

Bassel AbdelReheem

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Summary

Motivated Computer Science senior student with a minor in AI at MIU, graduating June 2025. Passionate about data science, machine learning, and mobile app development. Experienced in real-world projects like spam detection, image processing, and full-stack platforms. Skilled in machine/deep learning and modern development tools. Eager to grow professionally, learn continuously, and contribute to innovative, dynamic teams. Eager to contribute to a dynamic work environment and achieve both organizational and personal goals.

Education

Misr International University(MIU) <i>Bachelor of Computer Science, Major in Ai</i>	KM 28 Cairo – Ismailia Road. Ahmed Orabi District, Egypt 2021 – 2025
Al-WAHA Language School <i>High School Diploma</i>	Mokattam, Cairo, Egypt 2008 – 2021

Experience

QNB Bank | IT division **July 2024 to August 2024**

- Rotated through six key IT departments: Architecture Design, Governance, Risk Compliance (GRC), Business Relationships, Emerging Technology, Technology Operations, Solutions Development, and Business Solutions.
- Gained hands-on experience in system architecture, risk management, business technology integration, and operational support.
- Developed a comprehensive understanding of IT operations and collaboration across various functions, enhancing knowledge of industry best practices and innovation.

Egypt Air | Web development **August 2024 to September 2024**

- Developed a platform for ticket reservation using the MERN stack and secure checkout.
- Ensured a seamless user experience with a responsive design, integrated administrative tools, and real-time analytics.
- Implemented an SEO-friendly architecture to boost visibility on search engines.

Projects

SONOCARDIA – Graduation Project | AI, Embedded Systems, Mobile App Sep 2024 - Expected June 2025

- Designed and developed a complete AI-powered heart disease detection end-to-end system combining hardware, AI models, and a mobile application, for early detection of heart conditions using heart sound and ECG data.
- Developed a custom hardware prototype using ESP32, MAX9814 microphone module, and additional sensors to capture high-fidelity heart sounds and ECG signals.
- Implemented machine learning and deep learning models including CNN with transfer learning and XGBoost to classify heart murmurs and predict heart diseases.
- Extracted and analyzed key audio features such as MFCC, mel-spectrogram, and chroma for accurate murmur detection.
- Enabled the system to identify murmur presence, location, timing (e.g., systolic), and characteristics such as shape, grading, pitch, and quality.
- Integrated the AI pipeline into a real-time mobile application for live data capture, on-device processing, and instant predictions.
- Achieved high classification accuracy with optimized runtime and patient-level analysis for reliable performance in practical scenarios.

- Collected and preprocessed historical stock price data.
- Implemented five predictive models: ARIMA, XGBoost, Ridge Regression, Linear Regression (WMA), and Gradient Boosting.
- Evaluated model performance using various metrics and visualizations.
- Documented methodologies, results, and insights in a research paper.

Smart Plant Monitoring System | *IoT, Mobile App, AI, Image Processing*

Apr 2025 - Jun 2025

- Developed an integrated smart system combining hardware sensors, a mobile app, and AI to monitor plant health.
- Designed and built a hardware unit with sensors to measure soil moisture, temperature, humidity, and light.
- Created a mobile application that displays real-time sensor data and alerts users of plant care needs.
- Trained an AI model to detect and classify plant diseases from images captured via the mobile app.

Document Analysis Using Deep Learning: Topic Identification | *NLP, Deep Learning* May 2025 - Jun 2025

- Developed a deep learning-based NLP system to automatically identify topics in text documents.
- Implemented and compared LSTM and GRU models for effective sequence learning and topic classification.
- Curated and preprocessed a high-quality dataset to ensure meaningful topic representation and robust model performance.
- Documented the methodology, experiments, and results in a detailed research paper.

Coin Classification | *Image Processing, Machine & Deep Learning*

Oct 2023 - Dec 2023

- Developed a system to automate coin identification and classification based on visual features.
- Collected and curated a dataset of coin images.
- Applied image processing(Data preprocessing - Feature extraction and selection) and machine & deep learning techniques (RF & VGG16) for accurate recognition.
- Documented methodology, results, and future development directions.
- Provides a foundation for advancements in coin recognition technology and practical applications

SCARAB | *MERN Stack, JavaScript, HTML, CSS*

Mar 2023 - Jun 2023

- Developed an e-commerce website using the MERN stack.
- Used HTML, CSS, and JavaScript for the frontend along with React.js for building the user interface.
- Implemented backend functionality with Node.js and Express.js.
- Built features like user authentication, product display, shopping cart, and basic CRUD operations
- Focused on responsive design and smooth user experience.
- Aimed to showcase full-stack web development and simulate a real-world online shopping platform.

TECHNICAL SKILLS

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|----------------|--------------------|-----------|--------------------------|
| • Python | • HTML/CSS | • Pytorch | • Java/JavaFX/JavaScript |
| • Flutter/Dart | • Microsoft Office | • SQL | • Tensorflow |
| • C/C++ | • GitHub | • PHP | • Overleaf |

RELEVANT COURSEWORK

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|-------------------|--------------------|---------------------|-------------------------|
| • Data Structures | • Network Security | • Intelligent Agent | • Database Management |
| • Software PM | • Machine Learning | • NLP | • Data Science & Mining |
| • Algorithms | • Advanced AI | • Game Development | • OOP |

SKILLS

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|----------------------|------------------------|---------------------|------------------------|
| • Problem Solving | • Teamwork | • Critical Thinking | • Attention to Details |
| • Project Management | • Fast learner | • Adaptability | • Decision-Making |
| • Time Management | • Communication Skills | • Decision-Making | |

LANGUAGES

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|-------------------|---------------------------|-----------------------|
| • Arabic (Native) | • English (Advanced High) | • German (Elementary) |
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