



S. AMIR TABADKANI

Architect and Computational Designer
Sustainability Consultant
Energy & (Day)lighting Optimization Expert

Current position:

Sustainability Consultant at Stantec, PhD Candidate and Research Assistant, School of Architecture and Built Environment, Deakin University, Geelong Waterfront Campus, Australia



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Core Skills

Reference (<https://issuu.com/amirtabadkani/docs/esd-portfolio>):

- 3D rendering and real-time animations
- Climatic Form-finding
- Energy modeling and simulation
- (Day)light modeling and strategies
- Thermal/Visual comfort assessment
- Façade design and detailing
- Thermal bridging modeling and evaluation
- Computational design
- Performance prediction of adaptive solar shading systems
- Developing advanced and responsive control systems

Education

Deakin University, Australia

[2018 – 2021]



PhD Candidate in Architecture & Built Environment

Dissertation: Towards a simulation-based operation of non-conventional adaptive facades – A Personalized Real-time Control (PRC)

Polytechnic University of Milan (POLIMI), Italy

[2012 - 2015]



M.Sc. in Architectural Engineering - Total GPA: 108/110

Thesis: Innovative Bio-climatic European School Complex in Crete, Greece

<http://hdl.handle.net/10589/112912>



Azad University of Mashhad, Iran

[2007 - 2011]

B.Sc. in Architectural Engineering - Total GPA: 17.35/20

Academic Honors

HDR Scholarship Winner for Doctoral Studies at Deakin University (DUPRS)

2018

[Issuer: Deakin University]

Silver Scholarship Winner for Master Studies at Milan Polytechnic University

2012

[Issuer: Milan Polytechnic University]

Internship

A collaboration between Ball State University of USA and Polytechnic University of Milan, Italy towards preserving MONDONICO in a 7 days' workshop (80 hours) as a qualified student

2014



Responsibilities: Masterplan design and drawing technical details, and Envelope thermal analysis

Journal Papers	Cite Score
Tabadkani, A., Roetzel, A., Hong Xian, L., Tsangrassoulis, A. (2021). Daylight in buildings and visual comfort evaluation: The advantages and limitations. <i>Journal of Daylighting</i> , 8, pp. 181-203, https://doi.org/10.15627/jd.2021.16	2.3
Tabadkani, A., Roetzel, A., Hong Xian, L., Tsangrassoulis, A., Attia, S. (2021). Analysis of the impact of automatic shading control scenarios on occupant's comfort and energy load. <i>Applied Energy</i> , 294, pp. 116904, https://doi.org/10.1016/j.apenergy.2021.116904	17.6
Hajirasouli, A., Banihashemi, S., Kumarasuriyar, A., Talebi, S., Tabadkani, A. (2021). Virtual reality-based digitization for endangered heritage sites: Theoretical Framework and Application. <i>Journal of Cultural Heritage</i> , 49, pp. 140-151, https://doi.org/10.1016/j.culher.2021.02.005	5.1
Tabadkani, A., Roetzel, A., Hong Xian, L., Tsangrassoulis, A. (2021). Design approaches and typologies of adaptive facades: A review. <i>Automation in Construction</i> , 121, pp. 103450, https://doi.org/10.1016/j.autcon.2020.103450	12
Tabadkani, A., Roetzel, A., Hong Xian, L., Tsangrassoulis, A. (2021). A review of occupant-centric control strategies for adaptive facades. <i>Automation in Construction</i> , 122, pp. 103464, https://doi.org/10.1016/j.autcon.2020.103464	12
Tabadkani, A., Roetzel, A., Hong Xian, L., Tsangrassoulis, A. (2020). A review of automatic control strategies based on simulations for adaptive facades. <i>Building and Environment</i> , 175, pp. 106801, https://doi.org/10.1016/j.buildenv.2020.106801	9.7
Tabadkani, A., Tsangrassoulis, A., Roetzel, A., Hong Xian, L. (2020). Innovative control approaches to assess energy implications of adaptive facades based on simulation using EnergyPlus. <i>Solar Energy</i> , 206, pp. 256-268, https://doi.org/10.1016/j.solener.2020.05.087	8.9
Soflaei, F., Shokouhian, M., Tabadkani, A., Moslehi, H., Berardi, U. (2020). A simulation-based model for courtyard housing design based on adaptive thermal comfort. <i>Journal of Building Engineering</i> , 101335, https://doi.org/10.1016/j.jobe.2020.101335 .	5.5
Tabadkani, A., Valinejad Shoubi, M., Soflaei, F., & Banihashemi, S. (2019). Integrated parametric design of adaptive facades for user's visual comfort. <i>Automation in Construction</i> , 106, 102857. https://doi.org/10.1016/j.autcon.2019.102857	12
Tabadkani, A., Banihashemi, S., & Hosseini, M. R. (2018). Daylighting and visual comfort of oriental sun responsive skins: A parametric analysis. <i>Building simulation</i> (Vol. 11, No. 4, pp. 663-676). Tsinghua University Press.	5.1
Banihashemi, S., Tabadkani, A., & Hosseini, M. R. (2018). Integration of parametric design into modular coordination: A construction waste reduction workflow. <i>Automation in Construction</i> , 88, 1-12.	12
Conference Papers	
Hosseini, M.R., Banihashemi, S., Martek, I., Tabadkani, A., Shrestha, A. (2017). Sustainable construction project management critical success factors for developing countries, in <i>CRIOCM 2017: Proceedings of 22nd International Conference on Advancement of Construction Management and Real Estate</i> , [Melbourne, Vic.], pp. 77-84	0
Banihashemi, S., Tabadkani, A., & Hosseini, M. R. (2017). Modular coordination-based generative algorithm to optimize construction waste. <i>Procedia engineering</i> .	4
Tabadkani, A. (2016). Bio-climatic principles in cold semi-arid region: The case of Iran, 2 nd International Conference and 3 rd National Conference on New Technologies Application in Engineering	0

Statistics (Updated on September 2021) (Source: www.Scival.com)

FWCI (Field-Weighted Citation Impact (2020)) = 2.34 | **H-Index** = 8 | **I-Index** = 7

6 Publications in the **TOP 10%** most cited publications

8 Publications in the **TOP 10%** journals by Cite Score

Activities

- Review Editor** | Environmental Experience Design Journal [2021 - Now]
<http://scineerpub.com/index.php/EXD/about>
- Active Participant** | International Energy Agency's Energy in Buildings and Communities [2019 - Now]
(IEA EBC) – Annex 79 (<https://iea-annex.org/>)
- Reviewer** | Publishers: Elsevier, Solarlit, and Taylor & Francis [2018 - Now]
<https://publons.com/researcher/3848958/amir-tabadkani/>

Patent

- Smart Transformable Shading System Based on Different Climates** 2020
Publisher: The United States Patent and Trademark Office (USPTO)
Application NO.: US20180216399A1
Fund: Grant Award of US\$9,500 by 'The Organization of Support Fund of Technology and Researchers', The Iranian Presidency.
<https://patents.google.com/patent/US20180216399A1/en?inventor=Seyed+Amir+Tabadkani>

Awards

- Annual Research Day Award (Deakin University)** 2021
- Graham Treloar Research Prize (Deakin University)** 2021
As the best Higher Degree by Research student with publications in relation to embodied energy and sustainability in 2020
- Early Career Research (ECR) Performance Support Fund (Deakin University)** 2021
Publishing two Q1 cross-disciplinary publications in 2021 | Fund: AU\$1000
- Nearly-zero Energy Building Design – ZEB National Award, Iran** 2018
Awarded 1st Prize | Amount: IR Rls. 15,000,000
Role: Leader of the Team
Responsibilities:
- Optimizations including form finding and envelope construction material;
 - Annual daylighting and glare simulations for indoor spaces;
 - Energy modeling and delivering final energy consumption;
 - Modeling renewable energies through applying photovoltaic panels on the roof
- Achievements:**
- Proposing an energy efficient office building by consuming 65.83 kwh/m².year;
 - Glare-free indoor spaces for users;
 - Sufficient indoor daylight to reduce lighting energy loads;
 - Producing renewable energies up to 84.55 kwh/m².year by solar panels;
 - Delivering a Plus-Energy office building.

Academic Experiences

International

- Presentation** | 6th International Symposium on Occupant Behavior (IEA-EBC Annex 79) 2020

Australia

- Presentation** | HDR Research Day, School of Architecture and Built Environment, Deakin University, 2021
- Presentation** | "Sustainable Research Showcase" (Australian Institute of Architects) 2021

Teaching Assistant | School of Architecture and Built Environment, Deakin University, Geelong, Australia, **2020 - 2021**
Unit: “Building Environmental Studies (SRT257)”

Iran

Lecturer | Binaloud Institute of Higher Education, Mashhad, Iran **[2016 - 2017]**
Unit: “Climatic Conditions Control & Environmental Conditions Control”

Presentation | Ferdowsi University of Mashhad, Iran **2018**
Topic: ‘The role of simulators in building energy management decisions’ (2 hours)

Presentation | Niroo Research Institute (NRI) Ministry of Energy, Iran **2017**
Topic: ‘The role of simulators in building energy management decisions’ (2 hours)

Presentation | Khavaran University of Mashhad, Iran **2016**
Topic: ‘An introduction to building energy simulation tools’ (2 hours)

Workshop Instructor | Private sector, Mashhad, Iran **2018**
Topic: Parametric building’s energy simulation by Grasshopper environmental plugins (18 hours)

Workshop Instructor | Birjand University, Iran **2016**
Topic: Building energy simulations with an introduction to a parametric tool called Grasshopper and Ladybug-tools (4 hours)

Environmental Sustainable Design (ESD) Experiences

STANTEC – Sustainability Consultant | Brisbane, Australia **[2021 - Now]**

DEAKIN University – Research Assistant | Geelong, Australia

Research contributions in sustainability and building energy-efficiency fields under Dr. Xian Li supervision **[2021 - Now]**

Responsibilities:

- Literature review, Methodology, Simulation, and Visualizations

An ongoing industrial collaboration between FormFlow and Deakin University as an ARC linkage project. **[2021 - Now]**

Responsibility:

- Analyzing the building energy performance by applying a newly-introduced cellular flooring prototype for Australian construction market

UPGREENGRADE CO. – (Co-Founder) Sustainability Consultant | Mashhad, Iran **[2015 - Now]**

Primary responsibilities:

- Researching on new methods for delivering sustainable solutions and insights;
- Energy and daylight modeling of different design scenarios and their impacts on energy and daylighting performance in office and residential buildings;
- Optimizing the initial design variables and target-based form-finding;
- Calculating potentials of renewable energy sources like solar panel installations;
- Collaborating with mechanical and electrical engineers for sizing air-conditioning systems and lighting;
- Thermal bridging calculations and modelling;
- Developing construction details of facade in terms of insulation, thermal bridges, and condensation risks.

Achievements:

- Delivering optimum positions of the building mass with respect to the project demands;
- Energy modeling of multiple ESD projects, including: 2-storey primary school building (18 classes), SADR international hotel, high-rise office building of Iranian Oil Company, Istanbul residential building;

- Delivering well-daylit and glare-free environments in projects through shading systems;
- Online teaching of energy and daylight simulation tools, including: EnergyPlus, Grasshopper plugins (Ladybug, Honeybee, and DIVA), Energy Management System, and DesignBuilder.
- Sustainable and energy-efficient design of a 24-storey residential building through:
 - Optimizing the building mass with regards to solar radiation studies,
 - Finding the optimum window-to-wall ratio, construction details and shading systems to enhance both daylight penetrations and energy-efficiency,
 - Detailed energy modeling and simulation,
 - Daylight simulations based on sDA, ASE and DF factors,
 - Thermal bridging calculations and condensation risk analysis,
 - Improving the energy performance by 20% comparing to the ASHRAE 90.1 (2010) baseline model.

Architectural Design Experiences

NOMEL TOOS Executive Firm – Remote Architectural Designer | Mashhad, Iran

[2012 - 2016]

Primary responsibilities:

- Facade design and delivering construction details;
- Collaborating with structural and mechanical engineers;
- Delivering architectural layouts from conceptual sketches to construction details;
- Checking and editing drawings through a back-and-forth approach with structural and mechanical engineers.

Achievements:

- Conceptual urban layout for an island in Ryazan, Russia;
- Designing facade construction details of a 25-storey residential building;
- Revising architectural drawings and plans for Imam Reza Hotel;
- Interior designing of low-rise residential buildings;

FARADID Architectural Group – Architectural Assistant | Mashhad, Iran

[2011 - 2012]

Primary Responsibilities:

- Interior designing and three-dimensional renderings;
- Facade design and material selections;

Achievements:

- Interior designing of multiple residential buildings;
- Revising multiple given architectural layouts from other disciplines;
- Built relationships with potential new customers;
- Mastered new concepts in industry and construction phase quickly;
- Tackled projects that had been abandoned by former staff.

Certifications

Certified Passive House Designer

2021

[Issuer: Passive House Institute (www.passivehouse.com)]

Data Science for Construction, Architecture and Engineering

2020

[Issuer: EDX e-learning (ID: [e566e3046b1c4809b2d8365e544285d6](#))]

SEB-AUDIT-Advanced Energy Audit and Simulation in Building by DesignBuilder

2016

[Issuer: NEON AS and Design Builder Ltd (UK)]

Building Performance Analysis Certificate (BPAC)

2014

[Issuer: The Autodesk Education Team]

Technical Skills

Energy & (Day)lighting Analysis

EnergyPlus & EMS, Grasshopper Environmental Plugins (Ladybug-tools, HoneybeePlus, Butterfly & ClimateStudio), DAYSIM, WINDOW, THERM, DesignBuilder, OpenStudio, Multi-objective Optimizations, Dialux EVO

Data Science & Programming

Python Language

2D & 3D Modeling

AutoCAD, Revit Architecture, 3Ds Max & VRAY, Rhinoceros, SketchUp, Lumion

Graphical Presentation & Documentation

Microsoft Office Package, Freehand Sketching, Adobe Photoshop, Adobe Illustrator, Adobe After Effect

Languages

Persian - Mother tongue

English - Proficient

Italian - Average

References

Academic

Dr. Astrid Roetzel	Senior Lecturer at Deakin University	astrid.roetzel@deakin.edu.au
Dr. Hong Xian Li	Senior Lecturer at Deakin University	hong.li@deakin.edu.au
Prof. Aris Tsangrassoulis	Senior Lecturer at University of Thessaly, Greece	atsagras@arch.uth.gr
Dr. M.Reza Hosseini	Associate Head of Research at Deakin University	reza.hosseini@deakin.edu.au
Dr. Saeed Banihashemi	Assistant Professor at Canberra University	Saeed.Banihashemi@canberra.edu.au

Industry

Mr. Andrew Williams	Sustainability Section Manager at Stantec	Andrew.williams@stantec.com
Mr. Riju Rajeev	National Specification Engineer at Somfy, Melbourne	riju.rajeev@somfy.com
Mrs. Zamaneh Khoshdel	Associate Project Lead at Inhabit Group, Melbourne	zamaneh.khoshdel@inhabitgroup.com
Mr. M. Hossein Abbasi	Healthy Building Specialist at WSP, Chicago	mabbasi2@hawk.iit.edu