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Gender: Female **Date of birth:** 17 Dec 1995 **Nationality:** Egyptian

ABOUT ME

My name is Esraa A. Metwally. I have worked as a teaching assistant and a researcher at the faculty of Engineering, architectural engineering, Ain Shams University in Egypt since late 2018. I got my B.Sc. degree distinction with honour degree (fourth rank on my class), and Excellent grade for my graduation project in June 2018. My graduation project was an international collaborative design studio (ICDS) among the department of architecture in ASU, Huazhong Agriculture University in China and the department of planning and landscape architecture, Clemson University in USA. In April 2021, our graduation project (revival and development of Hurghada city in Egypt) was recorded as one of the best world student projects. It is published by Archiworld publisher (South Korea) in the world student best project selection book, and the universal publisher distributor Lebanese publisher in Egypt fair 2021. In March 2018, my team won the third prize in ZERU energy international competition for residential buildings. It was held by University of East London in UK, and faculty of engineering Ain Shams University in Egypt. I also won the first place as the best project management student for hard work, commitment, and the effective participation in the teamwork.

I worked as a junior architect in many design, working and interior projects. I had an appreciated certificate for involving in Engineering Consulting Offices. I had an Excellence degree certificate for the summer training which was committed by the technological institution for construction and management engineering in the Arab Contractor Company. I awarded some position in fine arts competition of Ain Shams University gallery and I participated in other national galleries too. I participated in teaching some courses as working drawings, architecture design, graduation projects, principles of architecture, project management, professional practice and legislation, execution documents.

Besides, I am a hyper-realistic portrait drawer. I am a self-taught artist, I began drawings at the age of ten. My school teachers were always impressed with my art. My level was gradually increased and I am always discovering a new part in my talent over the years. I find great purpose and meaning in inspiring people and bringing joy to their lives with my paintings. I am using different art mediums and materials as oil, acrylic, ballpoint pens, graphite pencils, ink pens. I participated in different competitions and galleries, I had different prize levels in different fine art scores. My talent helps me a lot in my career position. I am dreaming to spread my art over different countries and galleries worldwide.

WORK EXPERIENCE

[16 Aug 2021 – Current] **Teaching Assistant**

Faculty of Engineering, Ain Shams University, Department of Architecture.

City: Cairo

Country: Egypt

Main activities and responsibilities:

- Teaching the students in sections to enhance the learning process.
- Helping the lecturers to plan learning activities.
- Documentation of the course specs quality samples.
- Participating in some quality affairs related to the department and college.

[21 Sep 2018 – 15 Aug 2021] **Demonstrator**

Faculty of Engineering, Ain Shams University, Department of Architecture.

City: Cairo

Country: Egypt

Main activities and responsibilities:

- Teaching the students in sections to enhance the learning process.
- Helping the lecturers to plan learning activities.
- Documentation of the course specs quality samples.

[Mar 2020 – Mar 2021] **Participating in ASU position affairs as an academic member**

Ain shams university

City: Cairo

Country: Egypt

Main activities and responsibilities:

- Participating in establishing the ASU international booklet for guiding the international undergraduate & postgraduate students.
- Participating in proposing the study programs and disciplines of El Alamein International University (New Alamein City). (a part of the Projects of the Ministry of Higher Education and Scientific Research in partnership with the Ministry of Housing, Utilities and Urban Communities).
- Participating in the quality and accreditation of new Housing Program Space Facilities - Faculty of Engineering
- ASU.
- Participating in developing the proposed strategic plan to develop the Faculty of Engineering, ASU.
- Participating in establishing a guide for ASU International Cooperation for guiding the international undergraduate & postgraduate students.
- Participating in the Ministry of Higher Education and Scientific Research project of establishing private universities affiliated with public universities.
- Participating in developing the vision of the Ministry of Higher Education proposed international universities in Egypt.
- Participating as TA architect in designing the Employment Fair of ASU, on the land in front of ASU pharmacy college.

[Jul 2018 – Sep 2019] **Part -Time Junior Architect**

AFH Consultants office

City: Cairo

Country: Egypt

Main activities and responsibilities:

Junior Architect at AFH Consultants (Design, Interior& Working Drawings) projects as follows:

- Buraida-Qassim Cultural Center in **Saudi Arabia**.
- Red Crescent in **Cairo**.
- Wukair schools in **UAE**.
- Menya Residential group el **Ryad** compound.
- IHUB-Ain Shams University.
- (I-HUB, ASU), Ain Shams University Innovation Hub, 2018.
- Elaraby Group Building-5th settlement, **cairo**.
- Confocious Chinese language building, Asu in **Cairo**.
- KAIA As - built project **Gada** airport.
- Buraida- AlQassim Cultural Center,2018 in **Saudi Arabia**.
- Red Crescent Building, Doha, **Qatar**, 2018.
- Al-Maha new school at **Al-Wukair**, 2018.
- General Administration of Private Universities in new Cairo, fifth settlement, **Egypt**.

[1 Feb 2018 – 15 Feb 2018] **Design and Landscape Architect**

Free lancer

City: Cairo

Country: Egypt

Main activities and responsibilities:

- participating in designing and the renovation of Ismailia gate Square, El Andalous Park, Tunnel Roads.

[1 Aug 2017 – 30 Aug 2017] **Architect Trainee**

Land Consultants (the Engineering Consulting Office)

City: Cairo

Country: Egypt

Main activities and responsibilities:

I got an appreciation Certificate of Training in Land Consultants (the Engineering Consulting Office). Projects are as follows: Jazan Academic University Project in Saudi Arabian, Republican Guard Club - in the new capital, Cairo.

[1 Jul 2015 – 30 Jul 2015] **Architect Trainee**

Arab Contractor Company

City: Cairo

Country: Egypt

Main activities and responsibilities:

I got an excellent degree Certificate for the summer training which was committed by the technological institution for Construction and management Engineering in the Arab Contractor Company. This training was about the building construction process, it also contains practical learning in fields.

[Aug 2021 – Jan 2022] **Publishing the second research Paper from my masters thesis in a Q1 Journal**

Energy and Buildings journal, ISSN 0378-7788. <https://lnkd.in/dv8PUJEX>

Topic: Development of an IoT assessment method: An interdisciplinary framework for energy efficient buildings.

<https://lnkd.in/dmX4zBgH>

Main subject / occupational skills covered:

Publishing a paper in **Energy and Buildings journal ISSN 0378-7788**. It is a Q1 category science Indexed in Clarivate JCR and Scopus by the Elsevier Science publisher, with an impact factor of 5.879, and an Eigenfactor Score of 0.04383. [Volume 254](#), 1 January 2022.

[Jul 2021 – Sep 2021] **Maker Diploma scholar ship from the American center in Egypt**

Fab lab Egypt with San3a Academy <https://sites.google.com/san3atech.com/mds21/>

<https://drive.google.com/file/d/1LkyYgVA8ntjgmXSiAKC3jQCxxi6QWHwz/view?usp=sharing> <https://sites.google.com/san3atech.com/esraaametwally/about-me>

Main subject / occupational skills covered:

I won the best integration project award in the round.

[Sep 2019 – Aug 2021] **Masters of Engineering Science in Architectural Engineering**

Ain Shams University

Address: Cairo, Egypt

Field(s) of study: Architectural Engineering , Building Energy Efficiency, Building Technology , Building Resources , Intelligent Buildings , Internet of Things (IoT)

Thesis: Internet of Things (IoT) and Smart Technologies Impact on Resources Efficiency in Building.

Main subject / occupational skills covered:

The main aim of this study is to propose a criteria framework to develop a simplified method, to assess IoT implementation level and the impact of IoT applications in the building. This is significant to emphasize the functionalities improved by IoT, the current enabling technologies, and recent developments of IoT. To achieve this aim, a qualitative study is conducted based on a literature review for a set of previous studies and research. Then, we analyzed the impact of internet and connectivity development on developing the buildings' control milestones of some selected disciplinary systems. Also, analyzing some academical and industrial study cases, that implemented IoT solutions in the architecture building. Subsequently, we identified the related parameters for applying IoT, advanced technologies on architectural buildings and their impact on buildings' resources. This results in performing the final design of the proposed IoT criteria framework. It is based on 3 main domains: input (embedded parameters), throughput (controlled variables), and outcome (impact) domains. Each domain collects a set of indicators and attributes with different IoT automation readiness levels. This framework contains 16 indicators and 124 attributes arranged in 5 main IoT levels.

Then, developing a proposed assessment method and the weights of this evaluation method. In order to cover all the possible indicators of our framework, the weights are based on two verified rating systems that are used in evaluating the smart and green buildings. To make a preliminary theoretical validation of the proposed criteria framework, a comparison was made among four different selected international cases, that implemented IoT applications in their buildings. Then, applying the proposed framework to each selected building, to present the enhancement of integration and implementation of the IoT applications in buildings. We could also identify which building is comparatively much in an advanced IoT level based on the overall score and level. Also, we covered the gaps and challenges gained from this study.

Finally, we conducted an online survey and personal interviews to discover the current situation concerning the practice of IoT of local projects in Egypt. Also, discussing the current enabling technologies, applications, and recent developments of IoT. Along with application recommendations for adopting IoT for the function improvement in buildings. This survey targeted the researchers, engineers, and the local Egyptian development organizations/firms, which are being leaders in software technologies and developing IoT platforms in the buildings. In the end, we concluded the findings of this study to ensure the achievement of the main aim and all research questions. Also, setting an IoT design model proposal, an action plan, and the future work towards enhancing the IoT solutions in the architecture buildings.

[Apr 2021] **Best world student project international Award**

published by Archiworld publisher - South Korea - in world student best project selection book.

<https://www.archiworld1995.com/books/architecture.php?ptype=view&prdcod=2012090001&subcatcode=101100>

Main subject / occupational skills covered:

Our graduation project (**Revival 2018: Development of Hurghada city, Egypt**) was recorded as one of the best world student project, published by Archiworld publisher - South Korea - in world student best project selection book) and the universal publisher and distributor Lebanese publishing in Egypt fair 2021.

[Sep 2018 – Jun 2019] **Masters Courses in Architectural Engineering**

Ain Shams university

Final grade: GPA 3.6375/4

[Sep 2013 – Jul 2018] **Bachelor Degree**

Faculty of Engineering, Architectural Engineering Department, Ain Shams university, Cairo, Egypt.

Main subject / occupational skills covered:

B.Sc. Degree (Distinction -Excellent grade- With Honour Degree (**Fourth rank** on class among 180 students, and Excellent grade for the Graduation project) at Architectural Engineering, Architecture Design Department, Faculty of Engineering, Ain shams University, Egypt.

[Feb 2018 – Jul 2018] **International Collaboration world Design Studio Certificate ICDS**

ASU, Clemson University, and Huazhong university.

Final grade: 95%

Thesis: Revival 2018: Development of Hurghada city, Egypt.

Main subject / occupational skills covered:

A Certificate of Participation in the international collaborative Design Studio among the department of Architecture ASU, Huazhong Agriculture University in china and the department of planning and landscape Architecture Clemson University, USA.

[Mar 2018] **ZERU energy international Competition for Residential buildings (Third Prize)**

University of East London, UK, Faculty of Engineering Ain Shams University, Egypt/FoE-ASU. <https://www.archdaily.com/887224/zero-energy-residential-unit-zero>

Main subject / occupational skills covered:

Participating in the Zeru energy international Competition for Residential buildings (the Third prize).

[Jan 2018] **Best project Management Student**

PM Course in faculty of Engineering, ASU.

Main subject / occupational skills covered:

Appreciation Certificate the First place - Best Project Management Student-for Hard Work, commitment and effective participation in the teamwork.

[Oct 2014] **Cambridge International Diploma**

IT Skills at Armed Forces Computer Science Technology Centre.

Main subject / occupational skills covered:

the diploma is about information technology, and windows office programs. i did an online exam in each program via Abu talala Centre.

[Sep 2011 – Jul 2013] **High School Graduation**

Modern School Ahmed Essmat

Final grade: 97.6%

PUBLICATIONS

[2021]

Development of an IoT assessment method: An interdisciplinary framework for energy efficient buildings

<https://lnkd.in/dmX4zBgH>

Reference: <https://doi.org/10.1016/j.enbuild.2021.111545>

The current development pace of the internet of things (*IoT*), digital controls, networks are exerting profound changes. However, much research had studied how *IoT* systems are technically applied, but more research is required to study the adaptation and standardization of applying *IoT* applications in architectural buildings. Moreover, there is a lack of approaches for evaluating *IoT* solutions to validate those applications in buildings. Besides, to link the gap between applying *IoT* solutions, engineering requirements, and the building resources' impact. The main aim of this study is to propose a criteria framework to develop a simplified method, to assess *IoT* implementation level and the impact of *IoT* applications in buildings. This framework method is based on 3 main domains: input (*embedded parameters*), throughput (*controlled variables*), and outcome (*impact*) domains. Each domain collects a set of indicators and attributes with different *IoT* automation readiness levels. This framework contains 16 indicators and 124 attributes arranged in 5 main *IoT* levels. Then, we developed a proposed assessment method, the weights of this evaluation method are based on two verified rating systems that are used in evaluating the smart and green buildings. To make a preliminary theoretical validation of the proposed criteria framework, we applied it on four different selected international cases, that implemented *IoT* applications in their buildings. We could also identify which building is comparatively much in an advanced *IoT* level based on the overall score and level.

<https://lnkd.in/dmX4zBgH>

[2020]

A Conceptual Framework of Internet of Things Interdisciplinary Enhancement in Architectural Buildings

<http://www.crdeepjournal.org/category/archive/volume-7/ijssah-issues-4-volume-7/>

The Internet of Things (IoT) concept has become a significant way to manage our buildings. IoT provides many applications that enable more advanced and energy efficient solutions. However, the potential of applying IoT technologies is considerable, but more research is required to the adaptation and standardization of applying IoT in architectural buildings to link the gap between design principles and IoT solutions. This study investigates the parameters of applying IoT lighting system in an architectural building. A qualitative study is conducted based on the current applied IoT applications and study cases within both academic and industry contexts. Subsequently, enhancing the output analyzed data to develop an existing IoT model. This study also conducts the impact of IoT technologies and connectivity networks on lighting discipline in architectural buildings. This work results in proposing a conceptual framework for the enhancement of applying IoT in architectural buildings. This framework is based on the four main IoT perspectives of end user, technology, data information and the economic/society perspective. In addition, to guide researchers, architects, designers, and stakeholders to address related issues and inspire researchers' thinking in the technology industry for future advancing. This study has concluded the IoT lighting parameters of the hierarchical IoT process from sensing the space and modes of users till proposing the modules of the building and spaces-based utilization.

LANGUAGE SKILLS

Mother tongue(s): Arabic

Other language(s): English, German

HONOURS AND AWARDS

[Mar 2018] **ZERU energy international Competition for Residential buildings (Third Prize) Awarding institution:** University of East London, UK, Faculty of Engineering Ain Shams University, Egypt/FoE-ASU.

[Mar 2017] **Fine Art Competitions Awarding institution:** ASU

- Awarded First Position in Colored Portraits in fine arts competition of ain shams university gallery and participating in other national galleries.
- Awarded First Position in Graphic Portraits in fine arts competition of ain shams university gallery and participating in other national galleries.
- Awarded Third Position in Ballpoint pen Portraits in fine arts competition of ain shams university gallery.

DIGITAL SKILLS

Programs

Autodesk 3DsMax | Fusion 360 Autodesk | LUMION | Vray Rendering | - AutoCAD – Advanced | ultimaker cura | Rhino3D with Grasshopper | Adobe Illustrator | Adobe In Design and Photoshop | Arduino & Arduino IDE | Autodesk Revit

Another tools

Microsoft: Microsoft Word, Microsoft PowerPoint, Microsoft Outlook, Microsoft Teams | Outlook | LinkedIn | Google Drive | Zoom

CONFERENCES AND SEMINARS

[Feb 2019]

intersol 2019 –third EAI international conference on innovations and interdisciplinary solutions for underserved areas.

Cairo, Egypt.

[Feb 2019] **A workshop how to get published with IOP** Cairo, Egypt.

ACADEMIC COURSES

[Sep 2018 – Current] **participating in courses as a TA**

Architecture Drawings for the First year, Architecture Engineering, ASU- history and theories of architecture for first year(ENVR)- Design and architectural principles First year (iChep)- Computer Applications revit, 3dsmax for the second year(ichep)-Legislation and professional practice for the fourth year (ichep)- Vernacular design for the first year (ENVR)- Working Drawings for Third Year(ENVR)- Graduation Project for the Fourth year (ENVR) – Execution and quantities (ENVR)- Report writing (ENVR) - Working Drawings for Third Year (LAAR). Working Drawings for Third Year, Architecture Engineering, ASU. Architecture Drawings for the First year, Architecture Engineering, ASU. Working Drawings For Third Year,Architecture Engineering, ASU (I gave a lecture in this course with the honour Help and directions from a participant doctor in the course, the content for lecture was the electrical Disciplinary in the process of designing and working drawings of Buildings).

ONLINE COURSES

[2019 – 2021] **Training courses**

- Digital Marketing from Maharat Google.
- Participating in the Convincing and negotiating skills training course.
- Participating in scholar publishing in indexed journals training course.
- Participating in the scientific writing training course.
- Participating in the Active learning training course.
- Participating in the strategic plan training course.
- Participating in the Microsoft 365 training course.
- Participating in the Moodle training course.

[Oct 2014 – Aug 2016] **Architectural Programs Training**

- Certificate of Completion of Autodesk Revit Architecture.
- Learning 3dsmax at CG Studio Company.
- Learning rhinoceros & grasshopper program at Cad masters Company.

HOBBIES AND INTERESTS

Hobbies

- Realistic portraits drawing and paintings.
- Amateur photography .
- Digital Fabrication.
- Interior Design.
- Hand sketching.
- Hand Modeling.

VOLUNTEERING

ASU Charity community Cairo, Egypt.

I was a volunteer in ENG ASU Charity community as a donator of some academic materials.

[2013 – 2014] **Student Activity " Brainstorm organization"** ENG, ASU, Cairo, Egypt.