**Zain-ull-Abiddin Daniyal**

**Senior Full Stack Engineer (Contractor)**

Oxford

07446824486 • [z.daniyal07@gmail.com](mailto:z.daniyal07@gmail.com) • [GitHub](https://github.com/zaindaniyal) • [LinkedIn](https://www.linkedin.com/in/zain-ull-abiddin-daniyal-83554a31/)

Personal statement

I design and write robust full stack solutions and machine learning models. I also create cloud architecture solutions. I work on computer vision, NLP and deep reinforcement learning in my free time.

Key Skills

* Creating machine learning models using TensorFlow, Keras, OpenCV and Spacy in Python.
* Deploying machine learning models on the cloud (Azure & GCP).
* Architecting and maintaining cloud infrastructure.
* Data Engineering using Azure data tools and Google BigQuery.
* Creating a full backend solution in .Net Core and Node.js.
* Creating infrastructure as code (Arm and Terraform)

Employment History

Lead Full Stack Engineer & Azure Infrastructure Engineer at Fuel3D Technologies Ltd, Oxford

(January 2019 – Present)

Key Accomplishments:

* Built automated CI/CD pipelines to deploy backend, frontend and data pipelines, saved countless hours of manual deployments.
* Created and deployed 5 computer vision machine learning models on Azure. These provided a 30% increase in accuracy over traditional C++ imaging engines. These were written in Python using Tensorflow and deployed as a container each.
* Explored cheaper, reliable and productive Azure services and implemented them. I broke down a bloated Azure Service Fabric solution to small, manageable, easily updatable, microservice-based, dockerised solutions. This allowed us to release updates frequently and seamlessly.
* Created data pipelines using python and deployed the containerised version to Azure. This was a cheaper and more customisable option than using Azure Data Factory. This saved over £1500 per month.
* Wrote serverless code on Azure functions using C#. For small independent tasks, this proved effective.
* Scripted ARM templates for managing resources on Azure. This was much faster to manage infrastructure.
* Set up Kubernetes on Azure and deploying containers to K8s pods. Deployments are seamless as Kubernetes manage sending traffic to the most updated pods.
* Created full solution architecture for a scalable solution with cost kept low. Saved over £10k every month.
* Interviewed, onboarded and mentored software engineers. This included explaining full solution architecture and helping them take their skills to the next level.
* Lead architectural review discussions and created microservice-based architecture to replace a monolithic architecture.
* Evaluated cloud providers including AWS and GCP for serving machine learning models.
* Established high standards on source control such as code reviews on pull requests on Git. This prevents countless bugs being pushed to production.
* Streamlining our overall cloud usage to using Azure and transferred files and hosted apps from AWS S3 and EC2 to Azure Blob Storage and Azure App Service. Once complete, it cut the cost of £7k per month.
* Wrote CPU-throttling, multi-threaded, automated regression tests to test C++ imaging engines to the core. These tests proved very effective to benchmark the performance of complex imaging engines.
* Evaluated Azure Data Factory and created multiple data pipelines. It was a very rapid way to create data pipelines.
* Wrote complex SQL queries, views and stored procedures in association with data pipelines and data staging process.
* Set up Splunk, Mixpanel and Azure Application Insights for user journeys, apps telematics and error reporting.

**Technologies Used:**

.Net Core 2, Angular, Azure SQL Server, Azure Blob Storage, Azure Traffic Manager, Azure Data Factory, Azure Container Service, Azure Service Fabric, Azure App Service, Azure Functions, Azure Data Warehouse, Azure Application Insights, Terraform, ARM Templates, Python, Tensorflow, Node.js, Entity Framework, Docker, Kubernetes, Splunk and Mixpanel

Full Stack Developer & Data Scientist at Carnell Support Services Ltd, Birmingham

(March 2018 – January 2019)

Achievements and responsibilities:

* Created machine learning models for predicting rising waters in drainage chambers on the highways. This required extremely huge amount of data engineering. The final machine learning models predicted where can we expect flooding given rain forecast. This gave an early warning to prevent floods on the highways. Before these models, there was no way to predict floods in a particular place.
* Created computer vision machine learning models for detecting high-vis jackets using TensorFlow and Sci-kit Learn.
* Evaluated thermal imaging camera and OpenCV to detect people in a construction environment.
* Tested and deployed computer vision machine learning models on the edge device, Nvidia Jetson TX2.
* Created end to end solution and data architecture for IoT devices network.
* Created specifications of hardware requirements in terms of sensors, modules and connection bandwidth for capturing necessary data and transfer of data to a back-end solution for machine learning in the cloud and at the edge.
* Created a timesheets app to replace excel-based timesheets system. This allowed the company to claim back £200k every month.
* Created PWAs (Progressive Web Apps) and SPAs (Single Page Applications) using Angular, Vue.js, Node.js Azure SQL Server and Azure Blob storage.
* Deployed business apps on Azure app service.
* Managed projects using Git hosted on Visual Studio Team Services (VSTS).
* Mentored and helped junior developers.

Software Engineer, CADlogic Ltd, Lichfield

(November 2017 – February 2018)

Achievements and responsibilities:

* Translated encryption and software validation code from VB.Net to C#.
* Developed GUI.
* Worked on developing a CAD windows-based desktop application for building steel sheds on Microsoft Visual Studio 2013/2017 using WinForms.
* Used MVC model to keep model and views separate and saved the model as an encrypted and compressed XML file.
* Created 2D and 3D geometry from scratch in C# and modelled using Teigha.
* Created databases of building products.
* Created unit tests for validation purposes.
* All projects were based on the Scrum methodology in the Agile framework.

Database Manager & Data Engineer, Sutton Carter Investments Ltd, Birmingham

(July 2016 – October 2017)

Achievements and responsibilities:

* Captured business requirements to design database schemas.
* Designed and developed in-house databases using Microsoft Access and Microsoft SQL Server.
* Developed reporting suite.
* Maintained the database.
* Maintaining different databases for different needs.

Medical Interpreter, Absolute Interpreting and Translations Ltd, Birmingham

(July 2015 – July 2016)

Achievements and responsibilities:

* Travelled to various locations and helped translate from the following languages: Urdu, Hindi, Punjabi & Mirpuri.
* Capturing detailed accounts from refugees and vulnerable people, while putting them at ease.

Education

**Higher Education, Applied Mathematics and Theoretical Physics, Coventry University** (2012 – 2013)

**A-Levels, Joseph Chamberlain Sixth Form College, Birmingham** (2011 – 2012)

Mathematics, Further Mathematics, Physics & Computer Science

**GCSEs, Joseph Chamberlain Sixth Form College, Birmingham** (2010 – 2011)

Mathematics, English, Physics, Chemistry, Media Studies & Urdu

**Voluntary Work History**

**C#, VB.Net & SQL Developer, MKA (UK) - Registered Charity: 1135657 -** **November 2011 – December 2016**

31 Gressenhall Road, London, SW18 5QH

**Applications developed:**

**Task Management Application - VB.Net & SQL - WinForms - 2011**

I created an app where tasks are divided into task-lists. The tasks have priorities and also can be assigned to different people. When put on a shared server this app was used across the whole organisation to send tasks to different people. All the tasks and task-lists were saved in the database through SQL. This programme also required a good Graphical User Interface (GUI) and user experience (UX) was taken care of very well. [GitHub Link](https://github.com/zaindaniyal/Tasks-Management-VB.Net)

**Task Management Application – Translated from VB.Net to C# - WinForms - 2012**

I converted the same task management app from VB.Net to C#. I made sure every line is corrected translated from VB.Net to C# and all the features worked just as they did in the VB.Net version. I also improved by adding a feature of a special year-view calendar. The rest exactly mirrors the VB.Net app. [GitHub Link](https://github.com/zaindaniyal/Tasks-Management-C-Sharp)

**Online Dictionary Scraper - C# - 2015**

I created a simple app which scrapes dictionary entries page by page from various websites. The app first scrapes the entire html of the webpage and then parses it to extract the relevant dictionary entry and saves it and moves onto the next page. This allowed me to search the dictionary offline. I did similar with the other dictionaries and built a system of 18 dictionaries offline.

The 18 offline dictionaries are used by myself and many members of the MKA UK Charity for translational purposes. It’s an invaluable tool for translators as it removes the need to look for a word in multiple dictionaries online before returning to writing the translation. [GitHub Link](https://github.com/zaindaniyal/Dictionary-Downloader)

**Personal Projects**

**OCR for Urdu using Convolutional Neural Networks – 2018 – 2019**

I created an algorithm that produces a very large labelled dataset. I created 1000 images per word. There were 140,000 words. The algorithm allows me to easily scale and create as much images as necessary. I wrote a simple CNN (Convolutional Neural Network) to recognise the images. The CNN was thus, trained on computer generated data. However, I verified that it can even recognise hand-written words. This shows that, one, deep learning is powerful enough to be trained on computer generated data and recognise real world objects and, two, even simple CNN architecture proved fruitful in this endeavour.

**Training a robotic arm using Reinforcement Learning - 2018**

I am working on a project where I apply Augmented Random Search (ARS) algorithm (a reinforcement learning algorithm) to a robotic arm. This algorithm along with an object recognition algorithm using OpenCV is used to pick up objects and place them elsewhere. There is a lot of room for improvement in this system.

References

References are available upon request.