

Statement of Purpose – Aftab Alam Masjidi
(Application for M.Sc. in Computer Science, MBZUAI)

There were mornings in Kabul when the sound of explosions shattered the quiet on my way to school. I still remember the haze of dust hanging in the air behind me as I entered school, wondering if my soul is within my body. Yet, amid that uncertainty, I found an unwavering resolve; to learn, to build, and to one day contribute to technologies that prevent chaos before it unfolds. That resolve carried me through Afghanistan's unrest to the United States, where I earned one of the nation's most selective undergraduate scholarships: the **Stamps Scholarship** at Barry University, awarded to fewer than one percent of applicants for exceptional academic excellence and leadership. This scholarship marked a transition; from surviving instability to shaping solutions through science.

At Barry, I pursued a **B.S. in Computer Science** with a **specialization in Cybersecurity**, building my foundation across software engineering, data systems, and digital forensics. In my **Software Engineering** project, I independently designed and implemented a secure, full-stack Java web portal that incorporated multi-role access control, cryptographic password protection, and dynamic content management. In my cybersecurity coursework, I gained expertise in network protection, vulnerability analysis, cryptography, and forensics. Working alongside a senior cybersecurity analyst, I supported vulnerability assessments, SIEM monitoring, and threat forensics; hands-on experiences that solidified my understanding of both system defense and the subtle behavioral patterns underlying security incidents.

It was during these formative years that I began asking a deeper question: *What if, rather than simply defending against attacks, we could predict them before they occurred?* That question defined my academic trajectory.

The idea matured as I joined Barry's **Student Managed Investment Fund (SMIF)**, analyzing market behavior and managing a \$1.2 million portfolio. My task: tracking Alphabet Inc.'s performance and interpreting data trends, revealing the predictive power of analytics. The more I studied market volatility, the more parallels I saw with digital threats: both emerging from complex patterns, subtle anomalies, and human behavior. This realization inspired me to explore predictions from a technical lens. When the **AI Center at Barry University** launched, I began my independent research, *Stock Market Analysis and Prediction using Machine Learning and Deep Learning*, as my gateway into AI. I deliberately chose financial data, not for profit, but as a manageable, structured domain to master deep learning techniques before applying them to security analytics.

This ongoing research employs regression-based models and hybrid neural networks (MLP, CNN-LSTM) to evaluate predictive accuracy under varying market conditions. Beyond modeling, my work focuses on **feature engineering and data explainability**, bridging statistical and behavioral insights.

This project has been accepted for presentation at the **2026 CURO Symposium (University of Georgia)** and the **Barry STEM Symposium**, affirming its academic relevance and rigor. While the research centers on finance, its underlying purpose is foundational: to build the technical and conceptual proficiency necessary for **AI-driven cybersecurity threat prediction**.

In my graduate studies at MBZUAI, I aim to expand this foundation to model **user and network behavior for proactive threat detection**. Recent AI-based intrusion systems rely heavily on static models that fail to adapt to evolving attack vectors and lack interpretability for human analysts. My goal is to bridge this gap by integrating **behavioral analytics, hybrid deep learning architectures, and probabilistic modeling**. Through dynamic feature learning and explainable AI, I hope to engineer systems that continuously learn from contextual data—allowing them not only to recognize but also to *anticipate* security breaches. This direction stems directly from my background: a synthesis of cybersecurity principles, data-driven analysis, and system design.

MBZUAI's **M.Sc. in Computer Science** represents the ideal environment to pursue this vision. The university's research ecosystem, rooted in rigorous computing yet deeply interdisciplinary, aligns precisely with my approach. The work of **Professor Ting Yu**, whose research in trustworthy AI and data privacy explores the integrity of intelligent systems, and **Professor Abdulrahman Mahmood**, whose interests in computational intelligence and secure optimization resonate with my goal of adaptive defense systems, stand out as direct inspiration. Their mentorship, combined with MBZUAI's advanced computational infrastructure and the UAE's national focus on AI and cybersecurity innovation, offers an unparalleled opportunity to turn my conceptual models into deployable solutions.

Beyond research, leadership and service define my approach to technology. I founded and currently preside over the **AI Society at Barry University**, fostering interdisciplinary AI literacy and project-based learning. As **President of the Muslim Students Association**, I built a thriving community of 50+ students, organizing cultural and educational events. As **Coordinator of the DX Lab** and a contributor at the **AI Center**, I managed AI projects for local businesses and mentored peers in digital transformation. My initiative, the **Sunday Discoveries Program**, extends this mentorship to Afghan refugee children, helping them adapt academically and socially in a new country. These experiences taught me that leadership is not about position; it is about *empowering others to see their own potential*.

From the silence after explosions in Kabul to the data-driven hub of AI systems in Miami, my journey has been defined by curiosity, resilience, and a deep sense of responsibility. At MBZUAI, I hope to continue this journey; advancing the intersection of AI and cybersecurity to predict threats before they materialize, protecting the systems that shape modern society. I see this not as the next step in my education, but as a continuation of my lifelong mission: to transform uncertainty into intelligence, and resilience into innovation.