

Mina Dawoud Mikhail

Mechanical Design and Production Engineering Dept.,
Faculty of Engineering, CAIRO UNIVERSITY.
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EDUCATION

Cairo University, Cairo, Egypt.

Master of Science (M.Sc.) in Mechanical Engineering,

Oct 2011-Dec 2015 Tent.

Thesis: **Optimum design of cantilever slitted beams for broadband energy harvesting**

Research areas: Mechanical vibrations, Optimum design.

Cumulative GPA: 3.7/4.00

Bachelor of Science (B.Sc.) in Mechanical Design and Production Engineering.

Oct 2007-May 2011

Graduated with Honors, Ranked 4/70.

Thesis: **Control of Active Magnetic Bearings.**

Cumulative GPA: 3.7/4.00

TEACHING EXPERIENCE

Duties: Prepare and conduct tutorials; grade exams, assignments, and projects; hold weekly office hours.

CAIRO UNIVERSITY

Teaching Assistant at Mechanical Design and Production Engineering Dept.

Jan. 2012-Present

Courses:

Mechanical Systems Design (MDP 403): (spring 2012, 2013, 2014)

Mechanical Design I (MDP 303): (spring 2013, 2014, 2105)

Mechanical Engineering Drawing (MDP 104): (spring 2012, 2014, 2105; fall 2012, 2013, 2014, 2015)

Graphics and Engineering Drawing (MDP 002): (spring 2012, 2013; fall 2012, 2013, 2014, 2105)

The American University in Cairo

Teaching Assistant at Mechanical Engineering Department

Spring 2012- Spring 2014

Courses:

Mechanical Engineering Drawing (MENG 2505): (spring 2013, 2104; fall 2012)

Descriptive Geometry and Engineering Drawing (ENG 1005): (spring 2012, 2013, 2014; fall 2012, 2014)

RESEARCH EXPERIENCE

CAIRO UNIVERSITY

Research Assistant at Mechanical Design and Production Engineering Dept.

Jan. 2012-Present

- Research assistant Design group / Mechanical Design lab.
- Graduation Project: **Control of Active Magnetic Bearings.**

Supervised by Professor: Aly Elshafei.
Grade: Distinction.

Project Description: Design a real-time controller to control levitation in a magnetic bearing system. Obtained magnetic bearing characteristics using COMSOL electromagnetic FEM simulation and used the data to simulate bearing using a MATLAB Simulink Non-linear model. Simulink model was used to design a PID controller which successfully controlled the bearing. Model was verified with real bearing using System Identification Techniques. Sep. 2010- Jul. 2011

The American University in Cairo

Research Assistant at Mechanical Engineering Department.

DEC.2012-Present

- Research assistant Dynamics group / Mechanical Vibrations Lab.
- Vibration Energy harvesting: The objective of this work is to design and optimize multi-modal vibration energy harvesters. The harvesters designs are optimized so as to possess four closely-spaced natural frequencies, which provide the desirable bandwidth across which the harvesters could extract energy; also an optimization was carried on to maximize the output voltage . Dynamic models were built to simulate the harvester, and these models are supported by experimental validation.

ACADMICS HONORS AND R EWARDS

Prize for outstanding academic achievements from Cairo University, Faculty of Engineering
For B.Sc Project "Control of Active Magnetic Bearing."

2011

PUPPLICATIONS

Mina Dawoud, Hesham Hegazi, Mustafa Arafa "Design and Optimization of Multi-Modal Vibration Energy Harvesters Using Slitted Beams" *Proceeding of ASME 2014 International Mechanical Engineering Conference and Exposition (IMECE 2014)*, November 14-20, 2014, Montreal, Canada.

LANGUAGES

Arabic: Native language.

English: Fluent.

TECHNICAL SKILLS

Text Editing and Illustration: LATEX, MS office.

Programming: MATLAB.

CAD: Solidworks, AutoCAD.

FEM: COMSOL.

Control and DAQ: MATLAB Real Time Windows Target, MATLAB Data Acquisition Tool Box, LABVIEW.

REFERENCES

Prof. Mustafa Arafa

Professor of Mechanical Engineering
Mechanical engineering Department,
The American University in Cairo,
New Cairo 11835, Egypt.
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Asst. Prof. Hesham Hegazi

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Faculty of Engineering, Cairo University.
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