

# Hamza Bashir

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## Education

### The George Washington University

Aug 2023 - May 2025

MS, Computer Science (GPA: 3.59)

• **Coursework:** Distributed systems, AI, Network Defence

### Monash University, Malaysia

Aug 2019 - May 2022

B.S.c, Advance Computer Science, Minor: Network and Cyber Security (GPA: 3.56)

## Career Experience

### Wavelet | Software Engineer II

Jul 2021 - Jul 2023

- Developed and integrated real-time chat features that reduced context switching by 8%, enhancing user engagement by enabling in-app communication and minimizing reliance on third-party messaging platforms
- Executed testing and debugging procedures to identify bottlenecks, improving reliability and reducing API latency by 50%.
- Designed scalable RESTful APIs (Flask, Java Spring) and leveraged S3 for efficient storage, ensuring real-time chat updates and preventing duplication.
- Led Flask API migration to Java Spring Boot, redesigning architecture with design patterns for scalability and maintainability.
- Refactored codebase for multi-cloud support, improving scalability and reducing redundancy.
- Led cloud infrastructure migration, transitioning clients to their dedicated AWS environments, managing ECS, DocumentDB, and API Gateway configurations.
- Boosted server throughput by 50% under high load by implementing multithreading, reducing latency and improving API reliability.
- Collaborated with stakeholders to deliver product demos, conduct training sessions, and troubleshoot technical issues, ensuring smooth onboarding and adoption of new features across client environments

### Poladrone | Software Engineer Intern

Jan 2021 - Mar 2021

- Designed and coded an internal network desktop application for seamless data uploads to NAS data storage, improving data accessibility and workflow efficiency
- Built custom QGIS plugins using PyQt and QGIS libraries, streamlining data preprocessing workflows.
- Ensured a smooth UI experience by implementing PyQt threads to prevent GUI freezing during background tasks.

### Gunfire Game Studio | Game Developer Intern

Sep 2020 - Nov 2020

- Contributed to the development of FPS games using Unity and C#, focusing on gameplay mechanics and testing, which enhanced game performance and player engagement
- Utilized Unity and C# to develop a First Person Shooting Controller (FPSC) for an engaging hunting game, improving player control and game realism

## Projects

### Real time object detection using distributed systems

Feb 2024 - May 2024

George Washington University

- Led a team of 3 to conduct a project for a robust system for object detection using distributed systems.
- Focused on overcoming computational limitations in small robots for object detection using distributed systems.
- Utilized YOLOv8 as the base model, deploying it in a hierarchical manner to achieve a 1.5x speedup in image processing.
- Enhanced fault tolerance and scalability by implementing load balancers and auto-scaling, ensuring consistent performance under varying traffic conditions.

### AI Traffic Control

Nov 2024 - Dec 2024

George Washington University

- Led a team of two to implement a reinforcement learning agent aimed at optimizing traffic flow at intersections.
- Developed and trained the agent using Q-Learning and the SUMO traffic simulation environment, ensuring realistic modeling and evaluation of traffic scenarios.
- Delivered a robust solution to manage intersection traffic dynamically, reducing congestion and improving efficiency.

### Final Year Deepfake Project

Mar 2021 - Mar 2022

Monash University

- Took the lead role in the project with a team of three members, supervising architecture design and coding.
- Developed a novel GAN variation enhancing posture and facial expressions within an existing model framework.

### CupShup Rooftop App

Freelancing Project

- Android application built for a restaurant in Lahore, Pakistan, utilizing Java and Android Studio. Integrated Firebase for robust order data management.
- Boosted sales and customer satisfaction among students through user-friendly interface and efficient order processing.

## Skills

- **Programming Languages:** Python, Java, C++, C#, JavaScript, Git
- **Backend & Systems:** Software Development, API Development, Object-Oriented Design, Development Fundamentals, Quality and Testing
- **Frameworks & tools:** Flask, Express, NodeJS, Angular, React, Flutter, PyQt, Android Development, Android Studio, Unity
- **Cloud & Databases:** MySQL, Oracle Database, MongoDB, DynamoDB, Amazon S3, ECS, API Gateway