

# Hadeel Elyazori

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## PROFESSIONAL SUMMARY

Highly skilled machine learning engineer with over 4 years of experience as a developer, specializing in **medical natural language processing (NLP)**. Expertise in artificial intelligence, machine learning, and data science, demonstrated through a range of **academic projects, research assistantships, and professional internships**. My interests are centered on applying NLP techniques to impactful projects in various sectors like healthcare and correctional systems.

## EDUCATIONAL BACKGROUND

### George Mason University, USA

#### PhD Candidate: Information Technology (INFT)

Sep/22 – Present

- **Concentration:** Information Science and Technology (ISTC)
- **Scholarships:** The Institute for Digital InnovAtion (IDIA) Predoctoral Fellowship [[Link](#)]

#### Master's Program: Applied Information Technology (AIT), GPA: 3.9/4.0

Sep/22 – May/24

- **Concentration:** Machine Learning Engineering (MLE)

### American University of Beirut, Lebanon

#### Bachelor's of Science: Computer Science, GPA: 4.0/4.0

Aug/18 – May/22

- **Scholarships:** US MEPI Tomorrow's Leaders Undergraduate Scholarship
- **Awards:**
  - Dean's Honors List (all semesters)
  - Murex Best Computer Science Student in Development
  - MEPI TLU | Valedictorian, Best Capstone Project – 3rd Place
- **Exchange Semester at American University, Washington D.C., GPA: 4.0/4.0**

Aug/21 – Dec/21

## PROFESSIONAL AFFILIATIONS

### National Society of Leadership and Success

Sep/24 – Present

### Association for Computing Machinery (ACM)

Aug/24 – Present

## EXPERIENCE & RESEARCH

### George Mason University, USA

#### Graduate Research Assistant | [Lybarger's Lab](#)

Jan/23 – Present

- Under the IDIA award, I am currently leading a project integrating motivational interviewing and Large Language Models LLMs to improve chronic pain management and reduce opioid use.
- Co-authored a publication in Federal Probation on using NLP to analyze probation and parole records, highlighting new insights in supervisory conditions.
- Performed a scoping review of NLP applications in cancer research, collaborating with Queen Mary University and the Wolfson Institute to map the current research landscape.

#### Graduate Teaching Assistant | [IST Department](#)

Jan/23 – May/24

- Assisted in teaching courses on Web Server Administration and iOS Mobile Development, providing academic support to students through one-on-one tutoring and group discussions.
- Graded assignments, exams, and projects, offering detailed feedback to enhance student learning and performance

### Dar Al-Handasah, Lebanon

#### Machine Learning Intern

Mar/21 – Jul/22

- Spearheaded a research initiative aimed at automating parameter adjustments to minimize heat gain in buildings, contributing to sustainable and energy-efficient building design practices.

- Implemented a python script that achieves the automation process with the underlying machine learning models and compared the results to manual work done by architects in the company.
- Worked with the team on developing DNN and GAN models that worked to output best building shapes for heat insulation.

## American University of Beirut, Lebanon

**Undergraduate Research Assistant** | Center for Civic Engagement and Community Service **Dec/18 – Jan/19**

- Assisted in research addressing social challenges and supported community-based projects led by the CCECS.
- Attended a 3-days training workshop that provided the needed skills to conduct interviews with refugees.
- Prepared multiple presentations to show results and insights using graphical visualizations extracted using Python.

## PROJECTS & CERTIFICATIONS

### NLP Information Extraction in Community Corrections

**Jun/23 – Dec/23**

- Developed an NLP framework using state-of-the-art LLMs to extract fine-grained condition categories from free-text officer notes in parole and probation settings.
- Achieved a high F1 score of 0.89 with flan T5, demonstrating the effectiveness of NLP and LLM technologies in enhancing data utility for policy development and client management.

### Covid19 Analysis Shiny App

**Oct/21 – Dec/21**

- As part of the data science course I took in my exchange semester, I developed an R Shiny app to allow users to perform data manipulations, numerical/graphical analysis and statistical modeling and tests.
- Used the COVID19 Cran package for data, alongside tidyverse and shiny packages for cleaning and development of the app.

### Qvirt (Online queueing system)

**Jan/21 – May/21**

- As part of a software engineering course that I was enrolled in, I lead a group of 4 members working to develop a web application that mimics traditional waitlist systems, using QR codes.
- For the backend we used Django as a backend framework to coordinate between the different users' interfaces that we created using HTML, CSS, JavaScript, and MySQL database.

### PRECAUID (Face mask detection)

**Aug/20**

- As part of Beirut AI Bootcamp's final hackathon, I was the leader and among the technical people on the team.
- We collectively developed an AI model using OpenCV and TensorFlow/Keras that can detect face masks in static images using deep learning and computer vision, which achieved accuracy of 81%.

## EXTRACULLICULAR ACTIVITES

### Graduate and Professional Student Association (GAPSA), Representative | Virginia

**Aug/24 – Present**

- Representing the interests of Information Technology PhD graduate students in GAPSA meetings, advocating for academic, professional, and social concerns within the university community.
- Collaborating with university administration and student organizations to develop initiatives that enhance graduate student experience across disciplines.

### International Student Advisory Board GMU (ISAB), Board Member | Virginia

**Aug/24 – Present**

- Providing strategic feedback to the Office of International Programs and Services (OIPS) to improve programs and services for international students.
- Advocating for the needs and concerns of the international student community by challenging current policies, proposing new initiatives, and fostering an intercultural learning environment.

### She Speaks Science, Participant | Remotely

**Feb/21 – Jul/21**

- Was selected as one of 33 empowered women in STEM from across the globe, in PENTA, a dynamic two-way mentorship program, attending weekly sessions over a period of six months.

- Received guidance and insights from experienced professionals and provided mentorship to emerging talents in the field.
- Actively engaged and facilitated rich interactions with women at various stages of their STEM careers, fostering an environment of mutual learning and support.

#### AI Ready Academy – Zaka/Microsoft, Participant | Lebanon

**Dec/20 – Mar/21**

- Got introduced to concepts of data science, machine learning, artificial intelligence, and Azure cloud computing.
- Became Microsoft certified for AZ-900, DP-900 and AI-900.
- Participated in final hackathon with a hate speech detection project done using NLP.

#### Ethiopian Community Development Council (ECDC), Volunteer | Washington DC

**Nov/21**

- Helped in distributing donations to the marginalized communities as well as tutoring interested kids in programming.

#### AI Bootcamp – Beirut AI, Participant | Lebanon

**Aug/20**

- Experienced hands-on online workshops in data science, deep learning, computer vision, NLP and time series.
- Created a real-life solution, which is a facemask detector using computer vision during Covid19.

#### Help Syrian Kids NGO, Tutor Volunteer | Lebanon

**Sep/18 – May/21**

- Volunteered as an English and Math teacher to Syrian refugees in Katermaya refugee camp.
- Tutored beginner level Python and C++ to interested children.

## CORE SKILLS

**Languages:** Proficient in English | Native in Arabic

**Programming Languages:** Advanced in Python | Intermediate in R, Java, C++ and C#

**Machine Learning | LLMs:** Design and build complete ML pipelines with Pytorch/Tensorflow. Train GPT-like LLMs from scratch.

## Publications

### Published:

**H. Elyazori**, T. Thurman, K. Lybarger, and F. S. Taxman, "Exploring probation and parole records using natural language processing: A case study of supervisory condition notes," *Federal Probation Journal*, vol. 87, no. 3, pp. 19-26, 2023.

### Under review:

K. Lybarger, O. Uzuner, G. K. Ramachandran, **H. Elyazori**, M. S. Irbaz, and A. H. M. R. Karim, "Natural language processing of clinical data," in *Springer Handbook of Data Engineering*, F. Xhafa, Ed. Springer, 2024.