




PERSONAL INFORMATION

**WORK EXPERIENCE**
01/07/2021 – ONGOING**Mamoona Aslam**

-  Köln (Germany)
-  Upon Request
-  engr.mamoona.aslam@gmail.com

About me: Professional Cloud Architect having 4+ years experience in On Premise / Public Cloud Infrastructure & Architecture, DevOps, DevSecOps, MLOps, Web services.

CLOUD ARCHITECT

ndaal Ges.f. Sicherheit in der Informationstechnik mbH & Co. KG - Köln, Germany

Worked both independently and with teams for various projects internally and for external enterprise customers.

- Leading Cloud migration project, ensuring seamless transition of application and data.
- Ensuring robust security compliance and data protection across cloud infrastructure.
- Building and deploying AWS /Azure cloud-based solutions for the secure provision of IaaS and PaaS products.
- Creating and maintaining CI/CD Pipelines via Jenkins and Git.
- Infrastructure and Provision automation with Terraform, Ansible and Pulumi.
- Containerization and deployment of services both on-premise and on Public Cloud.
- Setting up the development and testing of web services with molecule.
- Security analysis and hardening of Cloud instances and Linux servers.
- Auditing and reporting of on-premise Linux servers and cloud instances.
- Setting up logging, monitoring and metrics with ELK and InfluxDB/Grafana.
- Writing up security policies and credentials management with Vault.

Gitlab: https://gitlab.com/Mamoona_Aslam

Tech Stack: **Python, Jenkins, Pulumi, Kubernetes, HashiCorp Vault, Terraform, Ansible, Compliance as Code, Documentation as Code, (CI/CD), AWS, Azure, ELK**

15/11/2019 – 15/09/2020

MASTER THESIS / RESEARCH INTERN

AKKA TECHNOLOGIES - Köln, Germany

Master Thesis: '**Analysis and Development of a security solution for VANET using Blockchain technology in a simulated environment.**'

- Solved main issues in VANET by utilizing Blockchain technology, to benefit from its built-in integrity and trust.
- Developed a customized blockchain to store and transact Vehicle Sensor Data in Python using Flask.
- Imported Real world maps (OpenStreetMap), extracting street and roadside components and Simulating Traffic according to these parameters in SUMO.
- Generated Vehicle Data from the simulation, filtered and parsed from XML to JSON via RESTAPI endpoints in to Blockchain application.
- Automated security key / certificate generation and Securing communication (Curve for ZMQ, SSL/TLS for HTTP traffic).
- Containerized all applications in Docker, and created Docker-Compose playbooks for deployment locally or in AWS Cloud.

Tech Stack: **Python, Flask, REST API, Docker, AWS, GIT, Linux, Blockchain, Ansible, SSL/TLS**

01/02/2019 – 31/08/2019

STUDENT RESEARCHER / INTERN - BLOCKCHAIN LAB**FRAUNHOFER INSTITUTE FOR APPLIED INFORMATION TECHNOLOGY (FIT) -**
Sankt Augustin, GermanyResearch Project: **'Product Quality Validation using Smart Contracts'** and creation of a prototype application for Industry 4.0.

- Setup Quorum blockchain implementations on vagrant, docker and Amazon EC2.
- Tested out Quorum transaction and consensus algorithms.
- IoT Arduino Programming and Data acquisition of IoT sensor data through MQTT.
- Wrote Smart contract on Ethereum blockchain in Solidity.
- Created Web templates with JavaScript / HTML for User Interface.
- Developed Core application in Python using Flask that interacts via REST API for deploying smart contracts in Blockchain.
- Parsed JSON Data from Blockchains and generating compliance certificates.

Tech Stack: **Python, Flask, REST API, Linux, GIT, JavaScript, Solidity, Arduino, Vagrant, Quorum, Ethereum, IoT, MQ, Blockchain.**

10/04/2018–12/07/2018

STUDENT RESEARCHER - VOIP OVER BLOCKCHAIN**PROF. DR. ANDREAS GREBE - F07 - TH KÖLN - Köln, Germany**Project to provide proof of work of **'Decentralized VOIP communication using Blockchain'**.

- Blockchain technology was used to create a shared ledger between Asterisk SIP servers that contain user information.
- Blockchain web (Flask) application was created to allow users to signup & login, view the blockchain, make transactions and mine new blocks, using REST API.
- SIP registration/calling/answering functions were scripted using PJSIP library and calls were initiated via Android SIP client.
- Project was done in Python and some automation was done via BASH scripting.

Git Repo: <https://bitbucket.org/ngn2018/>Tech Stack: **Python, Flask, BASH, GIT, Linux**

01/11/2017–03/02/2018

STUDENT RESEARCHER - ADAPTIVE HTTP VIDEO STREAMING**PROF. DR. ANDREAS GREBE - F07 - TH KÖLN - Köln, Germany**Project on **'Dynamic Adaptive Streaming over HTTP (DASH) technology'**.

- Setup HTTP video Streaming using NGINX server and DASH.JS framework.
- MPEG-DASH conversion and MPD generation with FFmpeg and MP4BOX.
- Traffic Shaping at bridge gateway using Linux networking tools such as iperf, Wondershaper etc.
- Video streaming metrics via DASH.JS and packet analysis with Wireshark.

Git Repo: <https://bitbucket.org/amc-dash-ws1718/>Tech Stack: **JavaScript, BASH, Nginx, Wireshark, FFmpeg, GIT, Linux**

02/02/2015–24/02/2017

DESIGN ENGINEER**R&D ALTANOVA - NJ, United States – Karachi, Pakistan**

- Layout analysis and designing of high frequency, controlled impedance multiple layers, high performance test boards, evaluation boards, bench boards, daughter cards, surrogate, debug & load boards.
- Designed boards for IC function testing for INTEL, NVIDIA, AMD, SANDISK and other renowned IC Manufacturers.
- PCB schematic design and physical layout (parts placement, routing, trace length adjustment, verification), component creation, silk screen labelling, Gerber generation and IPC checking.
- Capitalized the design in required time and documentation including length and delay report, BOM and capacitance of each design.

EDUCATION

02/10/2017–01/10/2020

Master of Science in Communication Systems and Networks

ISCED 6

Technische Hochschule Köln, Köln (Germany)

Major Courses: Cryptography, Information Security, Next Generation Networks, Advanced Multimedia Communication, Audio/Video coding.

Thesis: *Analysis and Development of a security solution for VANET using Blockchain technology in a simulated environment.*

01/01/2010–01/01/2014

Bachelor of Engineering in Electronic Engineering

ISCED 6

NED University of Engineering & Technology, Karachi (Pakistan)

Major Courses: Communication Systems, Computer Architecture and Organization, Programming Languages, Computer Networks.

Thesis: *Monocular Human Detection & Height Determination using Image Processing.*

TECHNICAL SKILLS

LANGUAGES

Python, JavaScript, BASH Scripting, Go-lang, Solidity

AUTOMATION TOOLS

Ansible, Jenkins, Gitlab-Ci, Molecule Testing

PLATFORMS

AWS, Azure, GCP, Docker / Podman, VMware ESXi, Vagrant, Nomad, Kubernetes

DATABASES

InfluxDB, SQL, PostgreSQL, MongoDB, MariaDB

LOGGING / MONITORING

ElasticSearch (ELK), Grafana, Prometheus, Zabbix, Checkmk

FRAMEWORKS / LIBRARIES

Flask, Django (Basics), **Nodejs** (Basics), Request, NumPy, Pandas, Scikit-learn

NETWORK

REST API, SSL/TLS, OAuth2, Wireshark, Hashicorp Boundary, Suricata, Eperi Gateway

IAC TOOLS

Terraform, Pulumi, Cloudfoundry, Quest

OTHER

GitHub, Gitlab, Bitbucket, **Jira, Linux**, Windows, MacOS, Markdown, Nginx, Apache

CERTIFICATIONS

HashiCorp Vault Associate, HashiCorp Terraform Associate

PRESENTATIONS / TALKS

Integrating Data Privacy through pipelines (Data2day, Karlsruhe Oct. 2023)

PERSONAL SKILLS

LANGUAGE(S)

English (fluent), Urdu (native), German (professional)

OTHER SKILLS

- Proven record Team player.
- Creative minded, enjoy troubleshooting and problem solving.
- Interested in Automating systems, fascinated by Data Science and Machine Learning.
- Motivated to do quality work. Believes in hardworking with smarter and organized way.

ADDITIONAL INFORMATION

Any references can be provided on demand.