

# Mohamad Al-Ashmar

Syria, Damascus, Al-Midan  
+963 997 300 716  
[mohamad.ashmar.ai@gmail.com](mailto:mohamad.ashmar.ai@gmail.com)  
<https://md-ar.netlify.app/>  
<https://github.com/M0-AR>

As a Technical University of Denmark (DTU) Software Engineering graduate, I specialize in applying cloud, AI, and MLOps to healthcare innovations. My experience includes developing cross-platform C++ software, implementing secure key exchanges, and optimizing compilation with CMake. I've led projects in AI-driven diagnostics, such as identifying tumors from CT scans to determine the probability of benign or malignant conditions, as well as real-time tumor detection and 3D visualization for medical devices. Additionally, I served as a reviewer for an IoT liquid tracking system integrated with Azure, validating PCB designs and ensuring seamless deployment. Passionate about leveraging technology, I strive to transform healthcare through innovation and automation.

## Technical Skills

**Programming:** Java, C++, Python, Go, JavaScript, TypeScript  
**Web/Mobile:** React, Vue, Angular, Flutter  
**Backend:** Node.js, Flask, FastAPI, Microservices  
**Data:** MongoDB, PostgreSQL, MySQL, Redis, Kafka  
**Skills and Expertise:** **Cloud/DevOps:** AWS, Azure, GCP, Docker, Kubernetes, Terraform  
**AI/ML:** TensorFlow, PyTorch, MLOps, Healthcare ML applications  
**Infrastructure:** CI/CD, Jenkins, GitLab, Azure DevOps  
**Security:** HIPAA compliance, cryptography, secure protocols  
**IoT:** Real-time processing, sensor integration, Azure IoT

## Projects and Achievements

### My Journey in AI and Healthcare Innovation

With a strong foundation in AI, software engineering, and healthcare technology, I've led pioneering projects that have transformed medical diagnostics and data processing. My work, primarily conducted at Regionsjaelland Hospital in Denmark, demonstrates a blend of innovation, technical rigor, and impactful results.

#### Epic Data Extraction Project

- Spearheaded a 1.5-year project to extract and stabilize data from Epic Software, establishing it as a scalable proof of concept.
- **Achieved \$2 million in funding** to expand the solution across Europe, significantly enhancing healthcare data workflows and capabilities.

#### AI Kidney Tumor Diagnosis Models

- Engineered four AI-driven kidney models using MRI data to revolutionize kidney pathology diagnosis:
  - *Kidney vs. Non-Kidney Classification:* Differentiates kidney-specific images.
  - *Four-Class Classification:* Categorizes images into benign, malignant, normal, or undefined groups.
  - *Localization and Segmentation:* Precisely identifies kidney structures for clinical analysis.
  - *Tumor Detection:* Accurately detects and classifies kidney tumors.
- Designed and deployed a web platform hosted on the Denmark Technical University supercomputer for automated MRI data processing and real-time diagnostic reporting.

#### AI Bladder Tumor Detection from Video

- Created an AI-powered system for detecting bladder tumors from video footage.
- Enabled real-time localization and assessment of suspicious areas, significantly improving early detection and diagnosis.

#### Real-Time 3D Urological Diagnostics

- Integrated advanced sensors into cystoscopes for real-time tracking and 3D mapping of the bladder.
- Delivered enhanced precision and accuracy in urological diagnostic procedures.

#### IoT Liquid Tracking with Azure Integration

- Reviewed and validated a cutting-edge IoT liquid tracking system, ensuring seamless scalability and functionality.
- Validated custom PCB circuits for weight sensors connected via a LoRa network to Azure Cloud.
- Supervised the development of a web interface for real-time data visualization and alerts.
- Streamlined the transition from PCB design to scalable deployment.

## Entrepreneurship - VisionTechWave

- Founded VisionTechWave in Denmark, driving AI and healthcare innovation while managing technical and business operations.

## Experience

### Four 3-month contracts (consecutive) – Assistance

Sep 2023 → Nov 2024

High-Performance Computing, Computer Vision, PyTorch, Ultralytics, Segment Anything (SAM), 3D Modeling

Currently working on AI-related development tasks, focusing on imaging and data analysis. Responsibilities include:

- Contributing to software for automatic segmentation, object localization, and classification
- Collaborating with a team to configure an imaging server on a supercomputer
- Assisting with data analysis over private datasets
- Participating in the deployment of an AI model on specialized devices
- Contributing to the development of a 3D visualization tool integrated with sensor-equipped devices

### Bachelor Project – Arked - specialists in extensions, renovations and conversions

Feb 2023 → June 2023

Computer Vision, Segment Anything (SAM), Stable Diffusion, Front-end, Back-end

The main scope of my bachelor's project was to distinguish between different types of houses when the user provided an image of their house. I was able to provide a solution within two weeks, and you can watch the demo here: <https://youtu.be/12zcDAHvOFY>.

The project focused on distinguishing between different types of houses from user-provided images. Later, the project expanded to explore innovative exterior facade designs, including techniques for detecting and replacing windows while preserving the original view.

I am thrilled to share that I successfully defended my thesis and achieved the highest score in the Danish system, attaining a score of **12**. This accomplishment serves as a testament to my dedication, hard work, and expertise in the field. Bachelor Thesis presentation: <https://www.youtube.com/watch?v=JUSLCYDCZO4>.

### Student Job – Healthcare Institution

Python, computer vision, data extraction, VR-solution, private-GPT solution

Worked on a project to automate the extraction of relevant data from medical software and store it in Excel files. The project involved the use of Python and computer vision techniques, with all necessary permissions obtained from relevant health authorities.

**KodeKloud Engineer** – "Work" in a company and perform real tasks on real systems. Participated in the KodeKloud Engineer program, working through various roles from Systems Administrator to DevOps Architect. The program provided hands-on experience in systems administration, networking, security, and application deployment. <https://github.com/M0-AR/DevOpsKodeKloud>

The KodeKloud Engineer program offers hands-on experience in systems administration, networking, security, and application deployment. Progress to DevOps Architect, mastering CI/CD pipelines, Kubernetes clusters, and automation solutions. Learn more at <https://kodekloud.com/kodekloud-engineer/>

### Student Job – Cryptera A/S Company

Jun 2022 → Oct 2022

Python, Pytest, Mock Test, Jenkins, Problem Solving

Contributed to creating mock tests for embedded device functionalities. Tasks included:

- Developing a process for NUC management and software pipeline building on Jenkins
- Learning and implementing best practices in pytest, including global functions and mock functions
- Integrating pytest results into the Jenkins pipeline

### Internship – Cryptera A/S Company

Feb 2022 → Jun 2022

Documentation, Architecture, C++, TR31, CMake, Jenkins, Groovy, CI Pipeline

Worked on a project to establish communication and run commands on an Embedded Device. Responsibilities included:

- Developing software for Linux-64bit and Windows-64bit using C++
- Working with DLL libraries and TR31 for secure key interchange
- Learning and applying CMake for software compilation processes
- Using GDB for program debugging
- Creating documentation using Doxygen
- Developing JenkinsFile scripts in Groovy for CI/CD processes

As a side project, contributed to a software solution demo titled 'Microservices and Kubernetes on Google Cloud: Unlocking the Power of Affiliate Marketing, Similar to Amazon Affiliate Program'. The project involved working with Golang, Microservices, Stripe payment service, and Kubernetes on Google Cloud. <https://github.com/M0-AR/ambassador-microservices-golang>. Additionally, I created a demo video to showcase the project, which can be viewed at <https://youtu.be/K-8WkgIDkBI>.

### Student Assistance – Software Processes and Patterns

Aug 2021 → Dec 2021

Agile, Jira, Design Patterns, Report, State and Activity charts

Had the opportunity to work as a teaching assistant, supporting five groups of students in their learning journey.

---

**Semster 05: Web and App development** – (I worked on multiple projects this semester)  
reactjs, vue, go, golang, devops, kotlin

Aug 2021 → Dec 2021

Participated in various web and Android application projects:

- Collaborated on a team project to build a service website using React, Go, and DevOps practices
- Developed an independent Crypto app for Android using Kotlin
- <https://github.com/M0-AR/DevOps>
- <https://github.com/M0-AR/go-admin>
- <https://github.com/M0-AR/vue-admin>
- <https://github.com/Anthai87/CryptoApp>
- <https://crystalclearenergy.netlify.app/>

---

**Semster 04: app development** – [https://github.com/M0-AR/CDIO\\_04\\_Android](https://github.com/M0-AR/CDIO_04_Android)  
Java, Python, R, computer vision, machine learning, trello(project mangement)

Feb 2021 → June 2021

Contributed to the development of a mobile application for real-time card detection in Solitaire:

- Utilized Java and Python for application development
- Applied computer vision and machine learning techniques
- Used Trello for project management

Participated in a machine learning and data mining project, working with Vatten Fall and Online Shoppers Intention datasets:  
<https://github.com/M0-AR/BigData>

- Applied linear regression for component failure prediction in the Vatten Fall dataset
- Used clustering and classification techniques for the Online Shoppers Intention dataset

---

**Semster 03: app development** – [https://github.com/M0-AR/SportEvent\\_Project](https://github.com/M0-AR/SportEvent_Project)  
java, agile(scrum), management tool

Aug 2020 → Jan 2021

Collaborated on an Android application for event organization:

- Implemented features for creating events, managing routes, and defining depots
- Utilized GPX-format files for event details
- Integrated Google Maps for route following
- Applied Agile (Scrum) methodologies for project management

**As a side project**, As a side project, worked on The Galgeleg Game, focusing on applying different design patterns and architectures. <https://github.com/M0-AR/Galgeleg-android>

---

**Semster 02: web app full stack** – [https://github.com/GRP25/CDIO\\_Final/tree/master](https://github.com/GRP25/CDIO_Final/tree/master)  
java, html, css, tailwind, javascript, linux, aws-ec2, mysql

Feb 2020 → June 2020

Contributed to the development of a system for managing commodities, users, and products for a healthcare-related company:

- Used Java for back-end development
- Applied HTML, CSS, and Tailwind CSS for front-end design
- Worked with MySQL for database management
- Gained experience with AWS EC2 and Linux for application deployment

---

**Semster 01: Monopoly game** – [https://github.com/CKyed/CDIO\\_final](https://github.com/CKyed/CDIO_final)  
java, MVC, grasp

Aug 2019 → Jan 2020

Participated in the development of a digital version of the Monopoly game:

- Applied the Model-View-Controller (MVC) architectural pattern
- Implemented game logic and rules using Java
- Utilized General Responsibility Assignment Software Patterns (GRASP) principles
- Gained experience in collaborative software development