GHALEB ALJAIUOSSI

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PERSONAL STATEMENT

Electrical engineer with experience in digital electronics and layout design for VLSI. Moreover, A detailed and capable researcher with two years of experience in the application of nanotechnology in semiconductor materials and devices research. Extensively published in technology and science journals, with related expertise in the design of photovoltaic devices. A confident lecturer in the classroom, simplify and deliver complex information to an audience of all levels.

EXPERIENCE

AUG 2022 – SEP 2022

QUALITY ANALYST, *WEBHELP-JORDAN-IRBID SITE*

- Analyzing the data of moderators' work and performing a root cause analysis (RCA) to determine the main source that affects the accuracy.
- Designing and performing corrective and preventive action plans according to the SMART model to cure the problem and prevent it from happening in the future.

MAY 2022 – AUG 2022

CONTENT MODERATOR, *WEBHELP-JORDAN-IRBID SITE*

Reviewing the content of the client and preventing any violations according to a set of flexible and changeable policies.

AUG 2018 – JAN 2020

RESEARCH ASSISTANT, *NANOTECHNOLOGY INSTITUTE, JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY*

- Conducting the simulations and data analysis of various research projects.
- Two lectures as an introduction to the COMSOL Multiphysics platform for designing and modeling different nanostructures and nanodevices, Multi-Scale and Multi-Physics Modeling course (Nano 704).
- Tutored students in solar cell physics and principle of work and assisted Dr. Yahia Makableh in semester project preparation and discussion evaluation, Renewable Energy Systems course (ME 721).
- Trained two graduate students to use the COMSOL Multiphysics platform to model and design the thermal and electrical behaviors of perovskite solar cells for their thesis work. In addition to explaining the solar cell physics and principle of work and working with them to set up the optimized solar cell model.
- Record a series of training videos to enable students to master the use of COMSOL Multiphysics in their research, as training material for future students at the institute.

MAY 2016 – JAN 2017

ANALOG LAYOUT DESIGN ENGINEER, *GOLDEN ELECTRONICS, AMMAN, JORDAN*

Developed a hierarchical Layout design for VLSI of analog ADCs and DACs for Synopsys, according to Logic Circuit Schematics, verified by LVS and using the DRC of TSMC and Intel.

- Worked within a team to design a hierarchal ADC using the TSMC 22nm.
- Participated in building a library of TSMC 16nm FinFET technology for a hierarchal DAC.
- Trained in designing digital layouts using intel DRC of different gate length technologies.

EDUCATION

OCT 2019

MSC IN NANOTECHNOLOGY AND ENGINEERING, *JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, IRBID, JORDAN*

Thesis title: "Improving the Stability of Perovskite Solar Cell Lifetime by Designing Ultraviolet Light Filter"

FEB 2016

BSC IN ELECTRICAL ENGINEERING – POWER & CONTROL, *JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, IRBID, JORDAN*

PROJECTS

AUG 2018 – JAN 2020

PEROVSKITE SOLAR CELL, *JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, IRBID, JORDAN*

The project aimed to study and improved the performance and efficiency of perovskite solar cells. This main goal divided the big project into many subprojects, and my thesis was one of them. I was a key researcher on the project under the supervision of Dr. Makableh. The main outcomes of this project are:

- **Designed and optimized the electron transmission layer of the perovskite solar cell to achieve maximum optical efficiency, using different materials and thicknesses.**
- **Proposed and designed UV-light nanostructured filter that achieved 75% improvement in UV-light blocking with minimal effect on visible light energy.**
- **Designed front and back contact materials in a way that achieved a 57% reduction in the maximum temperature of the cell.**
- **Proposed and fabricated sandwich nanocomposite structure that improves the stability of the perovskite layer for more than 2000hr.**

SEP 2019 – JAN 2020

THERMOCHROMIC-BASED SMART WINDOWS, *JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, IRBID, JORDAN*

The project's goal was to design a thermochromic layer sandwiched between two antireflection coating layers to get the maximum possible solar modulation. The outcome of this project was a structure that achieves 10.4% of solar modulation with a reasonable amount of luminous transmission in both: metallic and semiconductor states.

APR 2020

CNC MACHINE, *FOR OWN USE*

The CNC machine was built for personal use and to take advantage of free time during the COVID-19 pandemic and the lockdown back then. The machine was built using Arduino UNO, NEMA 23 Stepper motors, and different electronic and mechanical parts.

TECHNICAL COMPETENCIES AND SKILLS

- **Experienced in Research methodologies, Technical Writing, Data Analysis, and Design of Experiments.**
- **Trained in using characterization devices such as Four Probes, Parametric Analyzer, Optical Tweezer, Ellipsometry, and Profilometer.**
- **Have a great experience in nanoparticle synthesis using the Sol-gel Technique.**
- **Familiar with working in a cleanroom environment class 1000.**
- **Excel in using the COMSOL Multiphysics simulation package to design and study the performance of different devices and structures using Multiscale and Multiphysics.**
- **Skilled in programming languages and electrical simulation programs, such as:**

- Embedded C
- C++
- Arduino
- Assembly Language
- Proteus
- MATLAB
- Python
- JavaScript
- HTML
- CSS
- PSim
- OrCAD
- AutoCAD
- VHDL
- Simulink

PUBLICATIONS

- Makableh, Y.F., Daibes, M. and Aljaiuossi, G., 2021. Large optical and structural enhancement by designing VOx nanostructures for smart windows applications. Materials Science and Engineering: B, 270, p.115216.
- Makableh, Y.F., Al-Abed, R. and Aljaiuossi, G., 2021. Stability and optical enhancement of perovskite materials by nanocomposite PMMA sandwich structure in an open air environment. Journal of Materials Science: Materials in Electronics, 32(6), pp.7106-7122.
- Makableh, Y.F., Hassan, W., Awad, I.A. and Aljaiuossi, G., 2021. Comprehensive Electrical modeling analysis of Heterojunction Perovskite Solar Cells by using different electron transport nanostructured layers. Superlattices and Microstructures, 150, p.106777.
- Makableh, Y.F., Awad, I.A., Hassan, W. and Aljaiuossi, G., 2020. Enhancement of the thermal properties of heterojunction perovskite solar cells by nanostructured contacts design. Solar Energy, 202, pp.204-209.
- Makableh, Y.F. and Aljaiuossi, G., 2020. Optical design of hole transmission nanostructured layers for inverted planar perovskite heterostructure solar cells. Semiconductor Science and Technology, 35, p.095018.
- Aljaiuossi, G., Makableh, Y.F. and Al-Fandi, M., 2019. Design and optimization of nanostructured UV-filters for efficient and stable perovskite solar cells. Semiconductor Science and Technology, 34(12), p.125014.
- Makableh, Y.F., Aljaiuossi, G. and Al-Abed, R., 2019. Comprehensive design analysis of electron transmission nanostructured layers of heterojunction perovskite solar cells. Superlattices and Microstructures, 130, pp.390-395.