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Associate AIA, Founder and
Director of the intelligent Design
and Art (iDNA) Research Lab

Assistant Professor of
Architectural Engineering
Alfaisal University
Riyadh, KSA

P.O.Box 50927

Riyadh 11533

Kingdom of Saudi Arabia

CURRENT POSITION

*Founder and Director of the intelligent Design and Art (iDNA) Research Lab,
Alfaisal University, KSA (Since 2013)*

address: <http://tarekmokhtar.wixsite.com/idna-rg>

Assistant Professor of Architectural Engineering of Alfaisal University

SPECIALTIES

Inventor of interactive/autonomous systems for healthcare environments,
US Patent 17/395,847

*Executive Editor of the Journal of Architectural Engineering Technology
(JAET)*

Author of Springer Book Chapter on Social Robots, entitled: "Designing
Social Robots at Scales Beyond the Humanoid." in *Social Robots:
Technological, Societal and Ethical Aspects of Human-Robot Interaction*
(pp.13–35 (Springer International Publishing, 2019).
doi:10.1007/978-3-030-17107-0_2

Author of forthcoming peer-reviewed book on Monuments, entitled: "How
Robotics Will Change the Way We Design Monuments: Monumental-
IT" (Edwin Mellen Press).

Technical Program Committee (TPC) reviewer of CHI, ACM *UbiComp/*
ISWC, IEEE TALE international Conferences.

Research Focus

Non-Humanoid Social Environments, Cyber Physical Systems, Intelligent
Environments (Architectural Robotics), Internet of Things, Human-Centered
Design, Evidence-Based Design, Human-Space Interaction; Design
Thinking, Quasi-Experimentation and Usability Evaluations; Digital Design
and Fabrication; Aesthetics; Computation; and Cybernetics.

Teaching Interest

Architectural Design, Digital Industrial/Product Design, Construction
Documents/Integrated Design, Computation in Architecture (CAD and BIM),
Digital Fabrication, and Theory of Architecture and Technology.

EDUCATION

*Doctor of Philosophy (Ph.D.) in Planning, Design, and the Built
Environment (PDBE), Clemson University, USA*

Concentration area: Technology, Materials + Construction Processes-

Research Stream 7.0: Intelligent Environments

(Fall 2008 - August 2011)

Advisors: Keith Evan Green, Ian David Walker, Mickey Lauria, Peter Laurence
Dissertation Title: Monumental-IT: A "Robotic-Wiki" Monument for Embodied
Interaction in the Information World

Master of Science (M.Sc.) in Architectural Engineering

Concentration: Theory of Architecture

(September 2001- May 2006)

ASUFEDA, ASU, Cairo, EG

Advisors: L. Sherif, K. Dewidar, and M. Gabr

Thesis Title: The New Scenario of Aesthetics: Philosophy & Meaning of Beauty in Millennium Architecture

Bachelor of Science (B.Sc.) in Architectural Engineering, ASU, FEDA, CA, EG

(September 1995- May 2000)

Minor: B.Sc. with Honors - Architectural Engineering (August 2000)

ADMINISTRATIVE EXPERIENCES

Founder and Director of the intelligent Design and Art (iDNA) Research Lab, Alfaisal University, KSA (Since 2013)

address: <http://tarekmokhtar.wixsite.com/idna-rg>

Chairman of Architectural Engineering Department, Alfaisal University; Riyadh, KSA — Fall 2014-Fall 2017

The former Chairman of the Architectural Engineering (ARE) Department of Alfaisal University. Alfaisal University is a world-class research and student-centered university

TEACHING EXPERIENCES

Assistant Professor, Alfaisal University; Riyadh, KSA — Spring 2013-Present

I taught and still teaching the following courses: ARE201: Architectural Design I, ARE303: Interior Design; ARE220: Construction Drawings (employing the use of Building Information Modeling - BIM), ARE 315: Lighting Systems and Applications, and ARE490: Architectural Engineering Capstone Project. This coming year, I am planning to teach a new advanced elective course entitled Digital Design and Fabrication.

Assistant Professor, Dar Al-Uloom (DAU) University; Riyadh, KSA — Fall 2011- Fall 2012

I taught the following courses: ARCH301: Intermediate Design Studio I; DES101: Design Foundation I; ARCH212: Graphic Communications; ARCH 313: Theory of Architecture II; DES111: Design Foundation II; and, DES103: Digital Photography and Image Processing.

Lecturer, Clemson University; Clemson, USA — Spring 2009 - Spring 2011

I taught the following courses: ARCH251 and ARCH 252 Architecture Foundation II (Digital Component of the Studio); ARCH151: Architecture Foundations I (The Digital component of the Studio); ARCH 401-402: Portfolio II; and, MARCH 842/452: Digital Studio.

Assistant Professor (2008-present, On Leave), Senior Lecturer (2006-2008) and Teaching Assistant (2000-2006) of ASUFEDA: Ain Shams University - Faculty of Engineering, Architectural Engineering Department; Cairo, Egypt — Fall 2000 - Spring 2008

I taught the following courses: ARCH 425: Design Studio IV (2001-2003, Spring 2004, 2005-2008); ARCH 230: Computation in Architecture (2002-2008); ARCH 325: Design Studio III (Fall 2003-Fall 2004); ARCH 367: Working Drawings I (2000-2008); ARCH 330: Digital Presentation (2003-2005); and, ARCH 124: Design Studio I (2000-2001, 2004-2005).

Lecturer (2006-2008) and Teaching Assistant (2000-2006); Modern Academy for Technology and Information (MTI) - School of Architecture; Maadi, Egypt — Fall 2002 - Spring 2008

I taught the following courses: ARCH 1030: Design Studio (2002-2006); ARCH 4030: Design Studio IV (2006-2008); ARCH 3210: Working Drawings (2004-2008); ARCH 2030: Digital Architecture (2006-2008).

FUNDING RECORDS

Founder of the intelligent Design and Art Research (iDNA) Group. The iDNA Research Group is an interdisciplinary group that focuses on designing intelligent industrial and architectural products (Started on Fall 2013).

RESEARCH GRANTS

Tarek Mokhtar, Alfaisal University, USD 133K/SAR 500,000, 2015-2017, iCE: An intelligent Classroom Environment to Enhance Education in Student- Centered Higher Educational Institutions,
Co-PI: Dr. Abd-Elhamid Taha, Dr. Nidal Nasser, Dr. Samer Mansour, and Dr. Ahmed Oteafy

Tarek Mokhtar, Alfaisal University, USD 13K/SAR 48,500, 2013-2014, BeRo: A Hybrid Physical- Digital Robotic Platform to Recall A Culture of Belonging in Educational Institutions,
Co-PI: Dr. Samer Mansour

I had also assisted in preparing three NSF proposal submissions:

Green, Keith Evan; Walker, Ian D.; Sashton, Susanna; Burns, James; Bartely, Abel: "Monumental-IT" a Digital-Physical Monument for the Information World, National Science Foundation (-----), \$513,845 (requested resubmission)

Green, Keith Evan; Walker, Ian D.; Sashton, Susanna; Burns, James; Bartely, Abel: "Monumental-IT" a Digital-Physical Monument for the Information World, National Science Foundation (Creative-IT), \$298,653 (requested resubmission)

Walker, Ian D.; Brooks, Johnell O.; Green, Keith Evan; Logan, William C.; CDI-Type II: comforTABLE: an Intelligent Support Environment for Aging in Place, National Science Foundation (OIA - CDI TYPE II), \$1,610,326 (requested resubmission)

Grant Applications (not funded)

Mokhtar, T., Manganelli, J. The interactive Asiri Tent (iAT): A Game-Based Non-Humanoid Social Robotic Home Environment For Fostering Sports-Related Skill Development, Prince Faisal Bin Fahad Award for Sports Research, 2021.

Tarek Mokhtar. rLEGO: A Robotic Architectural Building Block in Response to User's Preferences and the External Environment, Alfaisal Internal Research Grant, 2019.

RESEARCH PROJECTS

iCE (Tarek Mokhtar (PI), A. Taha, N. Nasser, S. Mansour, A. Oteafy), *"An intelligent Classroom Environment to Enhance Education in Student- Centered Higher Educational Institution"*.

BeRo (Tarek Mokhtar (PI), S. Mansour), *"A Hybrid Physical- Digital Robotic Platform to Recall A Culture of Belonging in Educational Institutions"*.

Architectural Robotics - Clemson University (for more details- Please check my website)

M.IT (Ph.D. Research Project), Monumental-IT: A "Robotic-Wiki" Monument for Embodied Interaction in the Informational World

We.Bot : Weather Monument (Tarek Mokhtar and Akshay Apte)
ET: Emotional Together (Tarek Mokhtar and Paul Yanik)

YOU: Interactive Prosthetic Leaf (Tarek Mokhtar and Apporva Kapadia)

iToi: Interactive Toilet (Tarek Mokhtar and Ivan Siles)

PROFESSIONAL AFFILIATIONS

Associate AIA Member, American Institute of Architects (AIA,) US, Since 2020

Registered Architect at the Egyptian Association of Engineers (EAE), since 2000

Association for Computing Machinery (ACM): ACM Special Interest Group on Computer-Human Interaction (SIGCHI), since 2009.

The Institute of Electrical and Electronics Engineers (IEEE), since 2018.

The Institute for Intelligent Materials, Systems and Environments (IMSE), Cornell University, USA, since 2008.

RESEARCH PUBLICATIONS

Patents

Tarek Mokhtar. US Patent 17/395,847, USA, expected publication date June/July 2022

Books and Book Chapters

Mokhtar, T. H. Designing Social Robots at Scales Beyond the Humanoid. in *Social Robots: Technological, Societal and Ethical Aspects of Human-Robot Interaction* (ed. Korn, O.) 13–35 (Springer International Publishing, 2019). doi:10.1007/978-3-030-17107-0_2

Author of forthcoming peer-reviewed book on Monuments, entitled: "How Robotics Will Change the Way We Design Monuments: Monumental-IT" (Edwin Mellen Press)

Journal and Conference Papers

Mokhtar, T., Oteafy, A., Taha, A., Nasser N., Mansour S. "iCE: An intelligent Classroom Environment to Enhance Education in Higher Educational Institutions," *20th International Conference of Human-Computer Interaction (HCI) 2018*, Las Vegas, USA, July 15–20, 2018.

Mokhtar, Tarek and Mansour, Samer. The Belonging Robot (BeRo): A Hybrid Physical-Digital System to Reflect Moods, *18th International Conference of Human-Computer Interaction (HCI) 2016*, Toronto, Canada, July 17–22, 2016. pp.420-425.

Apoorva D. Kapadia, Ian D. Walker, Keith Evan Green, Joe C. Manganelli, Henrique Houayek, Adam M. James, Venkata Kanuri, Tarek Mokhtar, Ivan Siles, and Paul Yanik . A Novel Approach to Rethinking the Machines We Live In: A Multidisciplinary Course in Architectural Robotics, *IEEE Robotics and Automation Magazine*, 2014

Mokhtar, Tarek; Green, Keith; Walker, Ian. Giving Form to the Voices of Lay-Citizens: Monumental-IT, an Intelligent, Robotic, Civic Monument, *Communications in Computer and Information Science, Volume 374*, pp 243-247, HCI2013, Las Vegas, USA, 2013. Chapter in Book/Report/Conference proceeding › Conference contribution.

Mokhtar, Tarek. Learning from Interaction, Editorial in the *Journal of Architectural Engineering Technology*, 2012, Volume 1, Issue 1, 1000e10, 2013.

Mokhtar, Tarek; Green, Keith; Walker, Ian. Monumental-IT: A Robotic Monument in an Open Society - The Dream of a Robotic Monument is Near!," *Prix Ars Electronica 2012* [the next idea], Linz Austria.

Kapadia, A., Walker, I., Green, K. E., Manganelli, J., Houayek, H., James, A. M., Kanuri, V., Mokhtar, T., Siles, I. & Yanik, P. Aug 26, 2010. "Architectural robotics": An interdisciplinary course rethinking the machines we live in," *Proceedings - IEEE International Conference on Robotics and Automation*. p. 48-53 6 p. 5509821, Chapter in Book/Report/Conference proceeding › Conference contribution.

Mokhtar, T. H., Green, K. E., Walker, I. D., Threatt, T., Murali, V. N., Apte, A. & Mohan, S. K. Jun 9, 2010, "Embedding robotics in civic monuments for an information world," *Conference on Human Factors in Computing Systems - Proceedings*. p. 3859-3864 6 p. Chapter in Book/Report/Conference proceeding › Conference contribution

Mokhtar, Tarek; Green, Keith; Walker, Ian; Threatt, Anthony; Murali, Vidya; Apte, Akshay; and Mohan, Sumod. Embedding Robotics in Civic Monuments for an Information World, *CHI2010*, Georgia, USA. (2010). Chapter in Book/Report/Conference proceeding › Conference contribution.

Mokhtar, Tarek. "Monumental-IT" Position Paper: Informing the Design of the Future Urban Landscape, *ACM Creativity and Cognition 2009 Workshop*. (2009).

Green, Keith; Walker, Ian; Brooks, Johnell; Mokhtar, Tarek; Smolentzov, Linnea. "comforTABLE: A Robotic Environment for Aging in Place", in the International Conference of Human-Robotic Interaction (*HRI2009*), San Diego, CA. (2009)

Mokhtar, T. H. " 'Hacking Identity ': A Reading for Cracks in Architecture", ARUP, ASUFEDA. (2008)

Mokhtar, T. H. "Flowers and Thorns': Architecture of Hope and Desire ", ARUP, ASUFEDA. (2008)

Mokhtar, T. H. "Plato Wings : Reading Aesthetics in Millennium Architecture.", ARUP, ASUFEDA. (2006)

Dewidar, K. M.; Mokhtar, T. H. "The Art of Structure and Nature. The Buildings of Auguste Perret in Alexandria.", Maritime Heritage, Wessex Institute of Technology. (2003)

Dewidar, K.M. and Mokhtar, T.H. "Vectors in Architecture. The New Age of Formalism," STREMAH, Wessex Institute of Technology. (2002)

RESEARCH SERVICES (2014-2021)

Technical Program Committee (TPC) Reviewer of the *ACM Computer Human Interaction (CHI) International Conference* (Since 2021)

Technical Program Committee (TPC) Reviewer of the *SIGCHI Ubiquitous Computing UbiComp/ISWC 2021 International Conference* (Since 2021)

Technical Program Committee (TPC) Reviewer of *IEEE Teaching, Assessment and Learning for Engineering International Conference* (Since 2018), and Session Chair (Since 2020)

Research Group Leader of Alfaisal University's Annual Research Poster Competition (Since 2014)

Organizing Committee Member of the Archibots workshop @ UbiComp 2009 (<https://arl.human.cornell.edu/archibots.htm>)

ACHIEVEMENTS AS THE CHAIRMAN OF ARCHITECTURAL ENGINEERING (2014-2017)

Established the ARE Advisory Board

The Advisory Board Members are leaders from the construction and engineering industry to help in reviewing the ARE curriculum and provide advises for the development of the department. The established Advisory Board members are, Princess/Architect AlJohara AlSaud (Henning Larsen Architects), Eng. Robert Okpapla (BuroHappold Engineering), Dr. Zaher Otham (Founder of Tara Publishing), and Architect/Dr. Ibrahim AlSaudi (Saudi Oger Ltd.)

The number of ARE students had grown from only 24 students to more than 140 students in three years.

On 2017 and 2018, the ARE department had organized in collaboration with the Royal Institute of British Architects (RIBA), the first and second annual RIBA President's Students Medal Awards Exhibition in Riyadh. The RIBA Exhibition hosted a hundred projects from fifty international schools of architecture. Thirty top international architecture and construction companies had visited the exhibition and was open to the public.

The ARE department has finished its first Self Study Report and is developing the documents for both: the NCAAA (Saudi National Commission for Academic Accreditation and Assessment) and the US ABET *accreditation* (Accreditation Board for Engineering and Technology) which has later been used for receiving the ABET accreditation in Architectural Engineering on 2018.

The ARE department had grown from only two faculty members to nine high caliber professors and instructors who had graduated from the United States (5), United Kingdom (2), Spain (1), and Turkey (1).

Organized the Urban Design Challenge (UDC) Weeks

UDC 2016: Housing and the Integrated Neighborhood

The Happold Foundation in partnership with Alfaisal University, Burohappold Engineering, Henning Larsen Architects, and Knight Frank have set a series of urban design challenges for university students studying within the City of Riyadh.

UDC 2017: Connected and Autonomous Vehicles (CAVs) Design Sprint

The Happold Foundation in partnership with Alfaisal University had organized the first design sprint in the kingdom to envision the effect of autonomous vehicles on the future of our cities.

UDC 2018: Smart Cities Competition

The Happold Foundation in partnership with Alfaisal University had organized the third design competition in the kingdom to envision a day-in-a-life of a citizen living in a smart city on 2025 and 2050.

vision++

Alfaisal University's Architectural Engineering Magazine (vision ++). The "vision++" underlying philosophy is based on theoretical and practical approaches to architectural engineering. vision++ has been envisioned as a step for the future of the department's philosophical and methodological underpinnings.

ARE Digital Design Studios and Digi-Fab Shop

On 2016, the ARE Department had established the first digital design studios. The Digi-Studios are comprised of two studios. Each studio includes 20 drawing tables, equipped with 20 Mac Computers, wifi and ethernet connections; digital fabrication and print shop, and Outdoor Modeling Shop. On 2017, we had established a digital fabrication shop for digital applied design and fabrication, experimentation and prototyping.

Memorandum of Understanding (MoU) with Auburn University

On 2015, I had worked with the Dean of the CoE to have the first MoU between Alfaisal University and Auburn University on Teaching and Research.

Memorandum of Understanding (MoU) with BuroHappold Engineering

On 2015, We have signed a MoU with Burohappold Engineering on Teaching and Research.

Organized the Building Information Modeling Event (BIM) at Alfaisal University on October 21, 2015.

We had over 300 attendees for the BIM event. The event's three seminars were conducted by two international speakers from Saudi Oger Abu Dhabi, Winn W Gomez, BIM Manager at Oger International Abu Dhabi, and Amar Ashfaq, BIM Consultant at Oger International Abu Dhabi.

The ARE students are developing many skills, participating in international competitions, having internships at leading construction companies, namely, BuroHappold Engineering, Saudi Oger, Zaha

Hadid Architects, Omrania, among others; participating in research by the faculty members; conducting workshops; visiting real construction sites; and getting their hands dirty!

The ARE department had organized in my last two years as the Chairman of the Department at least two seminars/talks per semester which have been part of the ARE Culture! The speakers invited and gave talks at our department are, Simon Ingvarsten (Henning Larsen), Robert Okpala (BuroHappold Engineering), Michael John Cook (BuroHappold Foundation), Samer Bageen (University of Brighton), Ibrahim AlSaudi (Saudi Oger Ltd.), Clark Lundell (Auburn University).

COMPETITIONS

International Office Building Competition in Egypt, Participation – 2008

El Sheikh Zaed City, The Municipal Building Competition, cooperation with SHTEAM Consultant, Tamer El Gabaly, 1st prize – 2007

Design and Concept of the Shawamekh Park (Landscape Competition) at United Arab of Emirates (UAE), 1st prize (CUBE, Tarek Mokhtar) – 2007

The Science and Technology City Competition, 3rd Prize (CUBE Consultants) – 2006

The Riyadh Supreme Commission for Tourism Competition, 2nd prize (CUBE Consultants) – 2006

The Opera Library Competition (CUBEConsultants)- 2005

PROFESSIONAL EXPERIENCES (2000-2008)

TAREK MOKHTAR DESIGNS, CEO

Animation, the U.A.E (Emirates) Complex Court Competition (6 minutes)

Design the Residential Villa for the Colonel Al-Sherbeni at Pyramids Zone, EG.

Interior design, Dr. Hisham's Dentistry Clinic, EG.

Animation, the El-Masria Hotel, Sharm El Sheikh, EG.

Façade Design of the International Organization for Standardization (ISO), the Ministry of Factorization, EG.

Animation, Salah Salem and Thawra Underground Project, EG.

Interior Design, Eng. Alaa and Dr. Rasha's House, the Jungle House, Nasr City, EG.

Interior Design, the house of the Egyptian Ambassador, Mr. Nasrat's son, Turkey, Guatemala, Bosnia and Herzegovina Egyptian Ambassador, Maadi Degla, EG.

Interior Design, Mokhtar's House, New Cairo City, EG.

Urban Planning Development Projects at Damietta, EG.

Interior Design, the house of the Egyptian Ambassador, Mr. Nasrat's son, Turkey, Guatemala, Bosnia and Herzegovina Egyptian Ambassador, Sheraton Zone, Heliopolis, Cairo, EG.

Interior and Exterior design of ArchiTouch Furniture Showroom, Giza, EG.

Design, Mr. Sherif Mokbel's Villa, Tara Compound, El Sheikh Zaed, EG

SENIOR DESIGNER AND CTO AT CHEMONICS EGYPT CONSULTANCY GROUP

Design, the Chemonics Office Building, Syria.

Design, the Abu-Nahia Office Building, Libya.

Design, the Awata Urban Design, 500 Residential Units, Offices, Hospital, Commercial Buildings, Libya.

SENIOR DESIGNER AT ARID GROUP

Hayat Regency Hotel Extension (Interior Design), Hurghada, EG.

Renovation of the National Library of Egypt, Dar Al-Kotub, Bab Alkhalq, Cairo, EG.

Renovation and restoration of the Center for Egyptian Revolution, Qasr EL-Nil, Cairo, EG.

DESIGNER AT CUBE CONSULTANTS

Design, Residential Villa at Katameya Heights, EG.

Design, Residential and Multi-Complex Buildings at Helwan, EG.

Renovation of Historic Cairo – El Hakim Square Project and Bab El Fotouh, Cairo, EG.

Renovation and Development of El-Azhar and Hussein Square, EG.

Interior design, Dar EL-Shorouk Factory at Al-Obour (Bridge and Library Design), EG.

Working/Construction Drawings of Villa Hisham Riyadh at Al-Obour New City, EG.

ARCHITECT AND DESIGNER AT THE MINISTRY OF CULTURE

Reservation of the old Cairo city, Al-Muizz li-Din Allah Al-Fatimi Street,
Old Cairo City, EG

HONORS AND AWARDS

Alfaisal University, College of Engineering (CoE) Boeing Competition, First Award 2021. Supervising two winning projects, first and third awards, in Boeing competition, 2021.

Alfaisal University, College of Engineering (CoE) Excellence Award on Contributions for Receiving the Architectural Engineering ABET Accreditation, 2018-2024.

Alfaisal University, College of Engineering (CoE) Services Award 2018.

Invited Speaker at TU-Delft - The HyperBody Group — S. 2016

The Representative of Alfaisal University, The Infiniti Engineering Week, 2015

Representative of the ARE department of Alfaisal University in the "Future BIM Implementation" Conference - Riyadh 2016

Co-Organizer of the first international workshop on Architectural-Robotics, UbiComp 2010

The Representative of iMSE, the Institute for Intelligent Materials, Systems and Environments, at EUREKA 2010: Experiences in Undergraduate Research, Exploration and Knowledge Advancement

Awarded the Alpha Epsilon Lambda (AEL) Clemson University Graduate Honor Society Membership, 2009

Senator of Clemson University's Graduate Student Government (GSG), which is the official representative of Clemson University's graduate student body, 2009-2011

Member of Clemson's PDBE Faculty Meeting, graduate student representative, 2009-2011

Member of Clemson University - Dean's Council of Students of Clemson U, 2009-2011

Graduate Fellowship of the Dean of Graduate School, Clemson University, 2008-2010

Graduate Assistantship of Clemson University, 2008-2011

ASUFEDA grant for academic excellence, 2007-2009

UNIVERSITY SERVICES

Member of the CoE Research and Graduate Studies Committee at Alfaisal University -2020-present.

Member of the CoE Capstone Committee, College of Engineering, Alfaisal University, 2020-present.

Head of the CoE Capstone Committee, College of Engineering, Alfaisal University, 2018-2020

Head of the Research and Graduate Studies Committee, College of Engineering, Alfaisal University, 2017-2019

The CoE Research and Graduate Studies Representative at Alfaisal University's Research and Graduate Council -2014-2018

Member of the College of Engineering's Committee for CoE Strategic Plan 2018-2023

Member of the Research and Graduate Studies Committee, College of Engineering, Alfaisal University, 2014-2017

Member of the following committees (2014-2017): Academic Advising, Quality Assurance and Accreditation, and Activities Committees at the CoE of Alfaisal University

Member of the DAU's College of Architecture and Digital Design (CADD) Studio Committee, DAU, 2011-2012.