Shaimaa Fouad Mohamed Abdelhamid Seyam

Ph.D. Candidate, Department of Mechanical and Manufacturing Engineering
Faculty of Engineering and Applied Science
Ontario Tech University
915-177 Nonquon Rd, Oshawa, Ontario, L1G3S3, Canada
+1 (647) 629-7887
shaimaa.seyam@ontariotechu.net
shaimaaseyam@gmail.com

EDUCATION

Institution: Ontario Tech University (University of Ontario Institute of Technology)
Affiliation: Department of Mechanical an Manufacturing Engineering
Current status: **Philosophy of Doctorate Canditate (Ph. D.)** Sep. 2018 – present
Research Field: Clean Transportation
Supervisor(s): Ibrahim Dincer and Martin Agelin-Chaab
Grade: A+ (GPA 4.3)

Institution: University of Toronto
Affiliation: Department of Civil Engineering
Current status: **Master of Applied Science (M.A.Sc.)** Sep. 2014 – Nov. 2017
Research Field: Building Science
Supervisor(s): Jeffrey Siegel
Grade: B+ (GPA 3.3)
Master Title: The Impact of Plants on Indoor Air Quality, Energy Use, and Psychological Status of Occupants.

Institution: Benha High Institute of Technology (BHIT)
University: Benha University
M.Sc. Courses: Excellent (95% - GPA 4) Jun. 2006- Mar. 2011
Degree: **Master of Science (M.Sc.)** in Mechanical Engineering Technology
Research Field: Heat transfer (air-conditioning technology)
Supervisor(s): Ahmed S. Huzayyin, Hesham M. El-Batsh, and Sameh A. Nada
Master Title: Numerical and Experimental Investigation of Flow Pattern, Temperature Distribution, and Heat Transfer in a Room Served by Radiant Panel Systems

Institution: Benha High Institute of Technology (BHIT)
University: Benha University
Address: Benha, Kalyobiya, Egypt
Degree: **Bachelor of Science (B.Sc.)** Sep. 2000-Jun. 2004
Department: Mechanical Engineering Technology - Energy (Power) Major
Grade: Excellent (88.33%) with honor degree (1st of the class) – (GPA 4)

PUBLICATIONS

Seyam, S., Dincer, I., & Agelin-Chaab, M. (2021). Development and assessment of a biomass-based cogeneration system with desalination. *Fuel*, *185*(February), 120529. https://doi.org/10.1016/j.applthermaleng.2020.116432

Seyam, S., Dincer, I., & Agelin-Chaab, M. (2020). Development of a clean power plant integrated with a solar farm for a sustainable community. *Energy Conversion and Management*, *225*(September), 113434. https://doi.org/10.1016/j.enconman.2020.113434

Seyam, S., Dincer, I., & Agelin-Chaab, M. (2020). Thermodynamic analysis of a hybrid energy system using geothermal and solar energy sources with thermal storage in a residential building. *Energy Storage*, *2*(1). https://doi.org/10.1002/est2.103

Seyam, S., Dincer, I., & Agelin-Chaab, M. (2020). Analysis of a clean hydrogen liquefaction plant integrated with a geothermal system. *Journal of Cleaner Production*, *243*, 118562. https://doi.org/10.1016/j.jclepro.2019.118562

Seyam, S. (2019). Energy and Exergy Analysis of Refrigeration Systems. In *Low-temperature Technologies* (p. 13). IntechOpen. https://doi.org/http://dx.doi.org/10.5772/57353

Seyam, S. (2019). The impact of greenery systems on building energy: Systematic review. *Journal of Building Engineering*, *26*(December 2018), 1–17. https://doi.org/10.1016/j.jobe.2019.100887

Seyam, S., Al-hamed, K. H. M., Qureshy, A. M. M. I., & Dincer, I. (2019). Multi-objective Optimization of Hydrogen Production in Hybrid Renewable Energy Systems. In *IEEE Congress on Evolutionary Computation (CEC)* (pp. 850–857). Wellington, New Zealand.

Seyam, S. (2018). Types of HVAC Systems. In *HVAC System* (pp. 49–66). London, UK: *IntechOpen*. https://doi.org/10.5772/intechopen.78942

Seyam, S. F. M. A. (2017). The Impact of Plants on Indoor Air Quality, Energy Use, and Psychological Status of Occupants. *ProQuest Dissertations and Theses*, 120.

Seyam, S., Huzayyin, A., El-Batsh, H., & Nada, S. (2014). Experimental and numerical investigation of the radiant panel heating system using scale room model. *Energy and Buildings*, *82*, 130–141. https://doi.org/10.1016/j.enbuild.2014.07.003

Huzayyin, A., El-Batsh, H., Nada, S., & Seyam, S. (2012). Experimental and numerical investigation of a condensation repellent radiant cooling panel system. *Journal of Engineering Sciences, Assiut University*, *40*(4), 1075–1089.

Seyam, S. F. M. A. (2010). Numerical and experimental investigation of flow pattern, temperature distributions, and heat transfer in a room served by radiant panel systems. *Benha High Institute of Technology, Benha University*.

RESEARCH INTERESTS

- Clean Transportation sectors (Rail, Marine, Aviation)
- Fuel Cells
- Alternative Fuels
- Hydrogen Liquefaction systems
- Smart cities
- New and renewable energy systems and applications
- Heat transfer
- Air conditioning systems and applications
- Computational Fluid Dynamics (CFD)
- HVAC systems
- Indoor Air Quality
- Indoor Environment Topics

TEACHING EXPERIENCE

I have an experience in teaching or assisting in teaching the following subjects:

At Ontario Tech University (2018-present)

- Calculus I (MATH 1010)
- Calculus II (MATH 1020)
- Engineering Design (ENGR 1025U)

At Benha University (2005 - 2013)

- Thermo-fluid machinery
- Air conditioning
- Energy system components
- Computer aided design (CAD)
- Heat Transfer
- Building physics and constructions
- Process Control
- Engineering drawing
- Computer applications
- Environmental and Pollution

PROFESIONAL EXPERIENCE

Research Assistance (Full Time) Sep. 2018 – present
Ontario Tech University
2000 Simcoe St. North, Oshawa, ON, L1G 0C5
Job Description:

- Developing new and alternative power systems using clean fuels
- Designing new powering systems for clean transportation sectors to replace current systems in order to improve engine performance
- Applying clean alternative fuels to transportation sectors and analyzing the whole engines regarding energy performance, energy losses, carbon emissions, and costing.
- Documenting the results by publishing papers in high-ranked peer-reviewed journals to obtain approval of the developed engine systems among academic researchers.

Mechanical Designer Apr. 2018 – May 2018
Canadian Consultation Contruction Engineering Inc. (CCCEI)
3950 14th Ave #205 Markham, ON L3R 0A9

Job Description:

- Drafted and plotted mechanical drawings including HVAC, Plumbing, and sprinkle.
- Drafted 8 projects such as 2 restaurants, 2 paint-shops, 2 dental offices, and 2 houses
- Finished projects on time and followed up with the client

AutoCAD Designer Feb. 2018 – Mar. 2018
Times Kitchen and Bath
50 Galaxy Boulevard, Etobicoke, ON M9W 5R8
Job Description:

- Designed complete kitchen cabinets for a restaurant using AutoCAD and Sketch Up
- Drafted and plotted the layout and floor plan of kitchen using AutoCAD according to NKBA standard
- Drafted and plotted detailed drawings of all cabinets for woodworking
- Updated the kitchen design to satisfy the clients in both AutoCAD and Sketch Up and drafted and plotted the updating drawings for woodworking.

Architectural Designer Nov. 2017 – Dec. 2017
Daniel Karpinski Architect
1200 Eglinton Avenue, North York, ON M3C 1H9
Job Description:
Danial Karpinski has provided a great opportunity for me to shadow his outstanding architectural design of houses and residential buildings. The shadowing was selected by the corporation of Career Center at University of Toronto .

- Participated in an actual day as an architectural designer.
- Designed an actual house of 1000 m2 located at 9 Carlis Pl, Mississauga ON L5G 1A8, Canada, by presenting isometric, constructional, and sectional drawings of the house
- Wrote a report about the building requirements of zoning a hotel at 96 Squires Ave, East York, ON M4B 2S1. The zoning by-law is based on the community of adjustment of Toronto following zoning by-law No. 569-2013
- Wrote another report about the building requirement and zoning of a house of 1000 sq.m located at 9 Carlis Pl, Mississauga ON L5G 1A8. the location follows the community of adjustment of Mississauga and zoning by-laws R15-8, master bylaw: 0225-2007.

Research Assistant (Part Time) Sep. 2014 – Nov. 2017
University of Toronto
27 King's College Cir, Toronto, ON M5S
Job Description:

- Tested and calibrated 10 measuring devices (temperature, relative humidity, and air flow). Wrote 5 technical reports of products and protocols of measuring devices.
- Organized the Building Science lab.
- Labelled and organized instruments and filled in an inventory system.

Teaching Assistant and Mechanical Engineer (Full Time) Mar. 2005 – Mar. 2013
Benha Faculty of Engineering, Benha University
Al Hezb Al Watani, Qism Banha, Banha, Al Qalyubia Governorate, Egypt
Job Description:

- Teaching tutorials to students
- Supervisor on students' projects, scientific, and industrial trips

- Training students in laboratories such as: air conditioning, automotive, machinery, mini power station, lathe and milling machines, and solar systems
- Performing administrative works in Mechanical Engineering Department as a leader of the semester schedule committee and the graduation projects committee and a general supervisor on Computer labs
- Tutoring engineering and CAD software such as (AutoCAD, MATLAB, SolidWorks, HAP 4.3, and ELLITE)
- Maintenance of air conditioning and solar energy instruments.

Research and Development (R&D) Engineer (Part Time) Jul. 2006 to Jul. 2011
MARMOX Air Conditioning Co. a part of CMB CO.
43 Al Haram, St ،Al Haram, Giza Governorate, Egypt
Job Description:

- Investigating the performance of radiant cooling panels
- designing new configurations of radiant cooling panels to achieve thermal comfort.

INTERNSHIPS

Institution: Toshiba El-Araby Production Co. Jul. 2003 – Sep. 2003
Address: Benha, Al Qalyubia Governorate, Egypt
Job: Summer trainee
Activities: Working in (assembly department, quality control department, fans, electrical motor, blenders, and refrigerators production lines, observing the factory central air-conditioning system…etc.)

Institution: Shoubra El Khiema Power Station Jul. 2001 – Aug. 2001
Address: Shoubra El Khiema, Al Qalyubia Governorate, Egypt
Job: Summer trainee
Activities: Power station components (boilers, turbines, condensers, water treatment, feed water heaters, gas station…etc.

VOLUNTEERING EXPERIENCE

Board Member and Research Assistant
RACE for Humanity – Human Rights nonprofit
Apr. 2015 – Jun. 2018
Major Responsibilities:

- Research for humanitarian causes and conflicts
- writing and revising reports
- Organizing and coordinating data
- producing infographic scripts for video and poster making

Member
Muslim Association of Canada – nonprofit
Aug. 2015 – Jan. 2017
Major Responsibilities:

- Raised funds of $200,000 CAD
- Worked as a coordinator of a youth program to gain the Canadian experience.
- Developed Canadian Social and leadership skills of communication, social advisor, coordinating programs (painting and sewing)
- Excelled in organizing and recording data, writing stories and reports, delegating tasks, supervising, and reporting youth performance.

REFERENCES

Professor name	Institution	Email and website
Ahmed Huzayyin	Department of Mechanical Engineering, Benha Faculty of Engineering. Benha University	solyhuz@yahoo.com https://www.researchgate.net/profile/Ahmed_Huzayyin
Sameh Nada	Department of Mechanical Engineering, Benha Faculty of Engineering. Benha University	sameh.nada@egec-xprt.com Sameh.nada@bhit.bu.edu.eg http://www.bu.edu.eg/staff/samehnada5#
Hesham Elbatsh	Department of Mechanical Engineering, Benha Faculty of Engineering. Benha University	helbatsh@bhit.bu.edu.eg http://bu.edu.eg/staff/helbatsh5
Jeffrey Siegel	Department of Civil Engineering. Faculty of Engineering and Applied Science University of Toronto	jeffrey.siegel@utoronto.ca http://civil.engineering.utoronto.ca/staff/professors/jeffrey-siegel/
Ibrahim Dincer	Department of Mechanical and Manufacturing Faculty of Engineering and Applied Science Ontario Tech University	Ibrahim.dincer@ontariotechu.ca https://engineering.ontariotechu.ca/people/mme/ibrahim.dincer.php
Martin Agelin-Chaab	Department of Mechanical and Manufacturing Faculty of Engineering and Applied Science Ontario Tech University	Martin.Agelin-Chaab@ontariotechu.ca https://engineering.ontariotechu.ca/people/mme/martin.agelin-chaab.php