Alia **Morsi**

✉ alia.morsi@aucegypt.edu | ▢ (+20) 1006621551 | ◉ Cairo, EG | ⌗ www.aliamorsi.com,
https://github.com/alia-morsi

Education

The American University in Cairo (AUC)   *Cairo, EG*
BS in Computer Science   *Fall 2013*
GPA: 3.97

Experience

KarmSolar   *Cairo, EG*
Senior Software Developer   *April 2016 – July 2017*
- Worked in a small team (2-4 developers) in high capacity >45 KW Solar Water Pumping (SWP) applications
- Planned, designed, and implemented required SWP proof of concept tests for new ideas
- Created the system architecture for some of the team's projects
- Defined necessary interfaces for projects: IO wires (Digital/Analog), RS-485 (protocol payloads) and Web Services
- Planned and implemented necessary code refactors and bug fixes for installations
- Led the deployment and testing for code updates to installations, through small scale test setup and high capacity site tests

KarmSolar   *Cairo, EG*
Junior Software Developer   *July 2013 – April 2016*
- Developed applications to manage our SWP installations on Off-Grid farms (Note Syncing and Well Monitoring)
- Helped set up department procedures to accommodate for the growing team, for better resource sharing & source control management (VPN setup, git access, email)
- Gathered a basic understanding of the workings of PV power electronics

Skills

Programming Languages: Proficient: C++ and LabView. Familiar with: Python, Java, and JavaScript
Frameworks: Familiar with: Twitter Bootstrap, Django
Tools: Source Control: git, Bug Tracking: bugzilla

Projects

Porting SWP control from LabView to C++ to run on STM boards
In order to move away from National Instruments Compact Rio (CRio) devices for our SWP installations, It became necessary to port our codebase from LabView to C++ for it to be runnable on a wider range of hardware. Project included re-architecting the system since LabView and C++ offer completely different constructs

Hybrid SWP drive: Load Sharing between 2 sources
To run a constant speed load with solar power using Maximum Power Point Tracking (MPPT), another source (Generator) is coupled to the solar DC bus. Control ensures maximum power is supplied from the solar source. It is a variation of our initial SWP solution's finite state machine

Off Grid Sensor Network infrastructure with Arduino based nodes
The idea is to wirelessly aggregate sensor readings to an on-site server. For the primary version of the system, sensor nodes were developed using Arduinos and a custom shield that provides multiple sensor interfaces (current, voltage, and RS-485) and wireless connectivity (RF).

Initial Version of Patent Winning Variable Speed SWP control on National Instruments CompactRio devices using Fuzzy Logic
Project involved the design and development of the system's finite state machine (FSM) developed on ~30 solar wells to date.

Honors & Awards

2015 **Patent**, Teirelbar, Ahmed and Morsi, Alia. System and method for maintaining a photovoltaic power source at a maximum power point. US 14/738, 113, filed June 12, 2015

2013 **Short Paper Publication**, A. Morsi and A. Rafea, "Studying the impact of various features on the performance of Conditional Random Field-based Arabic Named Entity Recognition," 2013 ACS International Conference on Computer Systems and Applications (AICCSA), Ifrane, 2013, pp. 1-5.

March 2017 **1st Place at Alexa Hackathon in AUC**, Put together a prototype of a facebook linked Alexa Skill that manages your events