Curriculum Vitae

KHALID M. ABD EL AZIZ
ASSISTANT LECTURER,
MECHANICAL DESIGN AND PRODUCTION DEPT.,
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Education

- **M.Sc.** Mechanical Design and Production (03/2014)
    - **Cairo University, Faculty of Engineering**
    - **Supervisor:** Sayed M. Metwalli, PhD., Professor Emeritus of Machine Design, Cairo University, Life Fellow ASME, Fellow SME.
    - **Concentration:** Mechanical Design.
    - **Courses GPA:** 3.5.
    - **Thesis title:** Optimum Design of Solar Water Desalination Systems by Humidification and Dehumidification.
- **B.Sc.** Mechanical Design and Production (2009)
    - **Cairo University, Faculty of Engineering**
    - **Grade**: Very Good.
    - **GPA**: 3.5.
    - **Graduation Projection**: Three-wheel CVT vehicle
        - **Grade**: Distinction
        - **Supervisor:** Sayed M. Metwalli, PhD., Professor Emeritus of Machine Design, Cairo University, Life Fellow ASME, Fellow SME.

Academic Career

- **Cairo University, Faculty of Engineering** (Jan 2011 – Present)
    - **Title**: Assistant Lecturer (Mechanical Design concentration).
    - **Website:** http://eng.cu.edu.eg
    - **Tasks**:
        - Assist in teaching and carry out exercise sessions in:
            - Mechanical Engineering,
            - Machine Design,
            - Mechanical System Design,
            - Engineering Drawing,
            - Mechanical Drawing and Assembly and
            - Solid Modeling.
        - Mentor graduation project student groups.
- **Science and Technology Development Fund** (Mar 2011 - Present)

- o **Project:** Solar Water Desalination (# 3832), also supported by U.S. Department of Agriculture.
- o **Title:** Researcher.
- o **Tasks:** Improvement, modeling, simulation and optimization of the humidification-dehumidification solar water desalination system.
- o **Egypt Team members:**
  - **Sayed M. Metwalli**, Professor Emeritus of Machine Design, Cairo University, Life Fellow ASME, Fellow SME.
  - **Ashraf O. Nassef**, Professor, Dept. of Mechanical Engineering, American University in Cairo.
  - **Mohamed El Morsi**, Associate Processor, Dept. of Mechanical Engineering, American University in Cairo.
  - **Ahmed Y. El Sabaawy**. Research and Teaching Assistant, Cairo University.
- o **U.S. Team members:**
  - **Kazuhiro Saitou**, Professor, Dept. of Mechanical Engineering, University of Michigan, Ann Arbor.
  - **Karim Hamza**, Senior Research Fellow, Dept. of Mechanical Engineering, University of Michigan, Ann Arbor.

Professional Career
- **IDACO Egypt** (Jan 2010 – Jan 2011)
  - o **Business type**: Automotive wiring harness manufacturing. (http://www.idaco-egypt.com).
  - o **Title**: Senior Mechanical R&D Engineer.
  - o **Tasks**:
    - Reverse engineer wire crimping tools.
    - Design and manufacture wiring harness testing modules.
    - Design and prototype electronic device casings.
    - Other CAD/CAM tasks.
- **El Motaheda Web** (June 2009 – Jan 2010)
  - o **Business type**: Web development firm (http://www.elmotaheda-web.com).
  - o **Title**: Development Manager
  - o **Tasks**: handle design and implementation of various websites and other web related services.

Publications
- Abd El-Aziz, K. M., El-Morsi, M., Hamza, K., Nassef, A., Metwalli, S. M. and Saitou, K., "Optimum Solar-powered HDH Desalination System for Semi-isolated Communities," in IDETC/CIE. 12876, Portland, Oregon, 2013.
- Abd El-Aziz, K. M., "Optimum Design of Solar Water Desalination Systems by Humidification and Dehumidification", M.Sc. thesis, defended January the 21st 2014.
- Abd El-Aziz, K. M., El-Morsi, M., Hamza, K., Nassef, A., Metwalli, S. M. and Saitou, K., "Optimum Solar HDH Desalination for Semi-isolated Communities using HGP and GA's," in IDETC/CIE. Buffalo, NY, 2014.

Computer Programming Experience
- System and component modeling framework written in C#.
- **LTD Simulation**: GUI program for simulating yearly performance and for optimization of various solar humidification-dehumidification desalination system models.
- **NURBS OpenGL**: GUI program for B-Spline surface fitting and plotting.
- Thermodynamic water property calculator (IAPWS IF-1997)
- Thermodynamic humid air property calculator (ASHRAE)
- Sun angle and irradiance calculator. (equations from powerfromthesun.net book)

Abilities

- **Databases**: access, manipulation, query generation.
- **Computer Networking**: Setup, programming, optimization.
- **OpenGL** (Open Graphics Library).
- **Language Parsing and Compilation**: creating compilers for new languages in C, C++, C#.
- **Parallel processing**: Multi-thread, Multi-process systems.
- **Graphical User Interface**: Design, development in C#, Java, C++.
- **Linux system administration**: Kernel compilation, software installation, remote management, backups.
- **Website development and deployment**: E-Commerce, News, Business …

Computer Software Experience
- **Matlab**:
  - Plotting, curve fitting, surface fitting.
  - Optimization, equation solving.
  - GUI development.
- **Solidworks 2012**:
  - 3-D modeling.
  - Drafting.
  - Sheet metal.
- **Catia V5**:
  - 3-D modeling.
  - Machining, G-Code generation
- **Ansys**: Finite element analysis
- **COSMOSM V2.9**: Finite element analysis
- **Microsoft Visio**: schematic drawing.

Hobbies
- Cooking: stir-fried food, any wheat dough, and bakery.
- Running.

References
- **Prof. Sayed M. Metwalli**:
  - Professor Emeritus of Machine Design, Cairo University, Life Fellow ASME, Fellow SME

- o Graduation Project and M.Sc. thesis supervisor
- o metwallis2@asme.org
- **Prof. Laila S. Bayoumi**:
  - o Professor, Head of the Department, Mechanical Design and Production Department, Cairo University
  - o lsbayoumi@gmail.com
- **Prof. Badr S. Azzam**:
  - o Professor, Mechanical Design and Production Department, Cairo University
  - o Taught several courses under his supervision
  - o badr_azzam@yahoo.com
- **Dr. Mohamed El-Morsi**:
  - o Associate Professor, Dept. of Mechanical Engineering, American University in Cairo
  - o In the STDF project, he supervised my solar HDH desalination modeling
  - o melmorsi@aucegypt.edu
- **Dr. Karim Hamza**:
  - o Senior Research Fellow, Dept. of Mechanical Engineering, University of Michigan, Ann Arbor
  - o In the STDF project, he supervised my solar angle calculation work and various other issues.
  - o khamza@umich.edu