 board, Arduino, Raspberry Pi, Zybo board, Oscilloscope, Function Generator

Used regularly

* **Platforms:** Mac OS, Windows 10, Linux, Ubuntu
* **Languages:** MATLAB, Python
* **Development Tools:** Visual Studio, Canva
* **Applications:** Microsoft Office Suite, MATLAB, GNU Radio, Wireshark, GitHub, Salesforce, NetCloud
* **Experience with:** Data analysis, Machine Learning, Web server, Routing protocols, Network Protocols (LAN/WAN,TCP/IP, UDP)
* **Devices:** OAIBOX 5G

**SOFT SKILLS:** Written and Verbal Communication, Leadership, Teamwork, Hard-working, Problem-solving, Project Management, organized, attention to detail and so on.

5. \*\*Work Experience\*\*

- Any internships, jobs, or research assistantships?

**Internship**  
Sullivan and McLaughlin, Dorchester, MA

**Wireless Tech Intern** May 2024 – December 2024

* Processed router orders using Salesforce and NetCloud, managed customer returns and ensured accuracy and operational efficiency
* Diagnosed and resolved issues for over 100 Cradle point routers, enhancing technical problem-solving skills and customer satisfaction
* Improved inventory accuracy by 90% by conducting and maintaining inventory, improving organizational skills and attention to detail

University of Massachusetts Boston, Boston, MA

**Undergraduate Research Assistant** Oct. 2022 – May 2023

* Initiated a research project that investigates the unique behaviors of time-varying antennas by utilizing GNU radio SDR software to perform noise measurements and determine the noise figure of electrically small antennas
* Successfully created GNU radio flow graphs to perform Y-factor noise measurements using USRPs and verified the measurements using MATLAB scripts, reducing data calculation time by 20%
* Increased accuracy of SDR Y-factor noise measurements by fine-tuning RF settings and improving the signal-to-noise ratio of measurements

**SDR OWC Resource Allocation System,** AFRL CompetitionOct 2022 – May 2023

* Co-led the winning team in the Airforce Research Laboratory (AFRL) competition developing an optical wireless communication system (OWC) using Software Defined Radios (SDR)
* Assisted in designing and executing a DC-Biased Optical OFDM testbed, using LEDs as transmitters to send audio signals and photoreceivers for reception, showcasing an advanced approach in OWC
* Implemented a dynamic spectrum allocation system in a multi-cell/multi-user environment, allowing multiple receivers to operate simultaneously without interference
* Utilized GNU Radio and USRPs with OFDM modulation and remote access, enhancing the system's capability for handling multiple access points and improving resource efficiency

Institute for the Wireless Internet of Things, Northeastern University, Boston, MA

**Lab Research Assistant** Sept 2023 – May 2024

* Contributed to projects by deploying Docker containers, including GNU Radio and web server environments, to advance system efficiency and streamline operations
* Optimized sensor data for preprocessing initiatives using Python (NumPy and Pandas) to accurately prepare datasets, improving data organization for machine learning analysis
* Developed a web server using advanced data visualization techniques to deliver accessible, real-time data that significantly enhances project outcomes

- Volunteer work or significant projects?

I’ve volunteered for Islamic Relief twice, but nothing substantial enough

- Teaching or tutoring experience?

I don’t know if this is relevant, but in the Spring semester of 2019 of undergrad, I did this UTeach program teaching elementary students.

Russell Elementary School, Dorchester, MA Teacher’s Assistant

* + Taught various math areas for fifth graders and individualized lessons
  + Journaled the teaching lessons to analyze progress and failures
  + Utilized clear and concise language to communicate difficult concepts to the students
  + Collaborated with their teacher and colleagues on how to best work with the students

## Book Club Leadership

6. \*\*Book Club Origins\*\*

- How did you start the book club?

I was meeting up at a friends house and with a group of other girls and we somehow got on the topic of books and I brought it up that this was exactly the concept of the bookclub I have in my head that I have been planning but never pulled the trigger to start because I wasn’t sure if people will show up and they all convinced me to go for it and after seeing the interest that same day I went home designed logos and created the Instagram page, I already had a name and concept ready to go (it had been a long time coming) and we had our first meeting the next month.

- When did you start it?

Our first meeting was in May 2024, and we have had a meeting every month since then.

- What motivated you to create it?

I wanted to create a space for women to bond and have activities together, have people to explore cafes, bookstores, and other places with, instead of having to go alone. I also know how lonely or disappointing it is to finish a book and be so excited to talk about it, but have no one to talk to about it, so I wanted to have a space where you can meet with other book lovers and share our love of books. I have always wanted to join a book club but don’t like assigned books so it wouldn’t work for me so I wanted to create one where we can all read whatever we want then come and rave or bash it to other people and have it be a way you can hear about books you normally won’t pick up or find a new book recommendation from it. And even if you don’t read it or it’s not your vibe, you get to hear the coolest stories and see a different side of the book world.

7. \*\*Club Growth & Management\*\*

- How many members do you have?

136 followers on Instagram, and with 20 members who have come to at least 1 meeting and a bunch of regulars who try to make every meeting there are always at least 3-8 members most meetings. It just depends but my rule is if at least 1 other person shows up I’m happy. But the group is always increasing with new members joining each meeting.

- How often do you meet?

Once a month, the 3rd or 4th weekend of the month (we poll the date)

- What types of books do you focus on?

Every genre, we have people that read non-fiction, biography, historical fiction, fiction, romance, and so on

- How do you select books?

We have a different approach we don’t assign books. Instead, everyone comes ready to rave about their favorite reads of the month.

8. \*\*Creative & Organizational Work\*\*

- What materials have you designed (flyers, social media posts, etc.)?

Flyers, social media posts, reels, photos and so on

- What tools do you use for design?

Canva, Pinterest, TikTok

- How do you promote events?

Instagram, word of mouth, TikTok, Joyraft, our website

- What's your process for organizing meetings?

I go based on the weather, the season, activities, I get inspiration from Pinterest, things I think would be fun to do, a cool place I found that I think people would like, cafes or bookstores I found. I I just go with my got for the theme or vibe of the meeting and pick a location based on that. At the beginning of the month I make a poll on Instagram to have people vote of a date, and design the flyer on Canva, then post and let people know the date and all the information and poll the day before to reconfirm who is coming and show up. Most of the regulars are friends, so we coordinate more if needed.

9. \*\*Impact & Learning\*\*

- What's been your biggest success with the club?

Building our community! it’s always so cool seeing everyone having a good time and just talking about books for hours.

- What challenges have you overcome?

Promoting the club, we are still small and growing slowly but I also don’t hate it. It just makes us closer and mor intimate.

- What skills have you developed through this experience?

So many! I am basically a social media manager. I create flyers, make captions, coordinate with many people, time management, organizational, attention to detail, leadership, speaking, my confidence has improved through being the founder and having to talk to people.

- Any memorable moments or achievements?

Creating the blog and website was definitely memorable I created and designed the website on Wix and started a personal book blog where I share my thoughts about reading and reflect on the joy of reading, explore life through literary lenses, and connect with fellow book lovers. I share my random insights, favorite reads, offer personalized book recommendations based on beloved tropes, and so much more.

## Personal Brand & Personality

10. \*\*Values & Interests\*\*

- What are your core values?

Family, honesty, loyalty, trust, kindness, Consistency, positivity, growth, Knowledge, Religion (Islam)

- Hobbies outside of the book club?

Reading, crocheting, gaming (Nintendo), coloring, food, new experiences/activities, watching stuff, hanging out with friends/ family

- What genres do you personally love reading?

Romance only reader

- Other interests or passions?

Technology, movies, books

11. \*\*Personality Traits\*\*

- How would friends describe you?

Kind, positive, always happy, hardworking, nerd

- What's your working style?

Casual but hardworking, do tasks on my own time, then meet up to discuss. Collaborative sometimes

- Are you more introverted/extroverted?

Ambivert, it fluctuates

- What energizes you?

People

12. \*\*Professional Aspirations\*\*

- What's your dream job or career path?

I don’t really have a dream job… I want to work with technology and people, is all I know. Why don’t you tell me the best fit for my dream job or career path; I want to be in Wireless and Networking, I love it and find it fascinating but note im not the best programmer (I suck, I can always finish any project and task but I have to look stuff up or use AI to help me do it, I can never remember the syntaxes or the rules or what it does but I can always come up with the plan and the algorithms and figure out how to accomplish what I want to do but probably not on the spot). I like the technical stuff but I thrive on repetitive stuff where if the code/task is xxyyxx I know if I want to do x I can refer to the previous one to see how they did it and modify mine to do something similar. I also like managing people and organizing things. I think an in between for the business and tech people is also a good direction.

- What industry do you want to work in?

Consulting, telecommunication, IT, Networking, IoT, Wireless, technology, healthcare

- Short-term goals (next 1-2 years)?

Get an entry level job after graduation

- Long-term vision (5+ years)?

Be in management? I don’t know, be promoted?

## Design Preferences

13. \*\*Visual Style\*\*

- Do you prefer minimalist or bold designs?

A mix of both

- Any colors you love or want to avoid?

Nothing too harsh and in your face

- Are there any websites whose design you admire?

- Professional and clean, or more creative and expressive?

A mix of both

14. \*\*Content Priorities\*\*

- What's the most important thing you want visitors to know about you?

- What should be the main focus of your portfolio?

- Any specific achievements you want to highlight?

I am flexible with this give me options and we can decide

15. \*\*Existing Materials\*\*

- Do you have any logos, color schemes, or brand elements already?

No

- Can you share examples of book club materials you've created?

Yes; I’ll upload some flyers and the website link (<https://papertrailsntales.wixsite.com/paper-trails-tales>)

- Do you have a professional headshot?

No but I have a good picture

- Any existing portfolio pieces or projects to showcase?

I have some personal projects and school project and my GitHub.

School projects (Masters)

* Ad-Hoc WLAN Configuration and Analysis

**Ad-Hoc WLAN Configuration and Analysis,** EECE5155 Lab ProjectOct 2023

* Designed an ad-hoc WLAN operating on IEEE 802.11ac standards, simulating a 5-node network using a ns-3 network simulator
* Programmed the testbed in ad-hoc mode, where nodes functioned as routers with UDP Echo Server/Client applications, implemented node mobility, IP addressing, and collision management strategies (RTS/CTS) to implement real-time wireless network dynamics
* Utilized Wireshark for in-depth packet tracing, analyzing communication protocols and network behaviors, gaining insights into packet transmissions, collisions, and network management strategies
* EECE 7364, Mobile and Wireless Networking Labs;
* Configuring and experimenting with wireless hardware OAIBOX 5G (The experimental setup consists of two primary components: the User Equipment (UE) and the Base Station (gNB) with Core Network (CN)
* Hands-On Log Analysis; observing NAS and RRC messages, UE registration signaling between the UE, gNB, and Core Network, How does signal quality (RSRP, RSRQ, SINR) changes, Wireshark Capture (for the core and gNodeB), elemetry Data for the UE-side metrics, gNodeB log from GUI, Full Core Network Logs
* Lab 1: Bandwidth and 5G Performance: We analyzed how different bandwidth settings affect key parameters such as RSRP, RSRQ, RSSI, SINR, BLER, CQI, MCS, and throughput. Additionally, the experiments involve understanding these parameters under varying gNodeB-UE distance scenarios, in both uplink and downlink transmission directions. Experiment 1: Bandwidth and performance metrics interplay[This experiment analyzes how different bandwidth settings impact throughput, BLER, and signal quality indicators when the UE operates under optimal conditions. We will change the bandwidth to 20 MHz and 40 MHz, with the UE positioned 1 meter from the gNB. For each bandwidth setting, students will conduct 6 iperf throughput tests, five in the downlink direction and five in the uplink direction.] Experiment 2: Impact of gNB-UE distance on performance metrics [In this experiment, we will analyze how increasing the UE’s distance from the gNB to 5 meters affects the performance metrics.]
* Lab 2: 5G TDD configuration Scope. This lab explores the impact of 5G NR Time Division Duplex (TDD) slot configurations on radio conditions and network performance. You will analyze how different TDD configurations influence uplink (UL) and downlink (DL) throughput, latency, and service performance, particularly in scenarios where symmetric or asymmetric bandwidth allocation is required.
* Lab 3: 5G NR Modulation and Coding Scheme. This lab explores 5G Modulation and Coding Scheme (MCS) and its impact on network performance. You will analyze how different MCS configurations influence uplink (UL) and downlink (DL) throughput.
* Lab 4: Radio signal and BWP. This lab explores Bandwidth Parts (BWPs) in the 5G physical layer and their role in efficient spectrum management. BWPs enable dynamic bandwidth allocation, allowing devices to switch between different bandwidths to optimize power consumption and data performance. Experiment: Impact of BWP Switching on Performance Metrics [In this experiment, we will analyze how dynamically switching the Bandwidth Part (BWP) between 40 MHz and 10 MHz every 15 seconds affects performance metrics. The goal is to observe how bit rate, SINR, and other key indicators respond to BWP changes]
* Did data analysis for each lab; Table comparing average bitrate,RSRP,RSRQ,RSSI,SINR,MCS,and BLER, Plot timeline of bitrate over the experiment duration
* Consider a real-world scenario analysis
* CS-5610 Web development – final project
* Develop a Software as a Service (SaaS) web application that performs CRUD (Create, Read, Update, Delete) operations. The application must be based on React, Node.js, Prisma, and implement authentication using token cookies as learned in class.
* I created SocialSync a Personal Social Life Organizer; designed to help users seamlessly manage their social life by keeping track of events, social obligations, and tasks in one centralized location. From birthdays and weddings to follow-ups after major life events like a birth or loss, SocialSync ensures that users never forget the moments that matter. The app also assists with tasks such as buying gifts, planning gatherings, and sending timely congratulations or condolences.
* I will include the deployed link and the project is on my GitHub.
* GitHub Repository: https://github.com/mamukhtar/socialsync (Not there yet)
* Game Demo: https://socialsync-omega.vercel.app
* EECE 5398. Networked XR Systems – final project
* I created Naija Know-All: Quizzes & Culture Capsules, a web-based a virtual reality (VR) quiz game focused on Nigeria and its rich cultural heritage, designed using A-Frame with information capsules that tell you some fun facts about different things.
* I will include the deployed link and the project is on my GitHub.
* GitHub Repository: https://github.com/mamukhtar/Nigerian-XR-Games
* Game Demo: https://mamukhtar.github.io/Nigerian-XR-Games/
* EECE 7374 Programming Assignment 2 - Reliable Transport Protocols
* In a given simulator, in C implemented three reliable data transport protocols: Alternating-Bit (ABT), Go-Back-N (GBN), and Selective-Repeat (SR). Writing the sending and receiving transport-layer code for implementing a simple reliable data transfer protocol for each.

School projects (Undergrad)

* Capstone project

**Augmented Reality Informational System (ARIS) for Astronauts,** Capstone project Sept 2022 – May 2023

* Led a multidisciplinary team in developing an augmented reality system that integrates sensors to provide astronauts with critical health and consumable data, utilizing Microsoft HoloLens for the AR display
* Engineered and implemented a sensor node using an Arduino to send data to a central hub, Raspberry Pi that also housed a robust server-client servers for efficient data collection and monitoring
* Programmed and managed the software aspects of the system using C#, Python, and Unity, with a focus on deploying machine learning algorithms for precise data analysis and classification
* Implemented wireless communication using RF XBee modules and IEEE 802.15.4 protocol, facilitating full-duplex data transmission and reception in simulated astronaut scenarios
* GitHub Repository: https://github.com/mamukhtar/Project-ARIS.git
* 16-bit RISC Architecture Design

**16-bit RISC Architecture Design,** Advanced Digital Design Spring 2022

* Worked as a team of 2 to design a 16-bit RISC Architecture in VHDL with 8-bit registers that can load, store, and execute a simplified set of instructions.
* Utilized modular design in Vivado to implement an ALU, RAM, ROM, and Register for the Top-Level Architecture.
* Utilized testbench simulations to verify the functionality of each modular component and the complete architecture design
* Traffic Light Controller

**Traffic Light Controller,** Advanced Digital Design

**FPGA ALU Design,** Advanced Digital Design Spring 2022

* Designed an ALU on a Xilinx Vivado to perform logical and arithmetic calculations.
* Utilized VHDL to describe the circuit, using a Zybo board to implement the ALU with ALU Functions selected using PMOD switch combinations.
* Effectively created testbench files to simulate and verify the design.
* Successfully implemented the ALU to perform 11 functions, with the output displayed as hexadecimal values on a seven-segment display using modular design
* Automatic whiteboard cleaning device

**Automatic whiteboard cleaning device**, Engineering Design Spring 2022

* Collaborated with a team of 3 to design and create an automatic device that will be capable of cleaning the full length of a whiteboard whilst leaving zero marks and streaks
* Programmed stepper motors using an Arduino Uno in C/C++ to drive a horizontal linear rail and two vertical screw rails to control the leftward, rightward, upward, and downward motions
* Utilized GRBL firmware and Inkscape to define the contours of the eraser units directionality
* Successfully constructed the device to clean a whiteboard effectively in under 40 seconds

**THPG sensing device THPG sensing device,** Engineering DesignSpring 2022

* Constructed a Temperature, Humidity, Pressure, and Gas (THPG**)** alert system to create a device that will alert the user when air conditions reach a dangerous threshold
* Created a source code to program the device in Arduino IDE
* Programed the device to successfully work as an alert system with a buzzer and LED that would sound and light up when the sensor’s measurements were at the chosen threshold.
* Programed the OLED display to display the observed data in real-time
* Generated and rendered a PCB design for the device
* AM Radio

**AM Radio,** Electronics I Fall 2021

* Built an AM Radio receiver that accepts and demodulates frequencies in the frequency range 535-1605 kHz
* Designed the circuit to use an opamp as a demodulator and amplifier and a tuning capacitor to set and tune the frequency which needs to be passed to create an AM Medium Wave broadcast band
* Effectively extracted the information being carried by the received AM signal and transmit it through a speaker.

Personal projects

* Paper Trails & Tales book club website: designed by me and hosted on Wix and a personal book blog where I share my thoughts about reading and reflect on the joy of reading, explore life through literary lenses, and connect with fellow book lovers. I share my random insights, favorite reads, offer personalized book recommendations based on beloved tropes, and so much more. (<https://papertrailsntales.wixsite.com/paper-trails-tales>)
* Granny Square Generator Web App: allows users to generate randomized granny square layouts for crochet projects based on selected yarn colors or inspired by book covers. GitHub Repository: <https://github.com/mamukhtar/granny-square-generator.git> & Demo: <https://granny-square-generator.vercel.app//>

## Technical & Practical

16. \*\*Portfolio Goals\*\*

- Who's your target audience (potential employers, grad school applications, networking)?

potential employers and networking

- Do you need specific sections (like a blog, contact form, downloadable resume)?

downloadable resume, contact information, important projects and all the other important things not everything has to be there.

- Any specific functionality you want (animations, interactive elements)?

I want it to be fun so animations, interactive elements could be nice if it fits.

17. \*\*Domain & Hosting\*\*

- Do you have a preferred domain name in mind?

- Are you comfortable with basic website management?

- Do you prefer a platform like GitHub Pages, Netlify, or something else?

I want something free so GitHub Pages could be good

## Additional Information

18. \*\*Anything Else\*\*

- Is there anything unique about your story we should highlight?

- Any concerns or specific requirements?

- Additional context that would help us create the perfect portfolio for you?

Lets brainstorm for the most important things to include and how we want to set it all up.

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