

# ALI ASGHAR MARVI

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## PROFESSIONAL EXPERIENCES

### KNIME Gmbh (Konstanz, Germany)

Mar 2021 – Present

#### Data Scientist

- Teamed up with the Educators Alliance division, focusing on evangelism strategies to augment KNIME's presence within academia. This initiative led to a noteworthy 30% rise in registrations among educators affiliated with the KNIME Educator's Alliance.
- Architected and implemented a time series extension within KNIME by leveraging the platform's Python node development library. Effectively constructed a wrapper around **Statsmodels** and **Pandas** date and time functionality.
- Played a pivotal role in designing and contributing to specialized spaces within the KNIME platform, focusing on Marketing Analytics, Supply Chain Analytics, and Digital Health Care.
- Named contributor in "[Machine learning for marketing on the KNIME Hub: The development of a live repository for marketing applications](#)" published in the Journal of Business Research, December 2021.
- Engineered an Arduino weather station integrated with KNIME Server API for data collection, followed by a comprehensive data pipeline for data backups and time series analysis.
- Actively engaged with the KNIME community by providing solutions and addressing queries on the KNIME forum.
- Collaboratively designed and taught **L4 - Data Engineering (DE)** and **L4 - Data Visualization (DV)** course in KNIME.

### JS Bank Pvt. Ltd. (Karachi, Pakistan)

Nov 2019 – Oct 2020

#### Automation Engineer

- Directed end-to-end ETL pipelines, and executed thorough data analysis spanning various departments including Branch Operations, Compliance Risk, and Human Resources. Skillfully designed impactful PowerBI dashboards and dynamic .NET charts, facilitating data-driven decision-making processes.
- Pioneered an optimized RPA service using **C#** and leveraging the **Selenium** library. Seamlessly automated the generation of withholding tax certificates for customer accounts upon request, resulting in a substantial efficiency gain—reducing a manual task that previously took 2 weeks to just 1 hour.
- Initiated and spearheaded the development of a user-friendly web portal in the cash management domain. This platform empowered branch teams to efficiently input end-of-day vault cash balances, resulting in enhanced data insights and improved cash management practices. Notably, this solution alleviated redundancy issues associated with managing multiple Excel files.
- Strategically engineered a cohesive workflow for the Customer Account Operations team, seamlessly integrating requests from both social banking and phone banking channels. This initiative led to a significant reduction in query processing time, decreasing from 3 days to within a single day.
- Collaborated on the construction and design of a robust data warehouse within the Hortonworks sandbox environment, focusing on employee attendance data, and conducted a comprehensive descriptive analysis for the Human Resources department.
- Conducted advanced **time series analysis** to forecast cash demand for the primary cash processing cell. Achieved a notable 30% reduction in costs associated with payments to insurance companies for holding excess cash in the branch's vault.

### K-Electric Pvt. Ltd. (Karachi, Pakistan)

Feb 2018 – Nov 2019

#### Assistant Manager – Information Technology

- Led the initiation and upkeep of diverse business applications catering to critical departments, including Meter Readings, New Connection, Human Resources, and Business Strategy, on both **.NET** and **Android** platforms.
- Innovated and implemented an automated customer e-billing subscription service using **.NET**, featuring a user-friendly interface that significantly improved the customer experience. This initiative successfully facilitated users in transitioning to receiving bills electronically via email instead of traditional paper copies.
- Expertly integrated Mobile Device Management SDKs, including VMWare AirWatch and IBM Maas360, into Android applications to enforce IT policies. This integration significantly bolstered security on field devices utilized by the operations team, ensuring a robust and protected mobile environment.
- Aligned deliverables with internal processes and rigorous regulatory standards for critical business applications, ensuring compliance with certified Request for Change (RFC) protocols.
- Generated timely custom ad-hoc reports and crafted interactive **QlikView** dashboards, providing insightful data to empower business users across departments including New Connection, Human Resources, Mobile Meter Reading, Geographic Information System, and Customer Care.
- Deployed **DenseNet** neural network to automate the input of consumer meter readings for field staff, collectively reducing the time taken by meter readers by several hours.

## EDUATION

### Masters in Computer Information Science

University of Konstanz

Oct 2020 – Jun 2023

### Bachelors in Computer Science

Institute of Business Administration, Karachi

Jan 2014 – Dec 2017

## TECHNICAL SKILLS

- **Languages & Development:** Python, JavaScript, Java, C#, R, KNIME
- **Libraries:** scikit-learn, Numpy, Pandas, Keras, Tensorflow, D3.js, matplotlib, seaborn
- **Frameworks:** Bootstrap, Flask, jQuery, Node.js
- **Database Tools:** PostgreSQL, SQL Server, MySQL, Oracle, MongoDB, Firestore
- **Cloud Technologies:** Microsoft Azure, Google Cloud, Firebase, Google Colab, Dialogeflow, AWS
- **BI Tools:** BIRT (KNIME), PowerBI, Qlikview, .NET Charts
- **Source Control:** Microsoft TeamFoundation, Git

- **CI/CD:** Docker, Gitlab
- **IDEs:** Visual Studio Code, PyCharm, Visual Studio, JupyterLab, Eclipse, Arduino IDE, Android Studio, Eclipse
- **Others:** Database Design, Pipeline Design, Data Analysis, Machine Learning, Deep Learning

## PROJECTS

### Master's Thesis

#### - Ensemble Methods for Image Quality Assessment using Individual or Group Ratings (*Konstanz, Germany*)

**Nov 2022 - July 2023**

- Employed **ensemble methods**, such as bagging, boosting, and stacking, in the domain of Objective Image Quality Assessment (IQA) utilizing the KonIQ-10k IQA dataset.
- Conducted meticulous data processing by delineating distinctive user clusters based on their ratings of similar images, leveraging Ward's minimum variance algorithm for Hierarchical Clustering (Agglomerative).
- Engineered structured Python scripts to proficiently train base models in diverse environments, seamlessly transitioning between cloud and local machines while adeptly managing numerical binaries.
- Evaluated the performance of ensemble methods on the test data sourced from the KonIQ-10k dataset, utilizing key evaluation metrics, including the Spearman-Rank Correlation Coefficient (SRCC) and Pearson-Linear Correlation Coefficient (PLCC) scores.

### Process Automation - CI/CD (*Konstanz, Germany*)

**April - July 2021**

- Orchestrated the refinement of research papers, managing the entire process from initial design to producing DBLP-compliant documents, utilizing Continuous Integration/Continuous Deployment (CI/CD) Process Automation within GitLab.
- Engineered Docker images to streamline the management of node.js and Python-based dependencies for multiple integration tests.
- Configured GitLab to adeptly manage Docker files and monitor the CI/CD pipeline, ensuring seamless integration and delivery.
- Effectively deployed refined research papers on the website interface, facilitating easy access and download.

### Karachi Civic Innovation Lab - Volunteer Application. (*Karachi, Pakistan*)

**Aug - Oct 2019**

- Developed a Flutter application catering to the needs of visually impaired users, allowing them to notify nearby volunteers through screen taps.
- Implemented user role management, distinguishing between admin, volunteer, and visually impaired persons for efficient application functionality.
- Engineered a cloud trigger in Node.js, deployed on Firebase, to facilitate prompt notifications on devices.
- Integrated Firestore for seamless management of user data and handling requests within the application.

### Spark Retail – Big Data Solution for Retail (*Karachi, Pakistan*)

**Jan - Dec 2017**

- Executed a comprehensive final-year project during the culmination of the Bachelor's program.
- Leveraged the Hortonworks sandbox environment to meticulously configure a robust four-computer cluster, incorporating Apache Hadoop, Spark, Oozie, Storm, Hive, Sqoop, and Zeppelin.
- Developed and implemented strategic bash scripts in the Linux environment, enabling the sequential shutdown and restart of services across each node in the configured cluster.
- Integrated external Relational Database Management Systems (RDBMS) and Business Intelligence (BI) tools for data visualization, enhancing the project's analytical capabilities.
- Formulated strategic methodologies for market research to assess the potential and industrial requirements of the developed product.