Sara Aly

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SUMMARY

Highly motivated software engineering enthusiast with a strong academic background and a passion for applying software engineering principles to solve real-world challenges. Experienced in algorithm design, system development, and software testing, eager to contribute innovative solutions in data structures, machine learning, and embedded systems.

TECHNICAL SKILLS

Programming Languages: Python, Java, JavaFX, C, C#, C++, HTML, CSS, VHDL, Verilog, System, Verilog ,React - **Software Tools:** Arduino IDE, Microsoft Office, Figma, JIRA, Confluence, Azure DevOps, MATLAB, Multisim, Pspice, Visual Studio Code, Github, Bash - **Hardware:** ARM7 LPC2148 Board, Terasic DE10-Lite, Xilinx FPGA board, CMOS - **Database:** MySQL, SQL, PostgreSQL, Power BI - **Languages:** English, Korean, Arabic (Egyptian, Levantine, Arabian Gulf Countries, Yemeni, North African)

EXPERIENCE

Data Analyst Intern
ConXtech **Sep 2024 – Dec 2024**
- Created a system database with Access, Excel, and Power BI to capture and analyze data from previous estimates and awarded projects.
- Built dynamic visuals and DAX algorithms with slicers in Power BI for quick and effective data analysis.

Research Assistant
CSUN ARCS **Sep 2024 - present**
- Developed a backup system for the Mars Helicopter to prevent crashes during system failure, researching hardware and system code to identify optimal solutions.
- Conducted in-depth analysis of Mars Helicopter components and failure modes, ensuring compatibility and robustness of backup protocols.

Research Assistant
California State University Northridge **Sept 2024 - present**
- Analyzed the impact of noise on a machine learning algorithm for optimizing data usage across multiple local workers, differentiating between data noise and communication noise.
- Performed mathematical modeling to assess and predict the effects of noise on optimization outcomes, enhancing system reliability and accuracy in distributed data environments.

AI/ML Engineer-Software Engineer Intern
PM Accelerator **Sep 2024 – Dec 2024**
- Built a robust system database using AWS RDS, pgAdmin, Django, and PostgreSQL to facilitate seamless data exchange between frontend and backend components.
- Developed a dynamic scheduling calendar with React, enabling students and mentors to automatically track sessions and progress along customized learning paths.

Teacher Assistant
California State University Northridge **Aug 2023 - May 2024**
- Assisted with grading over 100 weekly assignments, providing detailed and constructive feedback that resulted in a 20% improvement in overall class performance.
- Monitored progress and behavior for over 30 students, offering timely feedback to the lead teacher, which contributed to a 15% reduction in behavioral incidents.
- Provided one-on-one assistance to 10 students per week, leading to a 25% increase in the assignment completion rate and comprehension of key concepts

Data Analyst
Unipal **Jan 2021 - Jan 2022**
- Enhanced data analysis techniques by implementing advanced algorithms, improving data accuracy and processing speed by 25%.
- Developed a comprehensive database of universities, popular shops, and discount apps in Abu Dhabi to support Unipal's launch, streamlining data access and usability.
- Analyzed and translated survey responses into actionable statistical data and charts, enhancing data interpretation efficiency by 20%.

PROJECTS

Smart Prosthetic Arm (C++)
- Utilized C++ to implement Bluetooth technology, enhancing the integration of a foot controller into the Biomechanical Smart Prosthetic Arm, thereby improving user interface functionality and accessibility.
- Implemented wireless communication protocols in C++ to establish seamless connectivity between foot controller microcontrollers, ensuring efficient data transmission

AES-128 Algorithm Implementation (Verilog)
- Engineered and implemented a Verilog algorithm prioritizing efficiency and robustness, optimizing performance across diverse applications.
- Developed a secure encryption solution in Verilog tailored for versatile application scenarios, ensuring robust data confidentiality and integrity.

Parkinson's Disease Diagnosis using Machine Learning (MATLAB) – [Published]
- Engineered a machine learning model in MATLAB to facilitate early diagnosis of Parkinson's Disease through analysis of voice recordings.
- Employed advanced machine learning techniques to extract and classify voice features associated with Parkinson's Disease diagnosis.

Lost and Found System (Java/JavaFX)
- Developed a JavaFX-based user interface (UI) for seamlessly reporting lost items and claiming found items, prioritizing intuitive navigation and user experience.
- Implemented robust database functionality in Java to ensure efficient storage and retrieval of lost and found item records, optimizing system performance and reliability

Traffic Light System (VHDL)
- Designed and implemented a customized traffic light system using VHDL and integrated sensors, ensuring efficient operation and responsiveness.
- Developed algorithms in VHDL to regulate traffic flow and optimize signal timings dynamically based on real-time sensor data, enhancing overall traffic management efficiency.

EDUCATION

Bachelor of Science in Computer Engineering
California State University Northridge • 2024
- GPA: 3.94, Summa Cum Laude, Dean's List: Fall 2022 - Spring 2024, Joe and Nancy Owens Engineering Annual Scholarship, 50% Scholarship (AUBH)
- **Relevant Coursework:** Data Structures and Algorithms, Machine Learning, Software Engineering, FPGA Design using Verilog and VHDL, Electrical Engineering Fundamentals, Embedded System.

CERTIFICATIONS

Net Full-Stack Foundation (2024), Six Sigma White Belt (2024), Udacity Future Work in Digital: Web Development (2020), Udacity Future Work in Digital: Data Analysis (2020), Udacity Full Stack Developer Track (2018)