Sulthan Zahran Ma'ruf

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Working Experiences

GDC Developers @ LG CNS Indonesia/ LG Sinarmas Technology Solutions
Apr- Now // Full-time // Karawang, Indonesia

- Developed and maintained GMES (General Manufacturing Execution System) and RTD (Real-Time Dispatch) for LG ENSOL's battery factory.
- Participated in code reviews and mentored junior developers, promoting best practices testing and development.

Instrumentation-related Contract @ PT Polychemie Asia Pacific
Jan - Mar 2024 // Full-time // Jakarta, Indonesia

- Tasked with implementing a data acquisition system for temperature and flow on the laboratory.
- Exploring multiple approaches for data acquisition systems, including DAQ, PLC, and Arduino.
- Designed circuits using Arduino ADC, and thermocouple amplifier
- Coded the arduino for said circuits and the PyQt GUI that interacts with the arduino.

Research Assistant @ FAAN Lab, Universitas Indonesia
Oct 2023 - Mar 2024 // Full-time // Jakarta, Indonesia

- Engineered a Real-time Data Analyzer for advanced spectroscopic analysis using App Designer.

PLC Programmer @ PT Sugitama Intiarto
Jun - Jul 2022 // Internship // Tangerang Selatan, Indonesia

- Worked on cream spreader machine programming, which includes PLC programming and HMI designing.

Projects

Real-time Spectroscopy Analyzer Application
Technology: MATLAB

- Developed a MATLAB-based GUI for spectroscopic data analysis using App Designer.
- Featured with dynamic spectrometer settings. Integrated with advanced peak detection,fitting for precise analysis, and band gap estimation via Tauc plots.
- Added functionalities for historical data analysis, automated reference finding and enabled historical data playback.

Automated Probe System using Arduino
Technology: Arduino, Python, Tkinter

- Developed a high-precision probe system, Integrating a stepper motor for precise movement control and ADS1232 for efficient and accurate data acquisition.
- Created a Python-based GUI with Tkinter for seamless operation, data management, and visualization.
- Designed a simulator with DAC MCP4725 to simulate sensor output for ADC testing and validation.

Organizational Experience

Programming PIC @ Universitas Indonesia Robotics Club
Jun 2020 - Aug 2021 // Jakarta, Indonesia

- In charge of programming of Line Follower Robot.
- In charge of programming and electrical on Digital Twins-based Robot.
- In charge of integrating cameras with the arena to enable Digital Twins Arena.

Skills

Programming Languages
Python, C#, MATLAB, C/C++,

Relevant Course Taken:
College:
Computational Physics, Mathematical Physics Electronics, Measurement Physics, Embedded Systems, Digital Signal Processing, Control Systems, Sensors and Actuators, Instrumentation Physics

Data Tools and Libraries
MySQL, Snowflake, Apache Airflow, DBT

Libraries and Frameworks
Pyomo,SciPy, Numba, TensorFlow, PyTorch

Tools & Platforms
Git, Docker, Cloud Platforms (AWS, Azure, GCP), Linux

Spoken Language
Indonesia: Native
English: IELTS 7.5/9

Education

Universitas Indonesia
2019 - 2023 // Depok, Indonesia

Bachelor of Science in Instrumentation Physics (*Thesis*: Development of an Arduino-Based Automated Probe System for data acquisition, Integrating external ADC and Stepper Motors for controlled movement)

Awards

4th on Hero HPL Challenge
IndySCC 22 held by ACM/IEEE Supercomputing Conference, Dallas (US) 2022
Technical skills learned from this competition:

- Distributed/Parallel Scientific Computing
- Cloud Computing (Chameleon Cloud)
- Benchmarking
- Slurm Workload Manager Setup
- Networking
- Bash Scripting