Mohamed Abdou Mahran Kasem

Aerospace Engineering Department, Cairo University, El-Gamaa St., Giza, 12613, EGYPT
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Sex Male | Date of birth 07/11/1987 | Nationality Egyptian

Mahran received his B.Sc. and M.Sc. Degrees in Aerospace Engineering in 2010 and 2015, respectively, with a grade of distinction with honors. He received his PhD degree from the same department in September 2018. Kasem has been a visiting Fulbright Ph.D. student at Duke University, North Carolina, USA for one academic year (2017/2018) as part of his PhD research.

Mohamed has a keen interest in the field of aero-structural analysis and design. He is an expert in Aerospace Structures with 7+ years' experience lead research and teach courses. Mahran is talented professional with an extensive background in Finite Element Modeling. He has twelve publications in the field: four journal articles, seven conference proceedings, and a book. His areas of interest include Aeroelasticity, Finite Element Analysis, Composite Structures, Design Optimization, and Project Management.

EDUCATION

PhD	**Cairo University**, Aerospace Engineering Dissertation: "Elastic and Aeroelastic Analysis of Aircraft Metallic, Composite, and Smart Wings"	Sep. 2015 – Sep. 2018
	Visiting Fulbright student at Duke University working with Prof. Earl Dowell for one academic year.	Aug. 2017- May 2018
	Pre-PhD with grade of Distinction (*GPA: 4.00/4.00)*	May, 2016
MSc	**Cairo University**, Aerospace Engineering Thesis: "Tailoring of Composite Swept Wings for Enhanced Aero-elastic Characteristics."	Sep. 2011 - Jan. 2015
	Pre-MSc with grade of Distinction (*GPA: 3.95/4.00*)	May, 2011
B.Sc.	***Cairo University**, Aerospace Engineering* Minor in Aerospace Structures (*GPA: 3.81/4.00*)	Sep. 2005 - May 2010
	Graduation Project: "Fully design and manufacturing of a carbon fiber Mini Unmanned Aerial Vehicle (Flying Wing)", Distinction grade	

HONORS AND AWARDS

Ph.D fellowship, Cairo University	Sep. 2015 – Sep. 2018
The FULBRIGHT/AMIDEAST grand to pursue part of the PhD studies at Duke University, Durham NC, USA with Prof. Earl Dowell (William Holland Hall Professor of Mechanical Engineering in the Edmund T. Pratt, Jr. School of Engineering**).**	August 2017 – May 2018
Faculty of Engineering Award for managing the Aerospace Day (Workshop) 2017, sponsored by Boeing Company	July 2017

Qualifying Program from Misr-Elkheir Foundation, Egypt Scholar 2013 – 2015

The program offers a variety of courses in

- English and Mathematics which have been taken at AMIDEAST center, Giza.
- Change management, Research Methodology, Scientific thinking, Problem Solving, Management Research Team, Self-learning and Assessment, Stress Management, Scientific Publication, and Research Ethics which have been taken at the Faculty and Leadership Development Center (FLDC) and certified by the American Institute of Professional Studies.

Graduation project has been awarded the title of Best Project in Mechanics from July 2010

Egyptian Engineering Day (EED), Samsung Real Dreams Award (SRDA), and Young Innovation Award (YIA)

Ideal student for Aerospace Engineering Department April 2010

Outstanding student, Faculty of Engineering, Cairo University

Award to top 2% 2010

Dean's list, Faculty of Engineering, Cairo University 2006 - 2010

RESEARCH EXPERIENCE

Duke University, Durham NC, USA

- Conduct experiments at Duke libraries with Prof. Earl Dowell **(**William Holland Hall Professor of Mechanical Engineering in the Edmund T. Pratt, Jr. School of Engineering**).** Aug. 2017 – Sep. 2018

- Worked as a research assistance in WAELC group (The West African E-library Collaborative) Nov. 2017 – April 2018

  The WAELC group interests in studying and improving the electronic libraries at the African Universities.

Cairo University, Giza, Egypt

Graduate Research Assistant, Aerospace Engineering Department

- Developed a MATLAB code for the Aeroelastic analysis of composite plate wings. Nov. 2011 – Sep. 2018
- Assisted in a fuselage structural design project using MS-Nastran program
- Assisted in a vertical wind turbine design project using Siemens-NX Unigraphics and ANSYS programs.
- Guided 10+ projects in structural analysis, finite element, and optimization.

Unmanned Aerial Systems Development Center (UDC) Sep. 2011 – Nov. 2012

- Design and manufacturing the structure of a 1KW-6m Diameter Wing Turbine Blades using fiberglass.
- Conduct courses in geometric modeling using Siemens-Nx.

TEACHING EXPERIENCE

American University in Cairo (AUC), Cairo, Egypt (part time)

Teaching Assistant, Mechanical Engineering Department Sept. 2012 – Dec. 2017

- Prepare and conduct Lab tutorials in Finite Element Analysis using ANSYS, covering the finite element modeling of trusses, beams, frames, and plates.

Cairo University, Giza, Egypt

Assistant Lecturer, Aerospace Engineering Department — Sep. 2015 – Sep. 2018

- Prepare and conduct tutorials in Structural Mechanics and Aircraft Structural Analysis and Design, covering theory of elasticity, theory of plates and shells, finite element analysis, Energy methods, composite structures, and structural dynamics.
- Taught Finite Element Analysis Using FEMAPE course, covering the static and dynamic analysis of aircraft structures, such as wings or fuselage, using the finite element method.
- Taught Finite Element Analysis Using COMSOL Multiphysics course.
- Member in the management team of the Aerospace Engineering Department Quality Control.
- Instructor for Lab. Courses in Programming using MATLAB, MATHEMATICA, Finite Element Analysis using ANSYS. — March 2011 – Sept. 2015

Teaching Assistant, Aerospace Engineering Department

- Prepare and conduct tutorials in Structural Mechanics and Aircraft Structural Analysis and Design.
- Prepare and conduct lab tutorials in Finite Element Analysis using FE-MAP.
- Instructor for summer training courses in MATLAB, MATHEMATICA and Siemens-NX UNIGRAPHICS.
- Guided a number of projects in Aircraft Structural Analysis
- Taught courses in Modeling using Siemens-NX Unigraphics program

Teaching Assistant, Mathematical Department (part time) — Sep. 2011 – May 2017

- Prepare and conduct tutorials in Ordinary Differential Equations.
- Prepare and conduct tutorials in Linear Algebra.

PUBLICATIONS

Articles accepted to publish in journal with peer-review:

Mohamed Mahran Kasem, Hani Negm, Adel ELsabbagh, "Aeroelastic Modeling of Smart Composite Wings Using Geometric Stiffness". Journal of Aerospace Engineering, ASCE 2018, accepted in Jun 2018.

Mohamed Mahran Kasem, Earl Dowell, "A study of the natural modes of vibration and aeroelastic stability of a plate with a piezoelectric material". Smart Materials and Structures, IOP science 2018; 27 (7).

Mohamed Mahran, Adel ELsabbagh, Hani Negm, "A Comparison Between Different Finite Elements for Elastic and Aero-elastic

Analyses". Journal of Advanced Research, Elsevier 2017; 8 (6): 635-648.

M. Mahran, H. Negm, A. Elsabbagh, "Aero-elastic characteristics of tapered plate wings". Finite Element in Analysis and Design, Elsevier 2015; 94: 24-32.

Articles accepted to publish in conference proceeding

Accepted on the basis of detailed abstract

Mohamed Mahran Kasem, "Studying the effect of engine mass on composite wings elastic and aeroelastic stabilities using the finite element method". ICFD 13, December 2018, Cairo, Egypt.

Accepted on the basis of abstract only

M. Mahran, H. Negm, A. Elsabbagh, and K. Maalawi, "Aero-elastic analysis of composite plate swept-wings using the finite element method". ICCS18, June 2015, Lisbon, Portugal.

M. Mahran, H. Negm, A. Elsabbagh, and K. Maalawi, "Aeroelastic analysis and optimization of composite plate wings." *ECCM17, June 2016, Munich, Germany.*

M. Mahran, H. Negm, A. Elsabbagh, "Composite Wing Finite Element Analysis Including Piezoelectric Patches Using Smart Triangular Shell Elements", ICCST11, April 2017, Sharjah, United Arab Emirates.

M. Mahran, H. Negm, A. Elsabbagh, "Investigating the Elastic Performance of Metallic Wings with Piezoelectric Actuators using Smart Triangular Finite Element", IEICES, October 2017, Kyushu, Japan.

M. Mahran, H. Negm, A. Elsabbagh, "Review of Optimization Methods with Comparison", IEICES, October 2017, Kyushu, Japan.

Mohamed Mahran Kasem, "Investigating the Effect of Engine Mass on Plate-like Wings' Stability using the Finite Element Method", ASAT18, April 2019, Cairo, Egypt.

Published Books

M. Mahran, H. Negm, A. Elsabbagh, Aero-elastic analysis of plate wings using the finite element method. Lab Lambert Academic Publishing, Germany 2015.

PRESENTATIONS AND INVITED LECTURED

- "Novel Finite Element Model for Aeroelastic Analysis of Smart Wings," The 4th Annual Fulbright Alumni Conference, Cairo, Egypt. — Oct. 2018
- "Wind Turbine Blades Structural Design and Manufacturing," — April 2017

Small Wind Energy Made in Egypt, Workshop, BUE, Cairo, Egypt.

- "Aeroelastic Tailoring of Composite Wings," IWAVE2014, Workshop, Ain Shams University, Cairo, Egypt. — Nov. 2014

PROFESSIONAL TRAINING

- PMP training course, certified from Omega Company, Engineering Syndicate club, and the Egyptian Engineering Syndicate. — Sep. – Oct. 2018
- Working with Literature and Citations, *DAAD* Cairo Office, Egypt — Dec. 2015
- Researcher Connect Course, *BRITISH COUNCIL, Egypt* — Oct. 2015
- Completed the Arab Organization for Industrialization training — August 2008
- Completed Egypt Air training — August 2007

GRADUATE COURSES STUDIED

Duke University (auditor courses) — Aug. 2017 – May 2018

- Academic English writing
- Advanced mechanical vibration
- A modern course in aeroelasticity
- Introduction to Finite Element Method
- Advanced theory of elasticity

Cairo University (PhD courses) — Sep. 2015 – May 2016

- Analysis and Design composite materials
- Continuum/Solid mechanics
- Aerospace systems optimization
- Finite element method in fluid mechanics
- Advanced composite materials
- Applied signal processing

Cairo University (MSc courses) — Sep. 2010 – May 2011

- English technical language and communication skills
- Partial differential equations
- Advanced numerical analysis
- Experimental methods in aerospace engineering
- Dynamics of structures
- Numerical methods in aerodynamics
- Finite element and finite strip methods
- Aeroelasticity
- Performance, control, and stability of airborne vehicles
- Jet engines

COMPUTER SKILLS

Programming: MATLAB, MATHEMATICA
Applications: Microsoft Office, Siemens NX Unigraphics, Siemens FE-Map, ANSYS, COMSOL Multiphysics.

LANGUAGES

Fluent in Arabic and good user of English.