

## Education

- 2005: **Ph.D. in Architecture**; Texas A&M University, USA: Computation and Digital Photogrammetry in Architecture and Historic Preservation.
- 2005: **Graduate Certificate in Historic Preservation**; Center for Heritage Conservation. Texas A&M University, USA.
- 1999: **M.S. in Architecture Engineering**; College of Engineering & Technology. The University of Jordan; Jordan
- 1994: **B.S. in Architecture Engineering**; College of Engineering & Technology. The University of Jordan; Jordan.

## Awards and Recognition

- 2012: **ARCC 2011-2012 New Researcher Award winner** (National Award). Architectural Research Centers Consortium. Awarded March 2012 and announced at the **ACSA 100** (Association of Collegiate Schools of Architecture) Annual Meeting in Boston, MA.
- 2012: **Paper illustration featured** on cover of *Acta Crystallographica A: Foundations of Crystallography*. The cover was used for all 2012 issues of the journal.
- 2010: **U.S. Department of State Recognition**. Elected by the U.S. Department of State to lead the effort in establishing and building the first comprehensive Historic Preservation Program in Iraq, as part of The Iraq Cultural Heritage Project (IHP). This international and high profile project was funded through **\$13 million grant** by US Embassy in Baghdad and was announced by the First Lady Laura Bush in 2008.
- 2009: **Texas Tech Alumni Association's New Faculty Award**. Excellence in Teaching and Research. Texas Tech University, Lubbock, Texas.
- 2009: **Teaching Academy Award**, Texas Tech Academy, Texas Tech University, Lubbock, Texas.
- 2005: **The Charles E. Peterson Prize**. (Second Place), Documentation of Montezuma Castle, Off I-17, Camp Verde vicinity, Yavapai, AZ, Historic American Buildings Survey. Library of Congress, Washington, D.C. USA. Team leader: Texas A&M University.
- 2002: **Ph.D. Scholarship**, (2002-2005) From the Hashemite University in Jordan to pursue PhD studies in Texas A&M University, College Station.
- 2002: **Graduate Fellowship**, (2002-2003) College of Architecture, Texas A&M University, College Station, TX.
- 2000: **Preservation Award** (First Place), 1996-2000: International Competition for the Reconstruction of "Minbar of Saladin", Al Aqsa Mosque in Jerusalem". Funded through **\$6 million** granted by his late King Husain of Jordan. (*This effort was published in 2008 "The Minbar of Saladin: Reconstructing a Jewel of Islamic Art"* – (Forewords by HRH The Prince of Wales and HRH Prince Ghazi bin Muhammad of Jordan).
- 1999: **Design Award**, (Second Place): National Design Competition for the National Children's Museum in Jordan. Sponsored by Queen Rania Al-Abdullah of Jordan.
- 1998: **Design Award**, (First Place): National Urban Design Competition for Al Hajj (pilgrimage) city in Jordan, Al Mihrab Architectural Co. and the Ministry of Awqaf and Islamic Affairs and Holy Places, Amman, Jordan.

## In the Media

- 2021: **Ajlouni, R.** News Article about her work, "Quasi-crystalline tilings", *Math in the Media*, American Mathematical Society, Tony Phillips, May 2021 issue.

- 2013:** Al Ajlouni, R. Invited Article, ‘Sacred Geometry’, in Aziza Magazine, *Tayyibah Taylor (ed.)*, WOW Publishing Incorporated. V. 7 Issue 3. (Summer, 2013)
- 2012:** Al Ajlouni, R. article about her work, ‘Ancient Islamic architects created perfect quasicrystals’ written by James Dacey, in *Physics World*, Publication of the Institute of Physics (Jan, 2012)
- 2012:** Al Ajlouni, R. article about her work, ‘Medieval Islamic quasi-periodic tilings’ written by Tony Phillips in *Math in the Media: A monthly survey of math news* (Feb, 2012)
- 2012:** Al Ajlouni, R. news article, ‘Architecture professor wins award for her discoveries, research’ by Nicole Molter, *Daily Toreador* (April 5, 2012)
- 2012:** Al Ajlouni, R. news article ‘Texas Tech Architecture Professor Makes Multidisciplinary Breakthrough’, by Melanie Hess, *Texas Tech Today* (June 2012)
- 2008:** “Stairway to Heaven: Reconstructing the Minbar of Saladin”. A documentary film about the Reconstruction of “Minbar of Saladin”, Al Aqsa Mosque in Jerusalem. AL Ajlouni, R. was the Principle architect for the project.

## Academic Teaching Experience

July 2019 -present : **Associate Professor with Tenure:**

School of Architecture, College of Architecture and Planning. The University of Utah

July 2015-2019: **Associate Professor:**

School of Architecture, College of Architecture and Planning. The University of Utah.

August 2014-May 2015: **Associate Professor:**

College of Architecture, Texas Tech University.

August 2007-July 2014: **Assistant Professor**

College of Architecture, Texas Tech University.

January 2010-December 2010: **Director: The Historic Preservation Program, Iraq**

The Iraqi Institute for the Conservation of Antiquities and Heritage, Erbil, Iraq; USA Department of State Project

Sept 2005-Jan 2007: **Assistant Professor**

Queen Rania Institute of Tourism and Heritage. The Hashemite University, Zarqa, Jordan

Sept 2004-Jan 2005: **Graduate Teaching Assistant**

GIS Lab Instructor: Geographical Information Systems in Landscape and Urban Planning, Department of Landscape and Urban Design, College of Architecture, Texas A&M University

Aug 2003-May 2004 : **Research Assistant**

Center for Heritage Conservation, Department of Architecture, College of Architecture, Texas A&M University.

Sept 2001 –Sept 2002: **Lecturer, Full time**

Department of Civil Engineering, Faculty of Engineering and Technology, Al-Balqa Applied University, Amman, Jordan.

Sept 1999 –Sept 2001: **Lecturer, Full time**

Institute of Traditional Islamic Arts, Al-Balqa Applied University, Amman, Jordan

## Research & Publications

### Book Chapter:

1. Al Ajlouni, R., (2013), ‘Octagon-based Quasi-crystalline Formations in Islamic Architecture’ In Siegbert Schmid, Ray L. Withers, and Ron Lifshitz (eds), *APERIODIC Crystals*. Springer: Amsterdam. pp. (49-58).

## Peer-Reviewed Publications

2. Ajlouni, R., D'Antonio, P., Alvim, L. A. and Petrolli, R., (2023), "Wave-based, cloud simulation of sound diffusors based on Einstein aperiodic tiling", *Applied Acoustics*. (under review-preprint).
3. Ajlouni, R. (2023), "Derived from the traditional principles of Islamic geometry, a methodology for generating non-periodic long-range sequences in one-dimension", *Journal of Mathematics and the Arts*, 17:3-4, 197-212
4. Ajlouni, R. (2023), "New Schemes of Organized Complexity Based on Quasi-Crystalline Symmetries". In Saif Haq and Adil Sharag-Eldin (eds), *Proceedings of ARCC 2023 INTERNATIONAL CONFERENCE, The Research Design Interface*, pp. 495-502.
5. Ajlouni, R. (2021), "Quasicrystalline Ceramics." In proceedings of BRIDGES 2021: Mathematics, Art, Music, Architecture, Culture, 2–6 August, 2021, 289-292.
6. Ajlouni, R. (2021), "From nano to building scale: Design and fabrication of acoustical diffusers based on quasi-crystalline atomic structure." In *Proceedings of ARCC 2021 International Conference: PERFORMATIVE ENVIRONMENTS ARCC*, April 7-10, 2021, virtual Tucson, Arizona. 255-262 .
7. Ajlouni, R. (2019), "A surface-stacking structural model for icosahedral quasicrystals." *Struct Chem* 30, 2279–2288. <https://doi.org/10.1007/s11224-019-01413-x>.
8. Ajlouni, R. (2019), Book Review. "Islamic geometric patterns: their historical development and traditional methods of construction: by Jay Bonner, (New York, Springer Nature)." *Journal of Mathematics and the Arts* 14:4, 370-375.
9. Ajlouni, R. (2019), "Re/constructing the Aleppo Minbar: a flexible methodology for generating Islamic patterns." *Journal of the International Society for the Interdisciplinary Study of Symmetry*. Special Theme: Tradition and Innovation in Symmetry. *Proceedings of the International Society for the Interdisciplinary Study of Symmetry 2019*. Kanazawa: Japan.
10. Ajlouni, R. (2019), "Islamic geometry in contemporary architecture: new frontiers of application." *Journal of the International Society for the Interdisciplinary Study of Symmetry*. Special Theme: Tradition and Innovation in Symmetry. *Proceedings of the International Society for the Interdisciplinary Study of Symmetry 2019*. Kanazawa: Japan.
11. Ajlouni, R. (2019), Glass fabrication. *ARCC 2019 Conference Repository*. 516-525. Retrieved from <https://www.arcc-journal.org/index.php/repository/article/view/667>.
12. Ajlouni, R. (2018), "Quasi-Periodic Geometry for Architectural Acoustics". *Enquiry*. The ARCC Journal for Architectural Research, Vol. 15, no. 1, Dec. 2018, pp. 42-61, doi:10.17831/enq:arcc.v15i1.453.
13. Ajlouni, R. (2018), "A seed-based structural model for constructing rhombic quasilattice with 7-fold symmetry." *Struct Chem* 29, July (2018)1875–1883. <https://doi.org/10.1007/s11224-018-1169-2>.
14. Ajlouni, R. (2018), "The relational logic behind the hierarchical geometry in Islamic art". In *Proceedings of ISSC 2018: Logics of Image: Visual Learning, Logic and Philosophy of Form in East and West*, Kolymbari, Crete, 11-18 August 2018.
15. Ajlouni, R. (2018), "Digital Conformity". In *Proceedings of ACSA 2018*, 106th ACSA Annual Meeting. The Ethical Imperative. March 15-17, 2018. Denver, Colorado. New York: Association of Collegiate Schools of Architecture.
16. Ajlouni, R. (2017), "Simulation of Sound Diffusion Patterns of Fractal-Based Surface Profiles", in Takehiko Nagakura, Skylar Tibbits, Mariana Ibañez and Caitlin Mueller (eds). *ACADIA 2017*. Proceedings Catalog of the 37th Annual

- Conference of the Association for Computer Aided Design in Architecture. Massachusetts Institute of Technology, Cambridge MA. pp 52-61
17. Ajlouni, R. (2017), "An ancient rule for constructing dodecagonal quasi-periodic formations". *Journal of Physics: Conference Series* Volume 809 (1): <http://iopscience.iop.org/article/10.1088/1742-6596/809/1/012028/pdf>.
  18. Ajlouni, R. (2016), "A Contemplative Pause on the Integration of Digital Computational Thinking into Architectural Education", in Manuel Couceiro da Costa, Filipa Roseta, Joana Pestana Lages and Susana Couceiro da Costa (eds). *ARCC Architectural Research Addressing Societal Challenges*. Leiden, the Netherlands: CRC Press.
  19. Ajlouni, R. (2016), Book Review, "Islamic Geometric Design" by Eric Broug. *The International Journal of Islamic Architecture*. Volume 6 Number 1.
  20. Al Ajlouni, R. (2013), "The Global Long-Range Order of Quasi-Periodic Patterns in Islamic Architecture". *Acta Crystallographica A: Foundations of Crystallography*. March 2012 issue. Section A. Vol. 68, Part II. The paper was featured on the cover of all issues of the journal in 2012.
  21. Al Ajlouni, R. (2012), "The Forbidden Symmetries", in Mark Cabrinha, Jason Kelly and Kyle Steinfeld (eds), *Synthetic Digital Ecologies*. Proceedings of the 32<sup>nd</sup> Annual Conference of the Association for Computer Aided Design in Architecture. Acadia Annual International Conference, San Francisco, California, October 18-21 2012, 391-400.
  22. Al Ajlouni, R. (2012), "Sustaining the Curious Mind: Integrating Research into Beginning Design Education", in *End of/in the Beginning: Realizing the Sustainable Imagination*, proceedings of The National Conference on the Beginning Design Student (NCBDS), Penn State University, March 29 2012.
  23. Ajlouni, R. and Justa, P. (2011), "Reconstruction of Eroded and Visually Complicated Archaeological Geometric Patterns: Minaret Choli, Iraq". *The Journal of Geoinformatics CTU FCE*. Volume 6 pp: 18-24.
  24. Al Ajlouni, Rima (2011). "A Long-Range Hierarchical Clustering Model for Constructing Perfect Quasi-Crystalline Formations". *Philosophical Magazine* 91, 2728-2738
  25. Al Ajlouni, Rima (2011). Biomimcry Studio: Nature-Inspired Sustainable Design Thinking. In L. Bahe, P. Hind & B. Kelly (eds), *Beginning of/In the End; Proceedings of The National Conference on beginning Design Student*. NCBDS27, University of Nebraska-Lincoln. 117-122.
  26. Al Ajlouni, Rima (2010). Representations of Architecture in Children's Art: a Study of the Art of Jordanian Children. In Hazem Rashed-Ali and Shelley Roff (eds), *Leadership In Architectural Research, Between Academia and the Profession*. Proceedings of the 2009 Annual ARCC Spring Research Conference: Architectural Research Centers Consortium, University of Texas at San Antonio: San Antonio, 305-312.
  27. Al Ajlouni, Rima. (2009). Design by Story: Nurturing the Dialogue between the Internal and the External. In J. Sullivan and M. Dunn (eds), *We Are a Discipline*. Proceedings of the 25th National Conference on the Beginning Design Student. College of Art and Design, LSU, Baton Rouge, LA. 1-7.
  28. Al Ajlouni, Rima. (2008). Virtual Reconstruction of Eroded and Visually complicated Archeological Geometric Patterns. In Chen jun, Jiang Jie and Hans-Gerd Maas (eds), *Photogrammetry and Remote Sensing*. Proceedings of the XXI Congress International Society for Photogrammetry and Remote Sensing 3-11 July 2008, Beijing China, B5-1, 193-198.
  29. Al Ajlouni, Rima. (2008). Investigating the Use of Digital Pattern Recognition Techniques for Fast Automatic. Documentation of Visually Complicated Geometric Patterns in Heritage Recording. In R. Amoeda, S. Lira, C. Pinheiro, F. Pinheiro & J. Pinheiro (eds), *World Heritage and Sustainable Development*. Proceedings of HERITAGE 2008. International Conference Vila Nova de Foz Coa . May 7-9 2008 – PORTUGAL, V(2), 495-504.
  30. Al Ajlouni, Rima., et al., (2005) Montezuma Castle, Off I-17, Camp Verde vicinity, Yavapai, AZ , *Historic American Buildings Survey*. Survey number HABS AZ-151, Call Number: HABS ARIZ, 13-CAMV.V,1- Library of Congress, Prints and Photographs Division, Washington, D.C. 20540 USA. Second Place: The Charles E. Peterson Prize. Texas A&M Team

## Workbooks

31. Al Ajlouni, Rima. 2001. *Islamic Patterns: Analysis and Construction*. Workbook (Volumes: level 1, 2 and 3), The National Library of Jordan: Amman, (SDN: 2001/09/1833).

## PhD Dissertation Manuscript

32. Al Ajlouni, Rima. (2009). *Digital Pattern Recognition in Heritage Recording: An Automated Tool for Documentation and Reconstruction of Visually Complicated Geometric Patterns*. -Verlag-DM: Germany. (ISBN: 978-3639187328). (A slightly modified version of my PhD dissertation).

## Conference Presentations

1. Ajlouni, R., “New Schemes of Organized Complexity Based on Quasi-Crystalline Symmetries”. The ARCC 2023 International Conference, Dallas, April 12-15, 2023.
2. Ajlouni, R., “Quasi-periodic Geometry: an intersection between Architecture and Science” (**Invited speaker**), Re-imagining a cellular space occupied by condensates. Public Symposium: October 11-13, 2022, Salt Lake City, UT.
3. Ajlouni, R., “Representational tools in Architecture: A case study for Science”. (**Invited speaker**), An exploration into how to represent and conceptualize cellular space. Scientific Workshop: October 12-13, 2022, Park City, UT.
4. Ajlouni, R., “Quasicrystalline Ceramics.” *BRIDGES 2021: Mathematics, Art, Music, Architecture, Culture*, 2–6 August, 2021, Virtual conference.
5. Ajlouni, R., “From nano to building scale: Design and fabrication of acoustical diffusers based on quasi-crystalline atomic structure.” The ARCC 2021 International Conference: PERFORMATIVE ENVIRONMENTS ARCC, April 7-10, 2021, virtual Tucson, Arizona.
6. Ajlouni, R. “Glass fabrication.” The ARCC 2019 International Conference: The Future of Praxis: Applied Research as a Bridge Between Theory and Practice. Ryerson University, Toronto, CANADA. May 29-June 1, 2019.
7. Ajlouni, R. “Quasi-periodic diffusers for architectural acoustics.” The 14th International Conference on Quasicrystals – ICQ14. Kranjska Gora, Slovenia. May 26-31 2019.
8. Ajlouni, R. “Re/constructing the Aleppo Minbar: a flexible methodology for generating Islamic patterns.” (**Invited Speaker**). In *Symmetry: Art and Science*, 2019 – 11th Congress and Exhibition of SIS. Special Theme: Tradition and Innovation in Symmetry – Katachi 形. Kanazawa Institute of Technology, Japan, November 25-30, 2019
9. Ajlouni, R. “Islamic geometry in contemporary architecture: new frontiers of application.” (**Invited Speaker**). In *Symmetry: Art and Science*, 2019 – 11th Congress and Exhibition of SIS. Special Theme: Tradition and Innovation in Symmetry – Katachi 形. Kanazawa Institute of Technology, Japan, November 25-30, 2019
10. Ajlouni, R. “The relational logic behind the hierarchical geometry in Islamic art”. (**Invited Speaker**). In “*Geometry of Islamic Art*” Special panel. ISSC 2018 international Conference. Logics of Image: Visual Learning, Logic and Philosophy of Form in East and West, Kolymbari, Crete, 11-18 August 2018.
11. Ajlouni, R. “A Surface Stacking-Based Method for Generating Icosahedral Quasicrystalline Symmetry”. In *Aperiodic Crystals 2018*. Iowa State University, Ames, Iowa. July 8-13, 2018.
12. Ajlouni, R. “Digital Conformity”. ACSA 2018, 106th ACSA Annual Meeting. The Ethical Imperative. March 15-17, 2018. Denver, Colorado.

13. Ajlouni, R. "A Computational Approach for Predicting Sound Diffusion Patterns of Fractal-Based Surface Profiles". In ACADIA 2017, Disciplines & Disruption. Massachusetts Institute of Technology, Cambridge MA. 2-4 November 2017.
14. Ajlouni, R. "A generalized structural model for generating quasi-periodic formations". (**Invited speaker**) In "Crystallographic patterns in art and cultural heritage". The Congress and General Assembly of the International Union of Crystallography (IUCR) 2017 to be held in Hyderabad, India, August 21-28, 2017.
15. Ajlouni, R. "A hierarchical framework model for constructing heptagonal quasi-periodic tiling". In "Recent advances in quasicrystal research". the Congress and General Assembly of the International Union of Crystallography (IUCR) 2017 to be held in Hyderabad, India, August 21-28, 2017.
16. Ajlouni, R. "An Ancient Rule for Constructing Dodecagonal Quasi-periodic Formations", In the 13th International Conference on Quasicrystals (ICQ13), 18-23 September 2016, Kathmandu, Nepal.
17. Ajlouni, R. "Fractals and Self-similarity in Ancient Islamic Architecture", In Nexus 2016: Relationships between Architecture and Mathematics, June 06 –09 2016: San Sebastian, Spain.
18. Ajlouni, R. "A Contemplative Pause on the Integration of Computational Thinking Models Into Architectural Education". In the ARCC/EAAE 2016 conference. Research on Architectural Education. June 15- 18 2016: Lisbon – Portugal.
19. Al Ajlouni, R. "Quasi-Crystalline Geometry" (**keynote speaker**). The ARCC 2013 Architectural Research Conference at UNCC, March 27-30, 2013.
20. Al Ajlouni, R. "The Forbidden Symmetries", in Synthetic Digital Ecologies. *Acadia Annual International Conference*, San Francisco, California, October 18-21, 2012.
21. Al Ajlouni, R. 'Octagon-based Quasi-crystalline Formations in Islamic Architecture' In *APERIODIC 2012 - The 7th International Conference on Aperiodic Crystals*, *International Union of Crystallography*, Cairns, Australia, September 2-7, 2012.
22. Al Ajlouni, "Aperiodic Geometry: A New Class of Symmetry in Ancient Architecture". 2012 *Annual Historic Preservation Symposium*, Texas Tech University, Oct. 25-27 2012.
23. Al Ajlouni, R. "Sustaining the Curious Mind: Integrating Research into Beginning Design Education". The National Conference on the Beginning Design Student (NCBDS) 2012, the *End of/in the Beginning: Realizing the Sustainable Imagination*. Penn State University, March 29, 2012.
24. Al Ajlouni, Rima (2011). "The Newly Established Historic Preservation Program in Iraq: Building Academic and Professional Heritage Preservation Capacity in Iraq". *Historic Preservation Symposium*, Texas Tech University, Sept- 2011.
25. Al Ajlouni, Rima and Justa, Petr. (2011). "Reconstruction of Eroded and Visually Complicated Archaeological Geometric Patterns: Minaret Choli, Iraq". *The XXIIIth International CIPA Conference*, Prague, Czech Republic, September 12 – 16, 2011.
26. Al Ajlouni, Rima "Computer Programming as a Tool for Research". *A CoA Symposium: Tools and Methods' in Architectural Scholarship and Research: Texas Tech University*. Feb 2011.
27. Al Ajlouni, Rima. "Biomimcry Studio: Nature-Inspired Sustainable Design Thinking". Conference: *The National Conference on beginning Design Student. NCBDS27: Beginning of/In the End*. University of Nebraska-Lincoln. April 1, 2011
28. Al Ajlouni, R., "Establishing the Historic Preservation Program in Iraq: Design, Philosophy and Content". *Conference: The Iraqi institute in 2011 and beyond, opportunities for collaboration*. The Iraqi Institute for the Conservation of Antiquities and Heritage in Erbil, Kurdistan Region, Iraq. Dec 13, 2010.
29. Al Ajlouni, Rima. "Post war protection of Cultural Heritage: Establishing a Historic Preservation Training Program in Iraq". Conference: *The 7th International Conference on Science and Technology in Archaeology and Conservation. Workshop on Documentation and Conservation of Stone deterioration in Heritage Places*. Petra, Jordan, December 7 to 12, 2010.
30. Al Ajlouni, Rima. "A Long Range Order for Growing Perfect Quasi-Crystalline Formations". Conference: *The 11th International Conference on Quasicrystals and Geometry (ICQ11)*. Sapporo, Japan, June 13-18, 2010.

31. Al Ajlouni, Rima. "Design by Story: Nurturing the Dialogue between the Internal and the External". Conference: *the 25th National Conference on the Beginning Design Student: We Are a Discipline*. College of Art and Design, LSU, Baton Rouge, LA, March 12-14 2009.
32. Al Ajlouni, Rima. "Representations of Architecture in Children's Art: a Study of the Art of Jordanian Children". Conference: *The 2009 Annual ARCC Spring Research Conference: Leadership In Architectural Research, Between Academia and the Profession*. Architectural Research Centers Consortium, University of Texas at San Antonio: San Antonio, TX. 15-18 April, 2009.
33. Al Ajlouni, Rima. 2009. "Representations of Architecture in Children's drawings." Public Lecture at the 2009 College of Architecture Symposium. Texas Tech University.
34. Al Ajlouni, Rima. "Virtual Reconstruction of Eroded and Visually complicated Archeological Geometric Patterns". Conference: *The XXI Congress International Society for Photogrammetry and Remote Sensing*, Beijing, China, 3-11 July 2008.
35. Al Ajlouni, Rima. "Investigating the Use of Digital Pattern Recognition Techniques for Fast Automatic. Documentation of Visually Complicated Geometric Patterns in Heritage Recording". Conference: *HERITAGE 2008 – World Heritage and Sustainable Development*. International Conference Vila Nova de Foz Coa, PORTUGAL May 7-9 2008.
36. Al Ajlouni, Rima. "The Use of Digital Methods for Producing an Automatic Documentation of Complicated Historic Objects". Conference: *The Fourth International Conference on Science and Technology in Archaeology and Conservation*. Amman, Jordan. Dec 2005.
37. Al Ajlouni, Rima (et al). "A Heritage site "Design - study "of Maan Train station in southern Jordan". In A Symposium on the *Conservation of Architectural Heritage in Jordan and the Arab world*, Amman, Jordan, 20-25 Nov, 1993.

## Invited Lectures

1. Ajlouni, R. "Quasi-crystalline Geometry in Islamic Art and Architecture." Virtual Lecture with the Museum of Nature & Science. Las Cruces, NM. Tuesday April 06, 2021.
2. Ajlouni, R., "Medieval Castles". Waterford School, Sandy, UT, April 02 2019.
3. Ajlouni, R. "Quasi-periodic Geometry in Art and Architecture". Physics and Astronomy Colloquium. Physics and Astronomy Department. University of Utah. October 26 2018.
4. Ajlouni, R. "Digital Crafts". University of Utah School of Architecture Faculty Lecture. SOA Lecture Series. University of Utah. School of Architecture. October 2, 2017.
5. Ajlouni, R. "Math is Beautiful: the Complex Systems of Quasi-periodic Symmetries". College of Computer and Information Science. Northeastern University, Boston, Massachusetts. March 13 2017.
6. Ajlouni, R. "Digital and Computational Design" School of Design and Construction, Washington State University, Pullman, April 01, 2015.
7. Al Ajlouni, R. "Quasi-Crystalline Geometry", invitation to *the Islamic Geometric Patterns Workshop*, the Istanbul Design Center, 23-29 Sept. 2013, Istanbul, Turkey.
8. Al Ajlouni, R. "The Discovery of Aperiodic geometry in Ancient Islamic Architecture" UNC School of the Arts, North Carolina, (6 invited lectures) (Feb, 2013).
9. AL Ajlouni, R. (2012) "*Quasi-periodic patterns in Ancient Architecture*". Material Seminar Colloquium. Department of Chemistry, Indiana University, Bloomington. September 18 2012.
10. Al Ajlouni, R. 'A New Discovery Reveals Signs of Advance Math in Ancient Islamic Architecture' in *Applied Mathematics Seminars*. Department of Mathematics and Statistics, Texas Tech University, May 02, 2012
11. AL Ajlouni, R. (2011) "*Revitalization of the Erbil Citadel: A World Heritage Site*". Advanced topics in preservation design, Elizabeth Loudon. The College of Architecture, Texas Tech University, Oct. 12, 2011.
12. AL Ajlouni, Rima. July-29- 2011. "*The Historic Preservation Plan: Erbil Citadel, Iraq*", Graduate design studio, Jaddo, Lahib. The college of architecture, Texas Tech University.

13. Al Ajlouni, Rima. March 30, 2011. "World Heritage in the Middle East: Preserving the Ancient History of Iraq". The Museum of Texas Tech University, Heritage Management Program.
14. Al Ajlouni, R., "New Trends in Architectural Education", Department of Architecture, College of Engineering, Salah Aldin University, Erbil, Iraq, August, 30, 2010.
15. AL Ajlouni, Rima. Oct-27- 2009. "Architecture in the Islamic society", Guest speaker: Architecture in Nonwestern Societies, Aranha, Joseph. The college of architecture, Texas Tech University.
16. Al Ajlouni, Rima. Jan, 25, 2008: "The Use of Digital Pattern Recognition Techniques for Virtual Reconstruction of Eroded and Visually Complicated Historic Islamic Geometric Patterns." Public lecturer at the Arab American Faculty Forum, the Law School at Texas Tech University.
17. Al Ajlouni, Rima. October 2007. "Digital Pattern Recognition Techniques in Photogrammetry." Guest speaker: ARCH 5605 Graduate Preservation Studio, Loudon, Elizabeth. The College of Architecture, Texas Tech University.
18. Al Ajlouni, Rima. May 21, 2008. "Digital Design: The Challenges and Prospects of Digital Design." Presentation at the Department of Architecture, Faculty of Engineering & Technology. The University of Jordan. Amman, Jordan.
19. Al Ajlouni, Rima. Oct16 2008: "Islamic Art and Architecture", Guest speaker: ARCH 4311, Architecture in Nonwestern Societies, Aranha, Joseph. The college of architecture, Texas Tech University.
20. Al Ajlouni, Rima. Nov 13, 2001. "Geometry and Patterns: Islamic Perspective": public lecture at Polytechnic Institute of Engineering, BALQA APPLIED UNIVERSITY, Amman, Jordan.
21. Al Ajlouni, Rima. Feb 05, 1999. "Reconstruction of the Minbar of Saladin" Presentation at the Ministry of Awqaf, Islamic Affairs and Holy Places. Amman, Jordan.

## Projects/ Funded Research/ Grant Applications/ Fellowship Applications

1. Ajlouni, R. and Symko, G. O. (2024). "Attenuation of Acoustic Noise Using Quasi-periodic Structures". College of Architecture + Planning: FY24 VPR Seed Grant Competition. (\$15,000: under review).
2. Symko, G. O. and Ajlouni, R. (2024). "Control of Sound Using Quasi-periodic Systems". College of Science FY24 VPR Seed Grant Competition (\$17,000: under review).
3. Ajlouni, R. and Ofer Rog (2023). "Intuiting biological self-assembly using fabrication". Taft-Nicholson Summer Fellow Residency. July 22- 29 2023. **Granted**
4. Ajlouni, R. (2023), "Sustainable solutions: Digital fabrication of a reusable multi-part ceramic mold system for casting volumetric geometry from post-consumer glass waste for architecture and interior design applications. DIGITAL MATTERS FACULTY GRANT PROGRAM, FALL 2023.
5. Ajlouni, R. "Quasi-periodic Geometry for Architectural Acoustics." ARCC 2021 Research Incentive Award. Dec 2020. \$5,000.00.
6. Ajlouni, R. "Quasi-periodic Geometry for Architectural Acoustics." FACULTY SMALL GRANT PROGRAM –University of Utah . March 2020. \$6,000.00
7. Ajlouni, R. "Unveiling the Superior Qualities of Quasi-periodic Geometry for Architectural Acoustics." 2019. The COA+P Scholarship Incentive Program (SIP) Grant. The University of Utah. **\$7,500. Granted**
8. Ajlouni, R. "Mechanical properties of icosahedral quasi-periodic lattice structure." Faculty Release for Scholarly Pursuits 2019-2020. The University of Utah. **\$7,500. Granted**
9. Ajlouni, R. "Compression behavior of cellular ceramics with icosahedral quasi-periodic lattice structure". ARCC 2018 Research Incentive Award. \$5,000.00.



10. Ajlouni, R. and Tripeny. P. J. "From the Micro to the Macro: The Structural Behavior of Icosahedral Quasicrystalline Symmetry for Architectural Constructs". 2018. The COA+P Scholarship Incentive Program (SIP) Grant. The University of Utah. **\$10,000. Granted**
11. Smith R., Leither L., Ajlouni, R., Alitzer, R., Durham, M. and Ferrill TJ. 2017-2018. "Virtual Reality Laboratory at the University of Utah \$200,000.00.
12. Ajlouni, R., Ruegemer, J., Snapp, B., Findling, K., and Rodriguez, H., "*An Integrated Teaching Approach for Achieving Sustainable Design Solutions in Art and Architecture*". 2017. Group Teaching Grant \$7,000. The University of Utah.
13. Ajlouni, R., Ross Scheer, D., Creem-Regehr, S., Ewing, R., and Tarampi, M. R., "*Identifying Cognitive Differences between Hand Drawn Orthographic Projections and Computer-Generated Pseudo-3D Model Views in Architectural Design*". 2017. The COA+P Scholarship Incentive Program (SIP) Grant. The University of Utah. \$10,000.
14. Ajlouni, R. Galarza, J and Snapp, B. "Learning from traditional Native ceramic craft and earth building in Southeast Utah". The COA+P Scholarship Incentive Program (SIP) Grant for 2016-2017. The University of Utah. \$10,000.
15. Ajlouni, R. "The three-dimensional long-range order of quasi-crystalline formations" Faculty Research & Creative Grant Projects 2015. The University of Utah. **\$6,000. Granted**.
16. Ajlouni, R. "*Integrating desktop CNC milling machines into the classroom*". 2015. Teaching Grant **\$3,500**. The University of Utah. **Granted**.
17. Ajlouni, R. et al., "3D Printing of Recycled Glass for Art, Design and Architecture". The COA+P Scholarship Incentive Program (SIP) Grant for 2015-2016. The University of Utah. \$10,000. Not granted.
18. Al Ajlouni, R., "The Application of Quasi-crystalline Symmetries in Contemporary Architecture", FY14 Internal Competitive Funding Opportunity to Advance Scholarship in the Creative Arts, Humanities and Social Sciences. Texas Tech University. **\$9,000. Granted**.
19. Al Ajlouni, R. "*God is the Light of the Heavens and the Earth*". The Hamad bin Khalifa Fellowship. The Fifth Biennial Hamad bin Khalifa Symposium on Islamic Art, Palermo, Sicily, November 9 –11, 2013.
20. Al Ajlouni, R., "Quasi-Crystalline Geometry: A New Class of Symmetry in Ancient Architecture", FY12 Internal Competitive Funding Opportunity to Advance Scholarship in the Creative Arts, Humanities and Social Sciences. Texas Tech University. **\$20,000. Granted**: Nov. 03, 2011.
21. Al Ajlouni, R., "A Global Hierarchical Cluster Model for Constructing Non-Periodic Patterns in Islamic Architecture", The Aga Khan postdoctoral fellowship for research in Islamic Architecture", MIT, Cambridge 2011-2012.
22. "The Historic Preservation Training Program in Iraq"; Part of the newly established National Iraqi Institute for the Conservation of Antiquities and Heritage. This effort was funded through **\$13 million** grant by US Embassy in Baghdad as part of the Iraq Cultural Heritage Project (IChP), as a major effort launched by the U.S. Department of State to preserve the archaeological and cultural treasures of Iraq. **Granted**
23. "The documentation and planning of Humud cultural villege". In Collaboration with Queen Rania Institute of Tourism and Heritage, and the Department of Architecture at the Hashemite University in Jordan 2008-2009.
24. "Investigating the Use of Digital Pattern Recognition Techniques with Digital Fringe Projection for 3-D Shape Measurement in Cultural Heritage Recording" TTU Research Enrichment Fund. Texas Tech University. October 15 2007.
25. "An Evaluation of Attendance Zones in College Station Independent School District". GIS Project. Brazos County, Texas. Dec 2003.

26. "Urban Growth & Tourism Development Master Plan Study for the City of Madaba, Jordan", 2000. In collaboration with the City of Madaba.
27. Reconstruction of the "Minbar of Saladin" in Al Aqsa Mosque in Jerusalem.(1996-1999), **\$6 million** granted by his late King Husain for Jordan. Al Mihrab Architectural Co. and the Ministry of Awqaf and Islamic Affairs and Holy Places (1996).  
**Granted**
28. "Urban development study of the down town heritage site of the City of Salt in Jordan", 1999. This study was done with a group of graduate students, in the department of architecture in cooperation with the Ministry of Tourism & Antiquity.
29. "An Action plan for the upgrading and redevelopment of the Palestinian refugee camps in Jordan: A localization participatory approach and communicative collaborative planning". In cooperation City of Zarqaa and the University of Jordan, 1998-1999.
30. "The impact of future regional development and its effect on the lowest income communities". In a workshop targeting vulnerable villages south of Amman in Karak. Rice university, Oxford brooks, Harvard and the University of Jordan, Amman. Jan 1997.
31. "A Development study of Gadara (Umm-Qays) Hellenistic-Roman Historical City in Jordan". This study was done with a group of graduate students in the Department of Architecture, the University of Jordan. In collaboration with the Ministry of Tourism & Antiquity. May1996.
35. "A field research on Squatter Settlements. Case study: Zarqa squatter settlement ", in collaboration with the Dept. of Architecture, Jordan University, Nov. 1995.

## Editor / Peer Reviewer/ Symposia

1. Ajlouni, R. *Peer Reviewer* , Estoa, the journal of the Faculty of Architecture and Urbanism of the University of Cuenca. 2023.
2. Ajlouni, R. *Peer Reviewer*, Journal of Mathematics and the Arts (2021-2023).
3. Ajlouni, R. Session moderator. ARCC 2021. April 7-10, 2021, virtual Tucson, Arizona.
4. Ajlouni, R. *Peer Reviewer*. The ARCC 2021 Conference: Performative Environments ARCC, April 7-10, 2021, virtual Tucson, Arizona.
5. Ajlouni, R. *Peer Reviewer*, Leonardo (2020).
6. Ajlouni, R. *Peer Reviewer*, Grant applications, University of Sharjah (2020)
7. Ajlouni, R. Member of the Editorial Board of the Journal of Mathematics and the Arts (JMA). 2019-now.
8. Ajlouni, R. Elected as a board member of the International Advisory Committee of the International Society for the Interdisciplinary Study of Symmetry (SIS). 2019-now.
9. Ajlouni, R. *Peer Reviewer*. ARCC 2019 International Conference: The Future of Praxis: Applied Research as a Bridge Between Theory and Practice. Ryerson University, Toronto, CANADA. May 29-June 1, 2019.
10. Ajlouni, R. and Carol Bier (*co-chairs*) of the symposium "Islamic Art and Culture". In the 11<sup>th</sup> triennial Congress and Exhibition on "Symmetry: Art and Science", Kanazawa, Japan, Nov. 25-30, 2019.
11. Ajlouni, R. Member the Scientific Committee for the 2019 ACADIA Conference "Ubiquity and Autonomy" hosted at The University of Texas at Austin from October 24 - 26, 2019.
12. Ajlouni, R. *Peer Reviewer*, ACADIA 2018 conference: Recalibration. Mexico City.
13. Ajlouni, R. *Peer Reviewer*, *Journal of Applied Crystallography*. 2018.
14. Ajlouni, R. *Peer Reviewer*, ARCC - EAAE 2018 International Conference. Philadelphia, Temple University May 16-19 2018.

15. Ajlouni, R. *Peer Reviewer*. *Journal of Mathematics and the ART*. 2017.
16. Ajlouni, R. and Louise "Ninette" De Las Penas (*co-chairs*) of the micro symposium MS-071 "Crystallography in Art and Cultural Heritage". In the Congress and General Assembly of the International Union of Crystallography (IUCR, 2017) to be held in Hyderabad, India, August 21-28, 2017.
17. Ajlouni, R. *Peer Reviewer*. The Congress and General Assembly of the International Union of Crystallography (IUCR, 2017) to be held in Hyderabad, India, August 21-28, 2017.
18. Ajlouni, R. *Session Chair*. ARCC 2017. University of Utah. Salt Lake City June 14-17, 2017.
19. Ajlouni, R. *Peer Reviewer*, for the ARCC/EAAE 2016 International Conference: Architectural Research addressing Societal Challenges. Lisbon, Portugal Conference, June 15-18, 2016
20. Al Ajlouni, R. *Peer Reviewer*. *Enquiry: A Journal for Architectural Research*, (ISSN 2329-9339) published by the Board of the Architectural Research Centers Consortium. 2014-current.
21. Al Ajlouni, R. *Peer Reviewer*, for the ARCC/EAAE 2015 International Conference: the FUTURE of Architectural Research Chicago, Illinois · April 6-9, 2015.
22. Al Ajlouni, R *Peer Reviewer*, the *APT Bulletin (Association of Preservation Technology)*, Mount Ida Press. 2014-Current
23. Al Ajlouni, R *Paper Reviewer*, for the ARCC/EAAE 2014 International Conference: Beyond Architecture, New Intersections and Connections. The Architectural Research Centers Consortium and the European Association for Architectural Education February 12-15, 2014; Hawaii.
24. Al Ajlouni, R. *Peer Reviewer*, *Designing the Dynamic*, book publication, Spatial Information Architecture Laboratory (SIAL), RMIT University. Melbourne, Australia. Nov. 2012.

## Heritage Documentation

- Documentation of two historic buildings (*houses No. 11 and 2 in Block No. 10*) on the Erbil Citadel, to the same standards required by the UNESCO. Historic Preservation Program, the Iraqi Institute for the Conservation of Antiquities and heritage, and the High Commission for the Revitalization of Erbil Citadel (HCECR), Summer 2010, Iraq. Funded through **\$13 million** grant by US Embassy in Baghdad as part of the Iraq Cultural Heritage Project (ICHP)
- Documentation of three historic buildings (*houses No. 3 and 4 in block No. 23 and house No. 3 in Block 32*) on the Erbil Citadel, to the same standards required by the UNESCO. Historic Preservation Program, the Iraqi Institute for the Conservation of Antiquities and heritage and the High Commission for the Revitalization of Erbil Citadel (HCECR), Fall 2010, Iraq. Funded through **\$13 million** grant by US Embassy in Baghdad as part of the Iraq Cultural Heritage Project (ICHP)
- Rima AL Ajlouni and Petr Justa. 2010-2011. Photogrammetric Documentation and reconstruction of the Islamic Patterns on Minaret Choli in Erbil, Iraq, with collaboration with Gema Art Group, Prague, Czech Republic.
- Documentation and reconstruction of the “*Minbar of Saladin*” in Al Aqsa Mosque in Jerusalem.(1996-1999), **\$ 6 million** granted by his late King Husain for Jordan. Al Mihrab Architectural Co. and the Ministry of Awqaf and Islamic Affairs and Holy Places (1996). Sponsored by the late King Hussein of Jordan. This Award Winning project was published in the book “*The Minbar of Saladin- edited by Lynette Singer*” published in 2008.
- Documentation of Montezuma Castle, Off I-17, Camp Verde vicinity, Yavapai, AZ , Historic American Buildings Survey. Library of Congress, Washington, D.C. USA. Texas A&M University graduate students’ team. *The Charles E. Peterson Prize*.
- Documentation of Maan Train station in southern Jordan. The department of Architecture, The University of Jordan. Presented in the Symposium on the Conservation of Architectural Heritage in Jordan and the Arab world. Amman Nov, 1993.
- Documentation of a heritage house in Jabal Amman, the first circle, Amman, Jordan. The department of Architecture, the University of Jordan. 1990

## Exhibitions

- June 2023, House of Geometry, Utah Art Festival. Salt lake City, UT.
- Feb 2018: Sustainable Design Solutions: Ceramic fabrication. Gittins Gallery. Art and Art History Building. University of Utah. Jan 25-Feb 9<sup>th</sup>, 2018.
- Sept-02-2012. “*The Erbil, Iraq Exhibition*”, First Friday Art Walk Exhibition, Urban Tech, Charles Adams Gallery, Texas Tech University
- October 2011. “*Cultural Heritage Exhibition*”, the College of Architecture, Texas Tech University.
- May 2010, “*The Historic Preservation Program Exhibition*” The Iraqi Institute for the Conservation of Antiquities and Heritage. Iraq Cultural Heritage Project (IHP). Erbil, Iraq.
- January 2008. “*Measuring: Faculty Exhibition*”, the College of Architecture, Louise Hopkins Underwood Center for the Arts.
- April 1997. “*Islamic Art*”. Calligraphy, Arabesque and Geometry: The Royal Cultural Center, Amman, Jordan.
- August 1999. “*Arts and Crafts*”. The Royal Cultural Center, Amman, Jordan, Noqoosh Arts and Crafts.

## Academic Teaching Experience

Required and Elective Courses taught in reverse chronological order:

### School of Architecture, The University of Utah

#### Fall 2023

**ARCH 6815** Research Methods integrated with **ARCH 6014 Graduate Studio**: The use of research to inform architecture has been conducted throughout history. From building materials to structural form, different types of strategies were employed including the use of trial and error, direct experimentation, observation, etc. Current research methods include Historical Research, Qualitative Research, Correlational Research, Experimental Research, Simulation Research, Logical Argumentation, Case Studies and Combined Strategies Research. Each method offers a specific insight, promises different perspectives on the same frame, and requires a robust and systematic process to reach sound conclusions.

**ARCH 1630** Architectural Communication: This class seeks to provide a critical perspective on the use of the different communication tools in the design process by addressing a range of cognitive theories, tools, technologies, and techniques, through which, the value and appropriateness of these tools can be assessed and measured. The class introduces a spectrum of qualitatively different communication tools and skills including visual thinking freehand drawing, diagramming, technical drawing, verbal and written communication.

**ARCH 1632**: Basic Architectural Communication II studio will build on the basic communication skills introduced in ARCH 1630 and further expands those skills to include a new spectrum of qualitatively different analogue communication tools and skills. In addition to freehand drawing, mental imagery and visual thinking skills, this course will focus on abstract thinking, documentation and technical hand drawing, diagramming techniques, verbal and written communication and hand crafting tools and skills.

#### Spring 2023

**ARCH 4011 Design Studio**: Building with earth is one of the most earliest expressions of our ability to create Architecture with sustainable and readily abundant resources. ARCH 4011 Studio is a capstone studio experience that explores the use of earthen building technology as a low impact and sustainable strategy for designing within a contemporary context. This studio investigates the possibilities and limitations of using such technology in designing and crafting the built environment. This intensive studio requires a systematic and rigorous exploration of a self-directed architectural project

**ARCH 1630**: Architectural Communication: This class seeks to provide a critical perspective on the use of the different communication tools in the design process by addressing a range of cognitive theories, tools, technologies, and techniques, through which, the value and appropriateness of these tools can be assessed and measured. The class introduces a spectrum of qualitatively different communication tools and skills including visual thinking freehand drawing, diagramming, technical drawing, verbal and written communication.

**ARCH 1632**: Basic Architectural Communication II studio will build on the basic communication skills introduced in ARCH 1630 and further expands those skills to include a new spectrum of qualitatively different analogue communication tools and skills. In addition to freehand drawing, mental imagery and visual thinking skills, this

course will focus on abstract thinking, documentation and technical hand drawing, diagramming techniques, verbal and written communication and hand crafting tools and skills.

**Fall 2022**

**ARCH 6815 Research Methods** integrated with **ARCH 6014 Graduate Studio**: The use of research to inform architecture has been conducted throughout history. From building materials to structural form, different types of strategies were employed including the use of trial and error, direct experimentation, observation, etc. Current research methods include Historical Research, Qualitative Research, Correlational Research, Experimental Research, Simulation Research, Logical Argumentation, Case Studies and Combined Strategies Research. Each method offers a specific insight, promises different perspectives on the same frame, and requires a robust and systematic process to reach sound conclusions.

**ARCH 1630 Architectural Communication**: This class seeks to provide a critical perspective on the use of the different communication tools in the design process by addressing a range of cognitive theories, tools, technologies, and techniques, through which, the value and appropriateness of these tools can be assessed and measured. The class introduces a spectrum of qualitatively different communication tools and skills including visual thinking freehand drawing, diagramming, technical drawing, verbal and written communication.

**ARCH 1632**: Basic Architectural Communication II studio will build on the basic communication skills introduced in ARCH 1630 and further expands those skills to include a new spectrum of qualitatively different analogue communication tools and skills. In addition to freehand drawing, mental imagery and visual thinking skills, this course will focus on abstract thinking, documentation and technical hand drawing, diagramming techniques, verbal and written communication and hand crafting tools and skills.

**Spring 2021**

**ARCH 4011 Studio**: 3D Construction Printing (3DCP). This capstone undergraduate studio experience offers students a choice of projects that integrate technological, contextual and/or theoretical issues to design increasingly complex architecture. An emphasis on synthesis, process, and intention results in the development of a student's own methodology. Issues of urban architecture and building typology are considered along with the interrelationships among process, site, precedent, and tectonics as designs response to programmatic requirements.

**ARCH 4040 Studio**: Communications Elective. Digital Design & Fabrication Studio. The course provides an in-depth focus on a specific material used in architectural construction or craft and/or a particular communication method

**ARCH 1632**: Basic Architectural Communication II studio will build on the basic communication skills introduced in ARCH 1630 and further expands those skills to include a new spectrum of qualitatively different analogue communication tools and skills. In addition to freehand drawing, mental imagery and visual thinking skills, this course will focus on abstract thinking, documentation and technical hand drawing, diagramming techniques, verbal and written communication and hand crafting tools and skills.

**Fall 2020**

**ARCH 1630 Architectural Communication**: This class seeks to provide a critical perspective on the use of the different communication tools in the design process by addressing a range of cognitive theories, tools, technologies, and techniques, through which, the value and appropriateness of these tools can be assessed and measured. The class introduces a spectrum of qualitatively different communication tools and skills including visual thinking freehand drawing, diagramming, technical drawing, verbal and written communication.

**ARCH 1632**: Basic Architectural Communication II studio will build on the basic communication skills introduced in ARCH 1630 and further expands those skills to include a new spectrum of qualitatively different analogue communication tools and skills. In addition to freehand drawing, mental imagery and visual thinking skills, this course will focus on abstract thinking, documentation and technical hand drawing, diagramming techniques, verbal and written communication and hand crafting tools and skills.

**ARCH 2030**: Architectural communication III studio will build on the communication skills introduced in ARCH 1632 and further expands those analogue skills to introduce a new spectrum of qualitatively different digital communication tools and skills including 2D digital reconstruction (AutoCAD), 3D digital Modeling (Rhino) and basic digital fabrication skills (Laser cutter).

**Summer 2019**

**ARCH 6013/6012**: Architectural Skill Development Studio: The Architectural Skill Development Studio is an intensive, comprehensive semester created to develop an understanding of the design process.

**ARCH 1632:** Basic Architectural Communication II studio will build on the basic communication skills introduced in ARCH 1630 and further expands those skills to include a new spectrum of qualitatively different analogue communication tools and skills. In addition to freehand drawing, mental imagery and visual thinking skills, this course will focus on abstract thinking, documentation and technical hand drawing, diagramming techniques, verbal and written communication and hand crafting tools and skills.

**ARCH 2030:** Architectural communication III studio will build on the communication skills introduced in ARCH 1632 and further expands those analogue skills to introduce a new spectrum of qualitatively different digital communication tools and skills including 2D digital reconstruction (AutoCAD), 3D digital Modeling (Rhino) and basic digital fabrication skills (Laser cutter).

Spring 2019

**ARCH 2030:** Architectural communication III studio will build on the communication skills introduced in ARCH 1632 and further expands those analogue skills to introduce a new spectrum of qualitatively different digital communication tools and skills including 2D digital reconstruction (AutoCAD), 3D digital Modeling (Rhino) and basic digital fabrication skills (Laser cutter).

**ARCH 3052:** Architectural Communication II studio enforces and builds on the cognitive foundations and communication skills introduced in ARCH 3050 and further expands those basics skills to include a spectrum of 3D digital modeling, rendering and fabrication tools and processes including, Rhinoceros 3D, V-Ray rendering engine and CAD-CAM process (3D printing, CNC, and laser cutter).

Fall 2018

**ARCH 1630 Architectural Communication** (two sections): This class seeks to provide a critical perspective on the use of the different communication tools in the design process by addressing a range of cognitive theories, tools, technologies, and techniques, through which, the value and appropriateness of these tools can be assessed and measured. The class introduces a spectrum of qualitatively different communication tools and skills including visual thinking freehand drawing, diagramming, technical drawing, verbal and written communication skills.

**ARCH 6046 3+ communications:** This intensive communication course introduces a spectrum of essential analogue and digital communication tools and skills. The ability to imagine, conceive, visualize, explore, test, verify, articulate, document and communicate your ideas is essential for success to any design profession. The goal is to enhance visual thinking skills, creative deployment, critical thinking and problem solving skills.

**DES 2630: Design Contexts lab:** Design Contexts serves as one of a three-course set offered to foundation design students to prepare for admission into one of three program options in the College of Architecture + Planning: Architecture, Multi-Disciplinary Design, and Urban Ecology.

Spring 2018

**ARCH 3052:** Architectural Communication II studio enforces and builds on the cognitive foundations and communication skills introduced in ARCH 3050 and further expands those basics skills to include a spectrum of 3D digital modeling, rendering and fabrication tools and processes including, Rhinoceros 3D, V-Ray rendering engine and CAD-CAM process (3D printing, CNC, and laser cutter).

Fall 2017

**ARCH 6057/ARCH 4057:** *Advanced Integrated Digital Communications: Digital Design and Fabrication (CAD/CAM).* Evaluating and utilizing advanced digital modeling for the design, development and construction of architecture. The course focuses on laboratory based digital modeling for BIM modeling, energy and construction simulation, sustainable quantification, digital design to fabrication or CAD/CAM, and other advanced modeling subjects in architecture. This class establishes the first interdisciplinary integrated academic teaching platform between the College of Architecture + Planning and the Department of Art & Art History, to investigate creative sustainable glass and ceramic solutions in Art and Architecture.

**ARCH 3050:** Architectural Communication I introduces a spectrum of basic analogue and digital communication tools and skills including freehand drawing, diagramming, technical drawing, verbal and written communication and 2D digital skills (AutoCAD, Photoshop and Illustrator).

Spring 2017

**ARCH 6052:** Graduate Digital Media: (code writing intensive). This class is designed to introduce graduate students to the principles of high-level programming and computer Graphics. The goals of this course is to teach C++, a high level computer programming language and OpenGL, a common graphics programming API.

**ARCH 3052:** Architectural Communication II studio enforces and builds on the cognitive foundations and communication skills introduced in ARCH 3050 and further expands those basics skills to include a spectrum of 3D digital modeling, rendering and fabrication tools and processes including, Rhinoceros 3D, V-Ray rendering engine and CAD-CAM process (3D printing, CNC, and laser cutter).

- Fall 2016**      **ARCH 3050:** Architectural Communication I introduces a spectrum of basic analogue and digital communication tools and skills including freehand drawing, diagramming, technical drawing, verbal and written communication and 2D digital skills (AutoCAD, Photoshop and Illustrator).
- ARCH 2632:** Advanced Design Workshop utilizes the design process of iteration and exploration to develop the representational and critical design skills.
- Spring 2016**      **ARCH 3052:** Architectural Communication II studio enforces and builds on the cognitive foundations and communication skills introduced in ARCH 3050 and further expands those basic skills to include a spectrum of 3D digital modeling, rendering and fabrication tools and processes including, Rhinoceros 3D, V-Ray rendering engine and CAD-CAM process (3D printing, CNC, and laser cutter).
- ARCH 6052:** Graduate Digital Media: (code writing intensive). This class is designed to introduce graduate students to the principles of high-level programming and computer Graphics. The goals of this course is to teach C++, a high level computer programming language and OpenGL, a common graphics programming API.
- Fall 2015**      **ARCH 2632:** Advanced Design Workshop utilizes the design process of iteration and exploration to develop the representational and critical design skills.
- ARCH 6005:** Graduate design Studio. The Fabrication Studio investigates the application of fractal geometry in contemporary architecture through fabrication of modular “self-similarity” systems. The process involves the digital fabrication of a mold system for casting the repeated elements of the geometry.

---

**College of Architecture, Texas Tech University**


---

- Spring 2014-  
Spring 2015**      **ARCH 3314:** Architecture and Mathematics: Contemporary Issues in Architecture elective; (*writing Intensive class*). This course presents a critical, theoretical and philosophical overview of the role of mathematics in architecture.
- ARCH 4341:** Glass Casting and fabrication: this class investigates the application of glass fabrication in contemporary architecture, through casting recycled post-consumer glass.
- Fall 2013  
Spring 2013**      **ARCH 3314:** Architecture and Mathematics: Contemporary Issues in Architecture elective; (*writing Intensive class*). This course presents a critical, theoretical and philosophical overview of the role of mathematics in architecture.
- ARCH 4341:** Introduction to Computer Programming & Generative Design Thinking: Media elective; (C++ & OpenGL): (*code writing intensive class*). The class introduces programming and computation as a new intellectual and theoretical direction of design generation.
- Fall 2012**      **ARCH 2501:** Architecture Design Studio II, required. Basic Internal. Introducing design skills that are core and internal to architecture. Practical drawing as inquiries, form, transformation, composition and spatial modulation.
- ARCH 3314:** Architecture and Mathematics: Contemporary Issues in Architecture elective; (C++ & OpenGL): (*writing Intensive class*). This course presents a critical, theoretical and philosophical overview of the role of mathematics in architecture.
- Summer 2012**      **ARCH 4601:** Urban Intervention Studio, required; (Prague Summer Study Abroad): design of urban aggregates of buildings, infrastructure, and land use. Explores the interface between culture and architecture at the scale of the city.
- ARCH 4000:** Research in Architecture and Urban Studies, required; (Prague Summer Study Abroad). Individual studies of special interest in advanced architecture, history of architecture, and city planning.
- ARCH 6000:** Master Thesis. Committee Chair, Master of Science in Architecture, Historic Preservation Certificate; Saman Abdulkareem “The Adaptation of Vernacular Design Strategies for Modern Building Design in Kurdistan, Iraq”. (2010-2012).
- Spring 2012**      **ARCH 5501:** Advanced Architectural graduate Design Studio, Topical Studio: Cliff Dwellings Interpretive Center: This studio exposes students to the process of design within a particular historical structure and environment, informed by substantial research and analyses.

**ARCH 4341:** Introduction to Computer Programming & Generative Design Thinking (C++ & OpenGL): Media elective; (*code writing intensive class*). The class introduces programming and computation as a new intellectual and theoretical direction of design generation.

**ARCH 4601 & ARCH 4000:** Prague Summer Study Abroad, Czech Republic. Establishing a new summer studio abroad program in Prague, the Czech Republic with Professor Elizabeth Loudon.

**ARCH 6000:** Master Thesis. Committee Chair, Master of Science in Architecture, Historic Preservation Certificate; Saman Abdulkareem “The Adaptation of Vernacular Design Strategies for Modern Building Design in Kurdistan, Iraq”. (2010-2012).

**Fall 2011** **ARCH 2501:** Architecture Design Studio II, required. Basic Internal. Introducing design skills that are core and internal to architecture. Practical drawing as inquiries, form, transformation, composition and spatial modulation.

**ARCH 6000:** Master Thesis. Committee Chair, Master of Science in Architecture, Historic Preservation Certificate; Saman Abdulkareem “The Adaptation of Vernacular Design Strategies for Modern Building Design in Kurdistan, Iraq”. (2010-2012).

**Summer 2011** **ARCH 7000:** Special Study MS in Architecture. Research Methods and Research Proposal Writing. Survey of qualitative and quantitative research methods, hypothesis formations, data collection and analysis.

**ARCH 7000:** Special Study MS in Architecture. Survey and analyses of traditional architecture, Erbil Citadel, Iraq.

**Spring 2011** **ARCH 4341:** OpenGL Graphics: Media elective; (*code writing intensive class*). This course provides an introduction to the area of computer graphics, writing 2D, 3D, and basic animation programs that utilize C++ programming language with OpenGL graphics environment and GLUT library.

**ARCH 2502:** Architecture Design Studio III, required. Design by Story. The intersection between architecture and literature offers an optimal pedagogy for teaching beginning design students. The approach focuses on the narrative structure of the story, which provides the structural framework for various formal and spatial experimentations. (Pedagogy and results are published in a Peer-Reviewed paper).

### **The Iraqi Institute for the Conservation of Antiquities and Heritage, Erbil, Iraq. A U.S. Department of State Project**

**Fall 2010**

#### **Program Development:**

**Summer 2010**

- Development of Vision, Goals and Strategies for the program.
- Coordination and the development of scheduling, course syllabi, and books required for all courses.
- Coordination with necessary Ministries and other government officials to arrange for practical training sessions to be held at local sites in Iraq.
- Acquisition of technical equipment and supplies for the program and setting up the historic preservation material Lab and the documentation lab.
- Training and Supervision of Master Trainers/Teachers, including regular direct observation of their teaching to ensure quality of education in the classroom.

**Spring 2010**

#### **Curriculum Development:**

Developed and implemented a comprehensive curriculum of coursework (short courses) that encompasses the philosophy and ethical issues of preservation; relevant science and analytical methods; documentation; preventive site conservation practices, emergency recovery, and risk management; as well as stabilization and treatment of sites and structures.

New Courses Developed and Taught:

**2010:** Theoretical Framework and Preservation Principles

**2010:** Cultural Recourse Management: Documentation, Assessment and Planning

**2010:** Documentation of Cultural Heritage

**2010:** Rehabilitation of Historic Buildings (Adaptive Reuse)

**2010:** Specialist Investigation Methods for Heritage Preservation

**2010:** Computer Training for Preservation

*Co-teacher for the following Short Courses:*

**2010:** Causes of Decay and Preservation of Building Materials (Stone and Brick)

**2010:** Preservation of building materials (Mud and Brick)



2010: Structural preservation of traditional buildings  
 2010: Regeneration, reuse and design in the historic environment  
 2010: Architectural and Object Conservation Photography  
 2010: Digital Technology for Cultural Documentation

### College of Architecture, Texas Tech University continued

Fall	2009	<p><b>ARCH 2501</b>, Architecture Design Studio II, required. Biomimicry Studio: <i>Nature-Inspired Design</i>: Introduces a new sustainable design thinking approach; Moving towards a more interactive-collaborative (qualitative) approach that aims at “enabling solutions”. (Pedagogy and results are published in a Peer-Reviewed paper).</p> <p><b>ARCH 3341</b>, Digital Media II, Required. Parametric Modeling. An introductory course to parametric modeling; It explores the basic parametric modeling methods in architectural design. Coordinator: Lecture series + five Lab sections.</p>
Spring	2009	<p><b>ARCH 4341</b>, OpenGL Graphics: Media elective; (<i>code writing intensive class</i>). This course provides an introduction to the area of computer graphics, writing 2D, 3D, and basic animation programs that utilize C++ programming language with OpenGL graphics environment and GLUT library.</p> <p><b>ARCH 2502</b>: Architecture Design Studio III, required. Design by Story. The intersection between architecture and literature offers an optimal pedagogy for teaching beginning design students. The approach focuses on the narrative structure of the story, which provides the structural framework for various formal and spatial experimentations. (Pedagogy and results are published in a Peer-Reviewed paper).</p>
Fall	2008	<p><b>ARCH 5691</b>, Master Design Studio I, required. Graduate Comprehensive Building Studio: Evidence-based Health Care Design. A holistic approach to building design, through which multiple aspects of design; conceptual and productive, where the process of basing decisions about the built environment is based on credible research to achieve the best possible outcomes.</p>
Spring	2008	<p><b>ARCH 4341</b>, OpenGL Graphics: Media elective; (<i>code writing intensive class</i>). This course provides an introduction to the area of computer graphics, writing 2D, 3D, and basic animation programs that utilize C++ programming language with OpenGL graphics environment and GLUT library.</p>
Spring	2008	<p><b>ARCH 2502</b>: Architecture Design Studio III, required. Design by Story. The intersection between architecture and literature offers an optimal pedagogy for teaching beginning design students. The approach focuses on the narrative structure of the story, which provides the structural framework for various formal and spatial experimentations. (Pedagogy and results are published in a Peer-Reviewed paper).</p>
Fall	2007	<p><b>ARCH 2501</b>, Architecture Design Studio II, required. <i>Dynamics</i> studio: This studio explores the artistic, conceptual, poetic, creative, dynamic, and experiential side of nature as a way of triggering the imagination and developing ideas on architectural form and space making.</p>

### Queen Rania Institute of Tourism and Heritage, The Hashemite University, Zarqa, Jordan

Spring	2006	<ul style="list-style-type: none"> <li>▪ Applications of Visual Communication in Heritage</li> <li>▪ Documentation of Archaeological Sites and Monuments.</li> </ul>
Fall	2005	<ul style="list-style-type: none"> <li>▪ Research Methods (Graduate Level Seminar)</li> <li>▪ Cultural Resources Management</li> </ul>

### College of Architecture, Texas A&M University

Fall	2004	<p><b>PLAN 625</b>, Graduate Class, Geographical Information Systems in Landscape and Urban Planning. GIS Lab Section. Department of Landscape and Urban Design.</p>
------	------	--

### Department of Civil Engineering, Faculty of Engineering and Technology, Al-Balqa Applied University, Amman, Jordan

Spring	2002	<ul style="list-style-type: none"> <li>▪ Graphic Design</li> <li>▪ History and Theory of Architecture</li> <li>▪ Technical &amp; Engineering Drawing</li> </ul>
Fall	2001	<ul style="list-style-type: none"> <li>▪ Architectural Design studio (Beginning Design Studio)</li> <li>▪ Free-Hand Drawing</li> </ul>

### Institute of Traditional Islamic Arts, Al-Balqa Applied University, Amman, Jordan

Fall 1999- Spring 2001	<p><b>Curriculum and Program Development:</b>          Founding Team: As part of the start-up foundation team, we developed the Institute’s vision and mission, goals, curriculum, labs, policies and procedure, etc.</p>
---------------------------	---

1999: Geometry courses: Developed the geometry track at the institute, including the three core geometry.

**New Courses Developed:**

2000-2001: Islamic Art and Architecture; Design Studio

1999-2001: Islamic Geometry Construction and Analysis 101

2000-2001: Islamic Geometry Construction and Analysis102

2001: Advanced course in Islamic Geometry: Construction and Analysis

## Service and Community Outreach

### University of Utah:

- 2022-2025: University Promotion and Tenure Advisory Committee (UPTAC).
- 2018-2021: University of Utah Academic Senator.
- 2017-2020: University of Utah Research committee.

### College of Architecture + Planning

- 2022-2023: FacTech (Facilities and Technology committee).
- 2016-2018: The College of Architecture Shop Committee (Shopko).
- 2016/2017: Fabrication Task Force: future digital fabrication needs for MDD and architecture.
- 2016: Multi-Disciplinary Design (MDD) Director Search Committee.

### School of Architecture

- 2024: College Research Symposium
- 2022-2023: Admissions.
- 2023: five-year post tenure package of Associate Professor Jorg Ruegerner.
- 2023: Search committee member of the Tenure Track Assistant Professor of Architectural Design + Urbanization
- 2022-2023: School of Architecture Research committee (Chair).
- 2023: Review of Assistant Professor Dwight Yee (Clinical) for his Retention as a Career-line faculty at the College of Architecture + Planning (Chair).
- 2022: RPT committee for Valerie Greer, Third Year Review.
- 2021: Retention and Review Statement for Career-Line Faculty.
- 2021: Chair of Integrated technology position search committee.
- 2018: SOA Chair Search Committee
- 2018: SoA Administrative Officer Search Committee.
- 2015-2018: Curriculum committee. School of architecture.
- 2015-2018: Area Coordinator, Communications committee. School of Architecture.
- 2015-2021: Admissions, Recruiting, and Diversity Committee (ARDC)
- 2016/2017: The undergraduate degree in building science program study committee

### Texas Tech University:

#### **Committee Assignments :**

#### **Texas Tech University Committees**

- 2012-1015: TTU Convocations Committee (Member).
- 2009-2012: Member of Texas Tech Faculty Senate as a Senator At-Large
  - 2009: Member of Senate Study Committee C, reviewing Students' Evaluation.
  - 2010: Member the Faculty Status and Welfare committee.
  - 2011: Member of Senate Study Committee A.
- 2009: The University Library committee. (Member)
- 2008: The Excellence in Diversity & Equity Award, Faculty Review Committee. (Member).

#### **College of Architecture Committees**

- 2012: COA Scholarship Committee. (Member)
- Fall 2012: The Historic Preservation Symposium planning committee.(Co-Chair)
- 2011-2014: Historic Preservation Program Committee. (Member)

- 2011: Strategic planning Subcommittee: “Strengthen Academic Quality and Reputation” .(Member)
- 2011: COA Scholarship Committee. (Member)
- Fall 2011: The Historic Preservation Symposium planning committee.(Co-Chair)
- 2007-2010: The Visualization Program Committee. (Member)
- 2007-2011, Chair of the Grade Appeals Committee. (Chair)
- 2007-2009: The Undergraduate Admissions Committee. (Member)
- Spring 2008: The Digital Design and Fabrication Position Faculty Search Committee. (Member)

### Community Service

- 2007-2011: Member of Arab American Faculty Forum (AAFF) at TTU, 2007. Served as the AAFF secretary for the forum in 2009.
- 2008: Member of the Interfaith Dialogue Group at St. John's United Methodist church.
- 2008: Advisor for the Saudi students association.

### International Community

- 2019-2023:** Member of the organizing committee. The International Society for the Interdisciplinary Study of Symmetry (SIS-Symmetry).
- 2010:** Director of the Historic Preservation Training Program in Iraq. This effort was announced by the First Lady Laura Bush in 2008, as a major effort launched by the U.S. Department of State to preserve the archaeological and cultural treasures of Iraq. The involvement in this high profile project has promoted Texas Tech University and the college of architecture as an active member of the international preservation community and one of the key players in preserving the cultural heritage of Iraq.

## Professional Experiences

**2020-2023:** Owner of *House of Geometry*; Geometry inspired Arts and Crafts.

**2010: Director of the Historic Preservation Program**, International Relief and Development, *Erbil, Iraq. January 2010- Decmebr 2010.*

**ICHP:** The Iraqi Institute For The Conservation Of Antiquities And Heritage. This project was announced in 2008, as a major effort launched by the U.S. Department of State to preserve the archaeological and cultural treasures of Iraq. Established as part of the Iraq Cultural Heritage Project (ICHP), this initiative is funded by the U.S. Embassy in Iraq and administered through International Relief and Development. The goal of the Institute is to train Iraqi heritage professionals in up-to-date, international standards in conservation and historic preservation and thus support the on-going preservation of Iraqi cultural heritage as the country recovers from decades of war.

#### Established and Managed the Historic Preservation Program;

- Designed and implemented a curriculum formulated to meet the short- and long-term preservation needs of Iraq’s historic and archaeological sites.
- Coordinated development of scheduling, course syllabi, and books required for all courses and coordinated with necessary Ministries and other government officials to arrange for practical training sessions to be held at local sites in Iraq.
- Acquisition of technical equipment and supplies for the program and setting up the historic preservation material Lab and the documentation lab.
- Trained and Supervised Master Trainers/Teachers, including regular direct observation of their teaching to ensure quality of education in the classroom.

#### 2006-2007: Freelance Consultant

- Designed several projects in the United States and the Middle East.

#### 2005-2006: Urban and Landscape designer, *The Hashemite University, Sept 2005- June 2006.*

- The Hashemite University campus landscape.
- The Hashemite University duty free zone area.
- Headquarter for The Center for Studies, Consultation & Community Service.

**2000-2001: Director and Principal Designer, NOQOSH for Arts and Crafts, 2000- 2002.**

- Designer and owner of NOQOSH handicraft ceramic jewelry line in Jordan

**1996-1999: Senior Architect, Al Mihrab Architectural Co. Jordan. Feb 1996- Dec 1999.**

- ***Award Winning project***, *Head of the design team:*  
**The reconstruction the “Minbar of Saladin” in Al Aqsa Mosque in Jerusalem;** (US\$ 6,000,000) This Award Winning project was published in the book “The Minbar of Saladin- edited by Lynette Singer” published in 2008.
- ***Award Winning project***, *Head of the design team of “The Education Hajj (Pilgrimage) Project”, which won the first place at a national competition sponsored by the ministry of Awqaf, The total built area of the project was 150,000.00m2.*
- *Design of Princess Nowf Musa’d Abd Al Rahman AAL Saud Palace in Riyad in Saudi Arabia, and several other palaces and villas in Saudi Arabia.*
- *Islamic interior and furniture design of Prince Gazi Bin Muhammad Palace in Jordan.*

**1994-1996: Architect, Specialist Engineering Office (S.E.O.) Jordan, Aug 1994 – Jan 1996.**

- *Design Projects (selection): Research Center in PETRA, Jordan. Several residential villas in Amman, Jordan. Student dormitory in Kerak, Jordan. Several residential apartment buildings in Amman, Jordan. Interior design of Al Misbah Commercial Center in Amman, Jordan.*

## Professional Development

### Training & Workshops:

- 2018:** Glass Casting Workshop. Department of Art & Art History. The University of Utah.
- 2016:** Grant Writing Academy (GWA). The University of Utah. The Silver Baron Lodge at Deer Valley Resort. UT.
- 2016:** Glassblowing. Chemistry Department. University of Utah.
- 2014:** Two advanced Graduate Ceramic classes. The Art Department. Texas Tech University.
- 2013:** Glass Casting. The Glass Studios at Corning Museum of glass in New York.
- 2010:** Traditional building techniques, Usam Gaihdan, Iraq
- 2010:** Architectural and Object Conservation Photography, Sebastian Meyer
- 2000:** Islamic Calligraphy and Arabesque: Al Balqa University, salt, Jordan
- 1999:** Ceramics and pottery making: The Salt Craft Center, Jordan.