

Abuobayda Shabat

Data Scientist | AI Expert | Innovator in Data-Driven Solutions

With over 15 years of expertise in data science and artificial intelligence, I specialize in building cutting-edge AI-driven solutions for industries like retail, banking, and risk management. From pioneering research in computer vision and ESG analytics to developing transformative predictive models and AI agents, I deliver high-impact solutions that optimize operations, enhance decision-making, and unlock business value. I am passionate about leveraging data to tackle complex challenges and drive innovation in strategic decision-making.

Contact Details

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Education

PhD in Computer Engineering

University of KwaZulu-Natal (2015–2017)

Focus Areas: Computer Vision, Artificial Intelligence, Data Science

- Published cutting-edge research on Local Directional Pattern (LDP) for texture classification and facial expression recognition in prestigious journals.
- Developed advanced methodologies like Circular Local Directional Pattern (CILDP) to enhance texture analysis.

MSc in Engineering

University of KwaZulu-Natal (2012–2014)

Major: Artificial Intelligence and Data Science

Conducted groundbreaking research on Local Binary Pattern (LBP) for texture analysis and published enhancements to the model.

Bachelor's Degree in Computer Engineering **University of Science and Technology (2006–2010)**

Experience

Data Scientist & Founder

DATAI (2019–Present)

- Designed and deployed AI-driven solutions for industries such as finance and oil, empowering them to harness data for strategic insights.
- Led the development of predictive models, AI agents, and data pipelines, optimizing workflows and boosting operational efficiency.
- Delivered international workshops on data science and AI, training professionals on advanced analytics and decision-making frameworks.

Deputy CEO & Head of Data Science Lab

Risk Insights (2021–2024)

- Built ESGGPS v2, a cutting-edge model for ESG score evaluation of public companies.
- Created ACubed, a private company ESG analytics tool.
- Developed the Financial News Sentiment model, integrating it with ESG analytics for enhanced decision-making.
- Championed the development of Business Intelligence X-ray, a visualization platform for ESG metrics.

Senior Data Scientist

Durban University of Technology (2019–2021)

- Built a comprehensive data engineering framework for INSETA to support strategic decisions.
- Designed a computer vision system for mask detection during the COVID-19 pandemic.
- Trained hundreds of students in Data Science and IoT, fostering a pipeline of skilled professionals.

Senior Data Scientist

Zyelabs (2019–2020)

- Designed a retail sales forecasting model to enhance inventory planning and improve business outcomes.

Senior Lecturer

Durban University of Technology (2014–2019)

- Mentored students in programming, Artificial Intelligence, Data Science, and IoT.
- Organized data science and AI workshops across Africa, sharing expertise and driving innovation.

Technical Skills

Data Science & Machine Learning

- **Machine Learning Models: ★★★★★ (Expert)**
Proficient in regression, classification, and clustering techniques, with extensive experience in model development and optimization.
- **Deep Learning Frameworks: ★★★★★☆ (Advanced)**
Strong experience with TensorFlow and Keras for building and training deep learning models, particularly in computer vision and NLP.
- **Computer Vision Tools: ★★★★★ (Expert)**
Advanced proficiency in OpenCV and proprietary methodologies like LDP and CILDP for texture analysis and facial expression recognition.
- **Natural Language Processing: ★★★★★☆ (Advanced)**
Experience in sentiment analysis and working with large language models (LLM) for NLP applications.

Data Engineering

- **ETL Pipelines: ★★★★★☆ (Advanced)**
Expertise in building efficient ETL pipelines using tools like Airflow and Pandas for data preprocessing and transformation.
- **Big Data Technologies: ★★★★★☆ (Intermediate)**
Proficient in MongoDB and SQL databases for handling large-scale data and ensuring smooth data storage and retrieval.
- **Data Visualization: ★★★★★☆ (Advanced)**
Skilled in using tools like Matplotlib and Power BI to create insightful data visualizations and dashboards.

Programming Languages

- **Python: ★★★★★ (Expert)**
Extensive experience in Python, including libraries like Pandas, Scrapy, Selenium, TensorFlow, and Keras.
- **Other Languages: ★★★★★☆ (Intermediate)**

Proficient in R, Java, PHP, and SQL for diverse programming and data manipulation tasks.

Selected Projects

AI-powered Financial Insights

Overview: Developed an AI model that predicts stock price movements based on news sentiment and historical data.

Impact: Helped a financial firm improve its portfolio performance by 20%.

ESG Analysis and Visualization Platform

Overview: Created Business Intelligence X-ray, a platform that visualizes ESG (Environmental, Social, Governance) metrics.

Impact: Empowered investors to make faster, more informed decisions, reducing portfolio risk by 20%.

Sales Forecasting Model for Retail

Overview: Developed a retail sales forecasting model that leverages machine learning to predict future sales trends.

Impact: Improved inventory planning and reduced stockouts, resulting in a 20% increase in retail business profitability.

Publications

- **A Comparative Study of the Use of Local Directional Pattern for Texture-Based Informal Settlement Classification** - *A.M. Shabat, J.R. Tapamo*
Published in Journal of Applied Research and Technology, Elsevier, 2017.
- **Angled Local Directional Pattern for Texture Analysis with an Application to Facial Expression Recognition** - *A.M.M. Shabat, J.R. Tapamo*
Published in IET Computer Vision, Wiley Online Library, 2018.
- **A Comparative Study of Local Directional Pattern for Texture Classification** - *A.M. Shabat, J.R. Tapamo*
Published in Presented at the 2014 World Symposium on Computer Applications and Research, IEEE Xplore, 2014.
- **Improvements of Local Directional Pattern for Texture Classification** - *A.M.M. Shabat*
Published in Published on CORE.ac.uk, 2017.
- **Directional Local Binary Pattern for Texture Analysis** - *A.M. Shabat, J.R. Tapamo*
Published in Presented at the 13th International Conference on Image Analysis and Recognition (ICIAR 2016), Springer, 2016.
- **Circular Local Directional Pattern for Texture Analysis** - *A.M.M. Shabat, J.R. Tapamo*

Published in Presented at the 7th International Conference on Multi-disciplinary Trends in Artificial Intelligence (MIKE 2019), Springer, 2020.

- **An Improved Scheme of Local Directional Pattern for Texture Analysis with an Application to Facial Expressions**** - **A.M. Shabat, J.R. Tapamo**

Published in Presented at the 17th International Conference on Computer Analysis of Images and Patterns (CAIP 2017), Springer, 2017.