

10624 Desert Springs Cr
Houston, TX 77095

rlabib@tamu.edu
Phone: 832-922-3045

Website: RaniaLabib.com

Rania Labib

Education and certificates

- Sep 2014 – current* **Texas A&M University**
PhD, Architecture (Expected graduation date June 2018)
United States
- Sep 1992 – Jul 1997* **Minia University**
5-year professional BSc, Architectural Engineering
Egypt
- May 2016* **University of Michigan, School of Information Technology**
6-month Certificate: Programming in Python
Completed on Coursera
Final project: Creating an SQL database and interactive map to visualize the location of top 500 universities across the world
- Oct 2016* **University of California, Irvine (UC Irvine)**
6-month Certificate: Programming for the Internet of Things
Completed on Coursera
Final project: Building a device to collect temperature, humidity, and air pressure and stream the collected data to the internet for easy access
- Nov 2017* **ETH Zurich, Switzerland**
Course: Smart Cities
Completed on edX
Final project: Improving the urban layout of Empower Shack project in Cape Town, South Africa
- June 2017* **IE School of Architecture and Design, Madrid, Spain**
Course: Making Architecture
Completed on Coursera
- Jan 2017* **IBM**
1-month Course: A Developer's Guide to the Internet of Things (IoT)
Completed on Coursera
- Ongoing* **University of Pennsylvania**
Course: Designing cities
3-month course

Completed 70% - Expected finish date (April 2018)

Ongoing **University of Pennsylvania**
Robotics
6-month certificate
Completed 10%- Expected finish date (May 2018)

February 2017 **Illuminating Engineering Society (IES)**
(workshop) Course: Fundamentals of Lighting
4-month Workshop (in person at a local IES chapter)

Researchgate Statistics

As of January, 1,2018

RG Score 4.95

Reads 968

Recommendations 16

Google Scholar Statistics

As of January, 1,2018

Citations 12

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Research Interests

Advanced Building Performance Simulations

Adaptive Facades

Connected smart facades

Smart cities

Human-centered design

Daylighting

Energy modeling

Performance based design, especially in parametric design environments.

Embedded devices, aka IOT devices, to achieve human-centered design.

Sustainable Building Design, with focus on high performance daylighting systems.

Incorporating computer programming into Architectural education and research

Awards, Grants, and Competitions

Nov 2017 Malcolm Verdict Memorial Poster Competition – 3rd place winner at the 2017 Texas Energy Summit

Nov 2016 Scholarship: The Illuminating Engineering Society (IES) Emerging Professionals Scholarship.

- Sep 2016 Scholarship: Charles and Bonny Culp '06 Research award at Texas A&M University
- Sep 2016 **Award: National Science Foundation (NFS) Graduate Fellowship; Honor mention, \$150,000.00** (Please note: Honor mention recipient don't obtain funds)
- Oct 2015 Scholarship: The Illuminating Engineering Society (IES) Young Professionals Scholarship.
- Sep 2015 Scholarship: Norman & Renee Zelman Endowed Scholarship at Texas A&M University
- Sep 2014 Scholarship: Norman & Renee Zelman Endowed Scholarship at Texas A&M University
- Sep 2014 Fellowship: Selected to receive the merit based McKnight Fellowship from Florida Educational Funds (declined award to attend Texas A&M). \$15,000 a year for 5 years and full tuition at any University in Florida.

Journal Publications & Conference Proceedings

Rania Labib: Is computer programming beneficial to architects and architecture students for complex modeling and informed performative design decisions? 12th Advanced Building Skins, Bern, Switzerland; 10/2017

Rania Labib, Juan Carlos Baltazar: *Analysis and quantification of visual glare caused by photovoltaic panels installations in urban canyons*. 11th conference on Advanced Building Skins, Bern, Switzerland; 10/2016

Rania Labib, *Trade-off method to assess the interaction between light shelves and complex ceiling forms for optimized daylighting performance*. *Advances in Building Energy Research* 03/2015; 9(2). DOI:10.1080/17512549.2015.1014838

Mohammed Mayhoub, Rania Labib: *Towards A Solution for the Inevitable Use of Glazed Facades in the Arid Regions via a Parametric Design Approach*. The 29th CIE, Manchester, UK; 06/2015

Rania Labib, Liliana Beltran: *Optimized Street Design to Balance Outdoor Thermal Comfort and Indoor Daylighting Performance Within Large Scale Urban Settings in Hot Arid Climates*. 31st International PLEA; 09/2015

Rania Labib: *Trade-off Method to Assess the Interaction Between Light Shelves and Complex Ceiling Forms for Optimized Daylighting Performance*. 9th Energy Forum Advanced Building Skins, Bressenone, Italy; 10/2014 (**chosen among top 10 papers to get published in the Advances in Building Energy Research Journal**)

Rania Labib: *Improving daylighting in existing classrooms using laser cut panels*. *Lighting Research and Technology* 10/2013; 45(5). DOI:10.1177/1477153512471366

Rania Labib, Juan-Carlos Baltazar: *What if Buildings' Facades Could Talk to Each Other? Façade Internet of Things (F-IoT)*, 14th Annual CATEE 2017, Nov 2017. **3rd place winner poster**.

Scientific Committees

- 2015 to current Daylighting Committee, Illuminating Engineering Society (IES):
Currently, on a special IES sub-committee to revise the RP-5-13, (a recommended practice guide published by the IES titled “Recommended Practice for Daylighting Buildings”)

Invited Critique

- Spring 2018* School of Architecture, Texas A&M University,
ENDS 105 mid-term project: The future of the past, Expanding Siena, Italy
- Fall 2017* School of Architecture, Texas A&M University,
ENDS 105 mid-term project: A tower and skin
- Summer 2016* School of Architecture, Texas A&M University,
ENDS 106 final project: A Pavilion
- Summer 2016* College of Architecture, Texas A&M University,
ENDS 106 mid-term project: A public space
- Spring 2015* School of Architecture, Prairie View A&M University,
ARCH 2415 final project: A house for an artist

Invited lecturer and taught workshops

- Spring 2015* College of Architecture, Texas A&M University,
Daylighting and glare simulations in Parametric Environments:
A workshop for a graduate daylighting course
- Spring 2016* College of Architecture, Texas A&M University,
Parametric Design Using Grasshopper
A workshop for an undergraduate design communication course
- Spring 2018* College of Architecture, Texas A&M University,
The architecture of ancient Egypt
A lecture for a world architecture course

Teaching experience

- Fall 2017* Professor of Record at Texas A&M University
Course: **ENDS 115** Design Communication Foundation I
Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4743** Building Information modeling
- Spring 2017* Professor of Record at Texas A&M University
Course: **ENDS 115** Design Communication Foundation I
Course: **ENDS 105** Foundation Design Studio
Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4733** Computational design
- Fall 2016* Professor of Record at Texas A&M University
Course: **ENDS 115** Design Communication Foundation I
Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4737** Building Information modeling
- Summer 2016* Professor of Record at Texas A&M University
Course: **ENDS 116** Design Communication Foundation II
- Spring 2016* Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4733** Computational design
Course: **ARCH 5737** Advanced Building Information modeling
- Fall 2015* Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4737** Building Information modeling
- Spring 2015* Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4733** Computational design
Course: **ARCH 5737** Advanced Building Information modeling
- Fall 2014* Adjunct assistant professor at Prairie View A&M University
Course: **ARCH 4737** Building Information modeling

Non-Teaching Graduate Assistantship (GANT) experience

- Spring 2018 Graduate Assistant (non-teaching)
Duties: Preparing Energy, Daylighting, Glare, and Thermal comfort simulations and teaching material for use in a newly created course.

Certifications

- Since 2018 A member of ASHRAE student chapter at Texas A&M University
- Since 2016 Academy for Future Faculty Certificate from Texas A&M University
- Since 2008 LEED AP (Leadership in Energy & Environmental Design Accredited professional) Accredited by the US Green Building Council.
- Since 2000 Registered Architect in Egypt.
- Since 2008 Associate AIA (American institute of Architects.)
- Since 1998 A member of The Egyptian Syndicate of Engineers.

Skills and Languages

Computer Skills AutoCAD
Revit Architecture, including energy and building performance plugins
Rhino and algorithmic modeling using Grasshopper
Energy Plus, eQuest, DOE 2.1E, Open Studio, and Design Builder
Sketchup
Daylight simulations software such as Diva for Rhino
Energy simulations using Autodesk Vasari, and Ecotect
Grasshopper building performance plug-ins such as Honeybee and Diva
Grasshopper climate analysis plug-ins such as Ladybug
Envi-met, OTC Model, and UMI for urban scale simulations
Dynamo
Microsoft office applications
Adobe Applications: Including Photoshop, Illustrator, InDesign.
Autodesk impression for presentation.

Computer Programming Python (experienced in writing custom Grasshopper components using Python)
HTML
JavaScript
Internet of Things (IoT)
Robotics (Arduino and Raspberry Pi)
Node Red
SQL (experienced in streaming building performance simulation results to SQL database)
Linux operating system
MQTT
Node.js

Languages Native: **Arabic**
Fluent: **English**
Intermediate: **French**
Beginner: **Italian**
Beginner: **German** (Currently working on improving my German skills)

Citizenship Dual Citizen (Egyptian/American)

Computer Programming Projects for Architectural Purposes:

- 2016 **Dynamic IoT-powered pavilion design**
The pavilion design project was implemented under my supervision at ARCH 106 class in Texas A&M University. The students were instructed to design and prototype a simple pavilion that has dynamic shading devices, the devices are controlled by an Arduino that has light sensors connected to it. The devices rotate to block sunlight in the summer based on the information collected by the light sensors.
- 2016 **Online-connected weather data logger**
A data-logger that I designed, programmed, and prototyped using a Raspberry Pi and a set of sensors that collect data from the surrounding environment such as temperature, lighting level, air pressure, humidity.....etc. I programmed the Raspberry Pi to save the collected data in an SQL database. For the purpose of accessing the data online, I created a dedicated webpage with an easy-to-read interface to display live data from the logger. The logger was used to test the indoor environment of multiple around The College of Architecture at Texas A&M University.
- 2017 **Custom Grasshopper component to visualize annual glare data**
A custom Grasshopper component to parse and visualize daylight glare probability (DGP) values on dynamic graphs. A combination of Python, JavaScript, and HTML were used to create the component.
- 2018 **Custom Grasshopper component for shading and reflection analysis**
A Grasshopper component developed using Python. It is used to assess glare caused by reflective facades in urban environments in the early design phase. **The component is currently under consideration for inclusion in the next Honeybee and Ladybug's release.**

Professional practice experience

2012-2013	Senior Architectural Designer/ BIM associate
Firm	Farrell Partnership Architectural firm, New Jersey
Duties:	<p>BIM using Revit Architecture on a daily basis to develop design ideas and construction documents.</p> <p>Worked on commercial projects, an example project is a 22,000 sf two-story office/ warehouse building.</p> <p>Coordinated with electrical, mechanical, structural, and plumbing; engineers to produce and solve issues with construction documents.</p>
2008-2009	Architectural Designer/ BIM associate
Firm	Farrell Partnership Architectural firm, New Jersey
Duties:	<p>Helped the firm members to convert to BIM software via Group and Individual Training sessions and continuous support.</p> <p>BIM using Revit Architecture on a daily basis to develop design ideas and construction documents.</p> <p>Establishing Design Ideas, and presenting them a graphic way.</p> <p>Preparing Construction documents (CD).</p> <p>Construction field Observation.</p> <p>Making sure projects are code compliant.</p> <p>Preparing Bidding and contract forms.</p> <p>Managing Junior Architects and intern</p> <p>Attending Coordination meeting with Engineers.</p> <p>Worked on pharmaceutical, commercial and offices layouts</p> <p>Researched equipment, Materials and furniture to be used in a different projects</p> <p>Put together presentations for Worldwide Makeup and Perfume companies like L'Oreal, Symrise, and Snofi Avantis.</p>

Hobbies

Spending time with my family
Learning foreign languages
Making things with Arduino and the Raspberry Pi
Reading