

Name: Ahmed Mohammed Abdulnaim Mohammed
Position: Assistant Lecturer
Affiliation: Department of Mechanical Power Engineering,
Faculty of Engineering at El-Mataria, Helwan University.
Address: Ibrahim Abdulrazek St., Ain Shams, P.O. 11718, Cairo, Egypt.
E-mail: ahmed-abdulnaim@m-eng.helwan.edu.eg
Mobile: +20 1007426491   



Personal Data

Birth date: April 26th, 1992
Gender: Male
Marital status: Single
Nationality: Egyptian
Military stat: Temporary Exemption (Postponed)

Educational Background

Certificate: Master of Science (M.Sc.) in Mechanical Power Engineering

University: Helwan University (Faculty of Engineering at El-Mataria)
Date of Granting: July, 2019
Thesis Title: Flow control in industrial injection applications by changing the exit splitter positions inside a fluidic oscillator.

Certificate: Bachelor of Science (B.Sc.) in Mechanical Power Engineering

University: Helwan University (Faculty of Engineering at El-Mataria)
Graduation Year: May, 2014
Cumulative Grade: Very Good with Honors (the 8th on the class)
Project Title: Design of fire-fighting and air-conditioning systems for an administration building.
Project Grade: Excellent

Qualifications and Skills

- Language Skills:**
- Arabic: Native language
 - English: Very Good (spoken / writing)
- Computer Skills:**
- Windows XP/Vista/7/8.1/10
 - Microsoft Office 365 (Word, Excel, Power point)
 - Internet skills (E-mails, Search, and Browsing)
- Software Skills:**
- ANSYS (Design Modeler, Mesh, CFX, Fluent)
 - Tecplot
 - AutoCAD
 - SOLIDWORKS
 - Programming Languages (Mathematica, MATLAB, LabView...)

- STAN (Substance flow Analysis)
- Smart Draw

- Research Capabilities:**
1. Particle Image Velocimetry (PIV) measurements
 2. Condenser microphone measurements
 3. Hyperspectral imaging
 4. Shadowgraph imaging
 5. Laser extinction soot measurements
 6. In-flame temperature and emission measurements
 7. Data Acquisition using DAQ cards and LabView programs
 8. Computational Fluid Dynamics (CFD): Steady and Transient simulations
 9. Experiments and test-rigs design

- Training Courses:**
1. WOLFRAM® certificate of course completion, *"The Wolfram Language: Introduction to Machine Learning,"* 17 and 19 May 2021.
 2. *"Energy and Renewable Energy Policies in Egypt,"* 15-hour professional online training course, Affordable Resources for Egypt's Industrial Growth (RIndustry) Coordinated by the British University in Egypt (BUE), from 7th to 11th March 2021.
 3. *"Municipal Solid Waste Management in Developing Countries,"* an online non-credit course authorized by École Polytechnique Fédérale de Lausanne and offered through Coursera, March 1, 2021.
 4. WOLFRAM® certificate of course completion, *"Data Visualization with the Wolfram Language,"* 21 and 23 September 2020.
 5. ANSYS (Design Modeler, Mesh, and CFX), Faculty of Engineering at El-Mataria, Helwan University, 2016.
 6. Certification of SolidWorks Professional - Mechanical Design from SOLIDWORKS®, (C-HV5QL3TKMU), 2014.
 7. SolidWorks for professionals, from CAD-CAM-CIM Company in co-operation with the Industrial Training Council, 2014.
 8. Non-Destructive Tests (NDT) courses with practical training at Egyptian Welding Academy (EWA), 2014:
 - a. Applied welding technology.
 - b. Ultrasonic test (UT) level 2.
 - c. Radiographic test (RT) level 2.
 - d. Liquid Penetrant test (PT) level 2.
 - e. Magnetic particle (MT) level 2.

9. "Design works and how to implement networks of air conditioning and ventilation," Future Way – KE & Partners Consulting Engineers Office, Faculty of Engineering at El-Mataria, Helwan University, 2013.
10. "Identification of equipment and mechanical and electrical components, operation, and maintenance of the units for steam power plants," Training Centre, Cairo West Power Station, Cairo Electricity Production Company, Electricity Holding Company, Egypt, 2011.
11. AutoCAD, Faculty of Engineering at El-Mataria, Helwan University, 2010.

Professional Experiences

Jobs: 1. **Mechanical Engineer**, Waste Management Department, Chemonics Egypt Consultant, Cairo, Egypt, from September 2019 till now.



2. **Mechanical Engineer**, Consulting, Training, and Production Center (CECTP), Faculty of Engineering at El-Mataria, Helwan University, from May 2016 till now.



3. **Assistant Lecturer**, Continuous Combustion Laboratory and Laser Application and Nano Technology Laboratory, Department of Mechanical Power Engineering, Faculty of Engineering at El-Mataria, Helwan University, Cairo, Egypt, from September 2019 till now.



4. **Teaching Assistant**, Continuous Combustion Laboratory and Laser Application and Nano Technology Laboratory, Department of Mechanical Power Engineering, Faculty of Engineering at El-Mataria, Helwan University, Cairo, Egypt, from May 2016 till September 2019.

5. **Teaching Assistant**, Department of Mechatronics and Robotics Engineering, Faculty of Engineering, Egyptian Russian University (ERU), Bader City, Cairo, Egypt, from May 2015 to May 2016.



- Projects:**
1. Review designs of municipal solid waste transfer stations, Consulting, Training, and Production Center (CECTP), Faculty of Engineering at El-Mataria, Helwan University, from December 2019 till now.
 2. Preparation of master plans for solid waste management for Governorates of Minya, Suhag, Luxor and Aswan, National Solid Waste Management Program (NSWMP), Waste Management Organization, Ministry of Environment, Egypt, 2017-2019.

3. Design of Fire Fighting and Air Conditioning Systems for an Administration Building, the graduation project, 2014.
4. Preparing an environmental impact assessment for Faculty of Engineering at El-Mataria, Helwan University, third year project (under graduation project), 2013.

- Consulting Works:**
1. A field visit to inspect the diesel engines and prepare a report to determine the annual consumption value of the diesel needed to generate the electrical energy needed for the Egyptian Water Desalination Company and submit it to the Industrial Development Authority, Consulting, Training, and Production Center (CECTP), Faculty of Engineering at El-Mataria, Helwan University, September 2020.
 2. Evaluation of the United Company for Poultry Production (feed and concentrates factories, massacres, ...), Egyptian Engineers Syndicate, 2019.
 3. Evaluation of the diesel consumption of vehicle fleet at MCV factory, Consulting, Training and Production Center (CECTP), Faculty of Engineering at El-Mataria, Helwan University, 2019.
 4. Assessment of an electrostatic powder coating line for automatic iron and aluminum coating, Gohar Industrial and Trading Co., Industrial Control Authority, Ministry of Industry and Trade, Consulting, Training and Production Center (CECTP), Faculty of Engineering at El-Mataria, Helwan University, 2018.
 5. Making repairs and modifications to improve and upgrade the efficiency of an electrostatic powder coating line for automatic iron and aluminum coating. Modifications include (cyclone replacement, heat exchanger redesigning, reinforcing the metal sheets and frames, redirecting the nozzles of washing network, and other works), Gohar Industrial and Trading Company, 2018.
 6. Designing agricultural seeding machines for dry areas (Egypt, Sudan, and Tunisia), International Center for Agricultural Research in the Dry Areas (ICARDA), Egypt sector, United Nations, 2017.
 7. Designing a Multi-Fuel burners (gaseous, liquid, and solid fuels), 2016.

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| Scientific Experiments and Test-Rigs: | <p>(A) Continuous Combustion Laboratory</p> <p>Laser Applications and Nano Technology Laboratory</p> <p>Faculty of Engineering at El-Mataria, Helwan University</p> <ol style="list-style-type: none"> 1. Swirl Stabilized Burner (SSB) (turbulent premixed flame) |
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EV-Burner: two-cone and four-cone types

Fuels: LPG (with Ar, C₂H₂ additives)

Pilot: Injector and Fluidic Oscillator

Measurements: in-flame temperature and emission, soot volume fraction laser point system, Shadow graphic imaging, Hyperspectral imaging, Visual analysis.

2. Co-axial Honey-comb burner (laminar diffusion flame)
Fuels: LPG and NG (with Ar, N₂, He, C₂H₂ additives)
Measurements: in-flame temperature and emission, soot volume fraction using laser extinction system, Shadow graphic imaging, Hyperspectral imaging, Visual analysis.
3. Elliptic Burner (normal and invers diffusion flames)
Fuel: LPG
Measurements: in-flame temperature, Visual analysis, Shadow graphic imaging.
4. Swirl Stabilized Burner (SSB) (turbulent diffusion flame)
Fuels: 1- Diesel, diesel-coal Mix, diesel-water-coal Mix (coal slurry).
2- Diesel, Waste cooking oil-diesel Mix, and Waste tire oil-diesel Mix.
3- Diesel and Bio oil- diesel Mix.
4- LPG
Combustors: Vertical and horizontal
Measurements: in-flame temperature and emission, Heat flux, Hyperspectral imaging, Visual analysis.
5. Fluidic Oscillator
 - a. Water Aquarium: Measurements: PIV
 - b. Air test-rig: Measurements: Condenser microphone

(B) Thermodynamics Laboratory

Faculty of Engineering – Egyptian Russian University (ERU)

1. Air Conditioning / Heat Pump System
Measurements: Air temperature, flow, and humidity (inlet and outlet), Electric power consumption, COP of the system.
2. Pumps systems, parallel and series.
Flow control: Valves and Inverters
3. Petrol Engine Performance Test.
4. Centrifugal Pump Performance Test.

Training Courses/ Teaching Subjects: 1. *“SOLIDWORKS Essentials Training Course,”* Faculty of Engineering at El-Matara, Helwan University, June 2021.

2. **“Computer Aided Mechanical Design (SolidWorks),”** Department of Mechatronics and Robotics Engineering, Faculty of Engineering, Egyptian Russian University (ERU), Bader City, Cairo, Egypt, from May 2015 to May 2016.
3. **“Computer Aided Engineering Drawing (AutoCAD),”** Department of Mechatronics and Robotics Engineering, Faculty of Engineering, Egyptian Russian University (ERU), Bader City, Cairo, Egypt, from May 2015 to May 2016.

Scientific Publishing

- Journals:**
1. S. Hassan, M. Elkady, A. Emara, and A. Abdulnaim, **“An Investigation of Argon Gas Additives to LPG on the Turbulent Lean Premixed Flame Characteristics for EV Burner,”** *Journal of Al Azhar University Engineering Sector (JAUES)*, no. 21, vol. 13, issue 46, pp. 58-76, 2018. DOI: [10.21608/aej.2018.19090](https://doi.org/10.21608/aej.2018.19090)
 2. Hassan, S., Emara, A. A., Elkady, M., and Abdulnaim, A. M., **“Evaluation of EV Burner Performance through Pilot Injection Technology: A Review,”** *International Journal of Engineering Science and Computing (IJESC)*, vol. 6, 2016.
- Conferences:**
1. A. M. Abdulnaim, A. A. Emara, and H. A. Moneib, **“Influence of Exit Configuration on the Flow Fields and Oscillation Characteristics Inside and Outside the Fluidic Oscillator,”** *The 18th International Conference on Aerospace Sciences & Aviation Technology (ASAT-18), Military Technical College, Cairo, Egypt, 2019.* DOI: [10.1088/1757-899X/610/1/012052](https://doi.org/10.1088/1757-899X/610/1/012052)
 2. A. Attia, A. Abdulnaim, M. Medhat, A. Emara, H. Moneib, H. Ayoub, A. El-Sherif, **“Hyperspectral Imaging and Analysis of Swirling Flames Issued from Two and Four Slots Circumferential Burners,”** *The 18th International Conference on Aerospace Sciences & Aviation Technology (ASAT-18), Military Technical College, Cairo, Egypt, 2019.* DOI: [10.1088/1757-899X/610/1/012023](https://doi.org/10.1088/1757-899X/610/1/012023)
 3. S. Hassan, M. Elkady, H. Moneib, A. Omar, A. Emara, A. Attia, and A. Abdulnaim, **“An Investigation of the Influence of Fluidics Insertion Technique on Argon Gas Additives to LPG on the Turbulent Lean Premixed Flame Characteristics for EV Burner,”** *Proceedings of the 18th Int. AMME Conference, Military Technical College, Cairo, Egypt, 2018.* DOI: [10.21608/amme.2018.34991](https://doi.org/10.21608/amme.2018.34991)
- Books:**
1. **“Topics in Energy, Water and Environment,”** for preparatory year students, Faculty of Engineering at El-Mataria, Helwan University.
 2. **“The Impact of the outlet on the Flow Dynamics of a Fluidic**

[*Oscillator: Active Flow Control Actuators*](#),” Scholars' Press, ISBN: 978-613-8-83550-9.

- Thesis: 1. [A. M. Abdalnaim](#), “*Flow Control in Industrial Injection Applications by Changing the Exit Splitter Positions Inside a Fluidic Oscillator*,” M.Sc. Thesis, Helwan University, 2019. DOI: [10.13140/RG.2.2.26782.28489](#)

Life Skills

- Participated as a sub-leader in Bedaya student activity at Faculty of Engineering at El-Mataria, Helwan University, 2013.
- Leadership, organization, and teamwork skills.

References

Professor Nazih Noaman Bayomi Mobile: +20 1061122935 E-mail: <u>nnbayomi@hotmail.com</u>	Head of the Mechanical Power Engineering Department Faculty of Engineering at El-Mataria Helwan University
Professor Hany Ahmed Moneib Mobile: +20 1222196427 E-mail: <u>hany.moneib@gmail.com</u>	Professor of Combustion and Heat Engines Department of Mechanical Power Engineering Faculty of Engineering at El-Mataria Helwan University
Assoc. Prof. Moutaz Awad Farag Mobile: +20 1092988088 E-mail: <u>moutaz.farag@gmail.com</u>	Head of the Waste Management Unit Chemonics Egypt Consultants Department of Civil Engineering Faculty of Engineering, Menia University
Dr. Kareem Abdelrazek Emara Mobile: +20 1002448890 E-mail: <u>engkareem73@gmail.com</u>	Waste Management Unit, Chemonics Egypt Consultants Lecturer, Department of Mechanical Power Engineering Faculty of Engineering at El-Mataria Helwan University

Certificates and Documents are available upon request

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