

# Talha Ashraf

## Backend Engineer

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### SKILLS

**TECHNOLOGIES:** Amazon AWS • Terraform/Pulumi • Virtualization • Containers • Ansible • Python • Bash • ETL • CI/CD • VCS/SCM

**ARCHITECTURAL PATTERNS:** Microservices • Serverless Architecture • Distributed Systems • Event-Driven Architecture • RESTful Architecture • Monolithic Architecture

**TOOLS:** Docker/Compose • Selenium/Scrapy • Git • CircleCI/GitHub Actions • GitHub CLI

### EXPERIENCE

#### SOFTWARE ENGINEER II

Emptor

Oct 2018, Present

New York, NY | Remote

##### Scalable Search API for Structured Dataset

- Implemented Quickwit in replacement of OpenSearch for querying structured datasets from Amazon S3 and reducing the service cost significantly.
- Developed two separate RESTful architectures with FastAPI for both frontend and backend use.
- Developed an integration testing pipeline using Docker Compose for Quickwit, MinIO, and FastAPI services.

##### Upgrade and migrate ElasticSearch from AWS to OpenSearch in GCP Kubernetes

- Established foundational AWS infrastructure to facilitate migration and deployed it across multiple AWS accounts using the Infrastructure-as-Code tool Pulumi.
- Developed several Python scripts to streamline migration, upgrade to OpenSearch, and create and restore data snapshots.
- Extensively tested the migration process for bugs and documented procedures to prevent service downtime and data loss.

##### Amazon EC2 machines management with Ansible

- Used Sceptre with Jinja2 to develop a CloudFormation template for deploying EC2 instances with custom configurations.
- Implemented AWS Backup to centrally manage backups of EBS volumes.
- Configured Vagrant for integration testing.
- Integrated AWS SSM Session Manager to avoid managing SSH keys.

##### Google Spreadsheet interface for Emptor's API

- Developed AWS Step Functions execution pipeline that processes user input from a Google Spreadsheet, conducts background checks via Emptor's API, and posts results and status back to the spreadsheet.
- Developed REST API with Amazon API Gateway to manage customer Google Spreadsheets, including listing, creating, updating, and offboarding customer data.
- Built a monitoring tool to report changes made to Google Spreadsheets to Slack.

#### SOFTWARE ENGINEER

Emptor

Nov 2017 - Sep 2018

New York, NY | Remote

- Used AWS Step Functions to automate purchase of documents, store them in Amazon S3, and convert unstructured data to structured data.
- Enhanced data extraction script reliability by implementing a failover, switching to an alternative CAPTCHA solver service upon initial failure, significantly reducing failure rate.
- Developed approximately 150 Python Scrapy crawlers to automate information extraction from websites and PDF documents, contributing to Emptor's core product, Emptor's API.

#### BACKEND DEVELOPER

EnerKnol

Apr 2015 - Oct 2017

New York, NY | Remote

- Developed and managed over 300 Python Scrapy and Selenium crawlers.
- Developed a handyman library to offer ETL functions.
- Resolved bugs on the WordPress marketing website.

### EDUCATION

#### MASTER OF INFORMATION SYSTEMS SECURITY MANAGEMENT

Concordia University of  
Edmonton

Apr 2024 | Edmonton, AB

GPA 3.63/4

#### BACHELOR OF COMPUTER SCIENCE

SZABIST University

Jul 2017 | Karachi, PK

### PUBLICATIONS

#### DEMYSTIFYING THE GOOGLE DRIVE CHANGES API

Sep 2022 | Emptor Blog

#### HOW TO PERSUADE ENGINEERS TO ROTATE THEIR AWS ACCESS KEYS

Mar 2021 | Emptor Blog

### COURSEWORK

- Network Security
- Application and Cloud Security
- System and Virtualization Security
- Cryptology and Secure Network Communications
- Incident Response and Digital Forensics

### INTERESTS

Self-improvement, Creative pet projects, Open-source contributions