Hoda Abd El-Sattar Hemaid Ibrahim

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Education:

- **2018 – Jan. 2023**

PhD of Science in Electrical Engineering Department, Jointly-supervised PhD degree in Department of Electrical Engineering, **Aswan Faculty of Engineering, Aswan University, Egypt** and **University of Jaen, Spain.**

Title of Thesis: "Design and Techno-economic Analysis of Different Gasifiers for Bioenergy Application".

- **Oct. 2014 – Nov. 2017**

Master of Science in Electrical Engineering, **Aswan University, Egypt**.

Title of Thesis: Comparative Study on the Performance of Various Biomass Resources for Electricity Generation in Egypt.

- **Oct. 2014 – May 2015**

Master's Preliminary Courses

- **Sep. 2006 – June 2011**

Bachelor of Science in Electrical Engineering, **Aswan University, Egypt**.

Graduated project: Voltage stability of power systems connected with DERs.

Work Experiences:

- **2024 – 2026**

Post-doctoral Researcher under a Juan de la Cierva 2022 contract in the Prof. Francisco Jurado´s Lab, in Universidad de Jaén, Linares, Spain.

- **Jan. 2023 – present**

Lecturer, Department of Electronics and Communication Engineering, Luxor Higher Institute of Engineering and Technology, Luxor, Egypt.

- **Oct. 2018 – Dec 2022**

Teaching Assistant, Department of Electronics and Communication Engineering, Luxor Higher Institute of Engineering and Technology, Luxor, Egypt.

- **Jan. 2016 – March 2018**

ICDL Trainer at STA academy and IBI academy, Qena, Egypt.

- **Sep. 2013 – Jan. 2016**

Electrical Engineer (Demonstrator) at Institute of Industrial technician, Qena, Egypt.

Teaching Experience:

- Automatic Control
- Electronics II
- Matlab
- Numerical Analysis
- Electrical Properties of Materials
- Electrical Circuits
- Acoustics
- Mathematics (I)
- Mathematics (II)
- Electrical Testing (I)
- Electric Fields Theory
- Building Physics in Architecture Department
- Engineering Drawing and Projection in preparatory year
- Mathematics (II) in preparatory year
- Electrical Machines

Research Interest:

- Renewable Energy (Hybrid solar, wind, fuel cells and biomass).
- Integration of Distributed Generation Resources with the Grid.
- Bioenergy Research and Development.
- Gasification and combustion of biomass.
- Hybrid and tri-generation of biomass plant.
- Techno-economic Analysis of hybrid system.
- Micro-grid.
- Optimization Algorithms.

Achievements:

- **Dec. 2019**

Awarded a certificate of appreciation from Aswan University for the best Master's thesis for the academic year 2017.

- **July 2017**

Honored by the Institute of Information Technology (ITI) (Ranked 1st on my class)
Project: simple Dual Axis Solar Tracking Using Arduino

- **Aug. 2011**

Rewarded from The Young Innovators Awards (YIA) Program winners (Nahdet El Mahrousa) for the graduation project

Co-Supervised in Senior Undergraduated Level Projects:

- Projects Related to Electronics II Course [Academic year 2023-2024]
- Projects Related to Automatic Control Course (Door lock system, Fire system, Trimaran Fast boat, Smart light system, Smart lighting system) [Academic year 2022-2023]
- University Virtual Network Structure [Academic year 2022-2023]
- Automatic car washing system using PLC [Academic year 2019-2020]

Skills:

Computer

- Microsoft Office applications
- Internet and research
- Cycle-Tempo software
- Matlab
- Homer software
- Power World Simulator
- PSCAD (Power System CAD) simulation

Languages

- Arabic (Mother Tongue).
- English (Good).

Certificates:

- **2022**

English Proficiency Test (EPT)

- **2017**

A+ N+ Course from ITI

- **2012**

International Computer Driving License ICDL (Serial Number UN10137598)

- **2011**

EED (Egyptian Engineering Day)

- **2010**

MATLAB course

- **2009**

Patch of pathways (Behavioral) soft skill course.

Publications:

A. Journal in Journal Citation Reports (JCR):

1. **Hoda Abd El-Sattar**, Salah Kamel, and Mohamed H. Hassan. " *A Hybrid Optimization Framework for Cost-Effective Sizing and Operation of Off-Grid Hybrid Power Systems Integrated with Different Storage Units*." **International Journal of Hydrogen Energy. June 2025. DOI:** https://doi.org/10.1016/j.ijhydene.2025.05.329
2. **Hoda Abd El-Sattar**, Salah Kamel, Mohamed H. Hassan, and Francisco Jurado. "*Optimal Sizing of Hybrid PV/Biomass/Hydro-Pumped Storage Unit Systems Using an Enhanced Manta Ray Foraging Optimizer: A Benchmark and Comparative Study*." **Neural Computing and Applications. 2025. DOI:** https://doi.org/10.1007/s00521-025-11210-9

3. Marwa M. Emam, **Hoda Abd El-Sattar,** Essam H. Houssein, Salah Kamel." *Design and Optimization of an Off-Grid Solar PV-Biomass Hybrid Energy System for Building Electrification Using an Enhanced Educational Competition Optimizer*." Submitted to Journal of Energy Storage. 2025. DOI: https://doi.org/10.1016/j.est.2025.116381

4. **Hoda Abd El-Sattar,** Salah Kamel, Mohamed A. Elseify. " *A Modified White Shark Optimizer for Optimizing Photovoltaic, Wind Turbines, Biomass, and Hydrogen Storage Hybrid Systems*." Journal of Energy Storage. 2025. DOI: https://doi.org/10.1016/j.est.2025.115655
5. **Hoda Abd El-Sattar**, Salah Kamel, Fatma A Hashim, and Sahar F. Sabbeh. "*OptiHybrid: A Modified Firebug Swarm Optimization Algorithm for Optimal Sizing of Hybrid Renewable Power Systems, to Neural Computing and Applications*." Neural Computing and Applications. 2024. DOI: https://doi.org/10.1007/s00521-024-10196-0
6. **Hoda Abd El-Sattar**, Mohamed H. Hassan, David Vera, Francisco Jurado, and Salah Kamel. "*Maximizing Hybrid Microgrid System Performance: A Comparative Analysis and Optimization using a Gradient Pelican Algorithm*." Renewable Energy. 2024. **DOI**: 10.1016/j.renene.2024.120480
7. **Hoda Abd El-Sattar**, Essam H. Houssein, Fatma A Hashim, and Salah Kamel. "*Optimal Design of Hybrid Renewable Energy Sources with Battery Storage using an Efficient Weighted Mean of Vectors Algorithm*." Journal of Energy Storage. 2024. **DOI**: 10.1016/j.est.2024.111387
8. Abdelazim Hussien, **Hoda Abd El-Sattar,** Fatma A. Hashim, and Salah Kamel. "*Enhancing optimal sizing of stand-alone hybrid systems with energy storage considering techno-economic criteria based on a modified artificial rabbits optimizer*." Journal of Energy Storage. 2024. **DOI**:10.1016/j.est.2023.109974
9. Atef A. Elfatah, Fatma A. Hashim, Reham R. Mostafa, **Hoda Abd El-Sattar**, and Salah Kamel. "*Energy Management of Hybrid PV/Diesel/Battery Systems A Modified Flow Direction Algorithm for Optimal Sizing Design - A Case Study in Luxor, Egypt*." Renewable Energy. 2023. **DOI**: 10.1016/j.renene.2023.119333
10. Marwa M. Emam, **Hoda Abd El-Sattar**, Essam H. Houssein, and Salah Kamel. "*Modified orca predation algorithm: developments and perspectives on global optimization and hybrid energy systems*." Neural Computing and Applications. 2023. **DOI**: 10.1007/s00521-023-08492-2
11. **Hoda Abd El-Sattar**, Salah Kamel, Mohamed H. Hassan and Francisco Jurado. "*An Effective Optimization Strategy for Design of Standalone Hybrid Renewable Energy Systems*." Energy. 2022. **DOI**: 10.1016/j.energy.2022.124901
12. **Hoda Abd El-Sattar**, Salah Kamel, Hamdy M.Sultan, Hossam M. Zawbaa and Francisco Jurado. "*Optimal Design of Photovoltaic, Biomass, Fuel Cell, Hydrogen Tank Units and Electrolyzer Hybrid System for a Remote Area in Egypt*." Energy Reports. 2022. **DOI**: 10.1016/j.egyr.2022.07.060
13. **Hoda Abd El-Sattar**, Salah Kamel, Mohamed H. Hassan and Francisco Jurado. "*Optimal Sizing of an Off-grid Hybrid Photovoltaic/Biomass Gasifier/Battery System Using a Quantum Model of Runge Kutta Algorithm*." Energy Conversion and Management.2022. **DOI**: 10.1016/j.enconman.2022.115539

14. **Hoda Abd El-Sattar**, Hamdy M.Sultan, Salah Kamel, Tahir Khurshaid and Claudia Rahmann. "*Optimal design of stand-alone hybrid PV/wind/biomass/battery energy storage system in Abu-Monqar, Egypt* ." Journal of Energy Storage, December 2021. **DOI:** 10.1016/j.est.2021.103336
15. Mohammed Kharrich, Laith Abualigah, Salah Kamel, **Hoda Abd El-Sattar** and Marcos Tostado-Véliz. "*An Improved Arithmetic Optimization Algorithm for Design of a Microgrid with Energy Storage System: Case Study of El Kharga Oasis, Egypt*." Journal of Energy Storage.2021.**DOI:** 10.1016/j.est.2022.104343
16. **Hoda Abd El-Sattar**, Salah Kamel, Hamdy M.Sultan, Marcos Tostado-Véliz, Ali M. Eltamaly and Francisco Jurado. "*Performance Analysis of a Stand-Alone PV/WT/Biomass/Bat System in Alrashda Village in Egypt*." Applied Sciences, October 2021. **DOI:** 10.3390/app112110191
17. **Hoda Abd El-Sattar**, Salah Kamel, David Vera and Francisco Jurado. "*Efficient Tri-generation System Based on Direct Biomass Combustion Integrated with EFGT, ORC and Absorption Chiller*." Journal of Cleaner Production, 2020. **DOI:** 10.1016/j.jclepro.2020.121068
18. **Hoda Abd El-Sattar**, Salah Kamel and Francisco Jurado. "*Fixed Bed Gasification of Corn stover pieces Biomass Fuel: Egypt as a Case Study*." Biofuels, Bioproducts and Biorefining, August 2019. **DOI:** 10.1002/bbb.2044
19. **Hoda Abd El-Sattar**, Salah Kamel, Mohamed Ali Tawfik, David Vera and Francisco Jurado. "*Modeling and Simulation of Corn Stover Gasifier and Micro-turbine for Power Generation*". Waste and Biomass Valorization (2018): 1-14. **DOI:** 10.1007/s12649-018-0284-z.

B. International Journals (Not JCR):

1. **Hoda Abd El-Sattar,** Salah Kamel, Mohamed Ali Tawfik and Loai S. Nasrat. "*Modelling of a Fixed Bed Downdraft Gasifier for Generating Electricity Using Sawdust in Egypt*". International Journal on Power Engineering and Energy (2016) 7 (4) pp. 702-707.

C. Conference Publications:

1. Atef Abdelfatah, Salah Kamel, **Hoda Abd El-Sattar**, Loai Nasrat and Francisco Jurado. *"Optimal Design of Hybrid Wind/Fuel Cell Microgrid Using Starfish Optimization Algorithm."* In the IEEE Conference on Power Electronics And Renewable Energy at Aswan, Egypt, Sep 2025, **DOI:** 10.1109/CPERE65146.2025.11240077
2. Zakaria Abd El-Aziem, Salah Kamel, **Hoda Abd El-Sattar**, Loai Nasrat and Mohamed A. Tolba. *"Optimal Configuration of Stand-Alone Hybrid Energy System in New Tiba City, Luxor, Egypt."* In the 5th REEPE IEEE conference, Moscow, Russia.2023. **DOI:** 10.1109/REEPE57272.2023.10086845
3. Atef Abdelfatah, Salah Kamel, **Hoda Abd El-Sattar**, Hossein Shahinzadeh and Ersan Kabalci. *"Optimal Sizing of an Off-Grid PV/Diesel/Battery Storage System Using Gorilla Troops Optimizer."* 26th Electrical Power Distribution Conference (EPDC), May 11-12, 2022, Tehran, Iran. **DOI:** 10.1109/EPDC56235.2022.9817224.

4. **Hoda Abd El-Sattar**, Hamdy M.Sultan, Salah Kamel, Ahmed S. Menesy and Claudia Rahmann. "*Optimal Design of Hybrid Stand-alone Microgrids Using Tunicate Swarm Algorithm*." 2021 IEEE International Conference on Automation/XXIV Congress of the Chilean Association of Automatic Control (ICA-ACCA). **DOI:** 10.1109/ICAACCA51523.2021.9465283.
5. Salah Kamel, Shaymaa Bakheet, **Hoda Abd El-Sattar**, Francisco Jurado and Mohammed Hassan Ahmed. *"Modeling Analysis of Downdraft Gasification Integrated with SOFC for Power Generation."* International Conference on Computer, Control, Electrical, and Electronics Engineering 2019, ICCCEEE19, 2019**.** **DOI:** 10.1109/ICCCEEE46830.2019.9071232 .
6. Salah Kamel, Shaymaa Bakheet, **Hoda Abd El-Sattar**, Francisco Jurado and Mohammed Hassan Ahmed. *"Integration of Downdraft gasifier integrated with Solid oxide fuel cell and Organic rankine cycle for power production."* International Conference on Computer, Control, Electrical, and Electronics Engineering 2019, ICCCEEE19, 2019**.** **DOI:** 10.1109/ICCCEEE46830.2019.9070942
7. **Hoda Abd El-Sattar,** Salah Kamel, Shaymaa Bakheet and Francisco Jurado. *"Performance analysis of CHPC system using gasification process integrated with micro turbine and absorption system."* The 14th International Conference on Energy for a Clean Environment, September 8-12, 2019, Funchal, Madeira, Portugal.
8. Shaymaa Bakheet, Salah Kamel, **Hoda Abd El-Sattar** and Francisco Jurado. "*Biomass Gasification Reactors for Energy Applications: A review*." International Middle East. IEEE Conference (MEPCON), 2018. **DOI:** 10.1109/MEPCON.2018.8635150.
9. **Hoda Abd El-Sattar**, Salah Kamel, Mohamed Ali Tawfik and David Vera. "*Modeling of a Downdraft Gasifier Combined with Externally Fired Gas Turbine using rice straw for generating electricity in Egypt.*" Power Systems Conference (MEPCON), 2016 Eighteenth International Middle East. IEEE, 2016. **DOI:** 10.1109/MEPCON.2016.7836977.
10. **Hoda Abd El-Sattar**, Salah Kamel and Francisco Jurado "*Fixed Bed Gasification of Sawdust Biomass Fuel: Egypt as a Case Study."* The 4th Iberoamerican Congress on Biorefineries, held in Jaén, Spain, 2018.
11. Shaymaa Bakheet, Salah Kamel, **Hoda Abd El-Sattar** and Francisco Jurado "*A Review of Major Biomass Conversion Technologies*." The 4th Iberoamerican Congress on Biorefineries, held in Jaén, Spain, 2018.

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https://scholar.google.com/citations?hl=es&user=sfm6xVUAAAAJ
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https://www.webofscience.com/wos/author/record/CAA-5899-2022