

Name: Alaa Algargoosh

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Education

- 2021 **Ph.D. in Architecture-** Building Technology (Acoustics).
University of Michigan, United States.
- 2021 **M.Sc. in Architecture-** Building Technology
University of Michigan, United States.
- 2013 **M.Sc. in Architecture-** Sustainable Architecture
University of Dammam, Saudi Arabia.
- 2007 **B.Sc. in Interior Architecture**
King Faisal University, Saudi Arabia.

Academic Positions

- 2022- ongoing **Research Fellow at MIT Media Lab**, Massachusetts Institute of Technology.
- 2021- ongoing **Assistant Professor in Interior Design**, College of Design, Imam Abdulrahman Bin Faisal University.
- 2020 **Instructor in Performing Arts and Technology**, University of Michigan.
- 2016 - 2018 **Teaching Assistant in Architecture** at Taubman College of Architecture and Urban Planning, University of Michigan.
- 2013 - 2014 **Lecturer in Interior Design**, College of Design, University of Dammam.
- 2010 - 2013 **Teaching Assistant in Interior Design**, College of Design, University of Dammam.

Professional Experience

- 2008 **Project Engineer at Saudi Aramco**
Was the first woman to work as a project engineer, led the project team, and proposed innovative ideas that promoted sustainability through construction.
- 2007 **Architect at Zuhair Fayez Partnership Consultants**
The interior design of King Abdullah University of Science and Technology (KAUST).

Peer-reviewed Publications

Singh, Nikhil; Colon, Aidan; Mokhtar, Sarah; **Algargoosh, Alaa**; Mohammadi Amiri, Mohammad (2024). "A Machine Learning Approach to Reconstruct 3D Environments through Acoustic Characteristics" InterNoise 2024, Nantes France (Abstract Submitted).

Algargoosh, Alaa; Astrom, Hector; Alrasheed, Hend (2024). "Psychoacoustic and Affective Response Analysis of Soundscapes" InterNoise 2024, Nantes France (Abstract Submitted).

Caldas, Fernanda; Underwood, Samuel; **Algargoosh, Alaa**; Davies, Bill; Wilson, Wayne; Masiero, Bruno; Rosas-Pérez, Carmen; Caniato, Marco; Bettarello, Federica; Tufvesson, Catrin; Manley, David; Sivakumar, AJ;

Wang, Lily (2024) "Ten questions concerning autism and auditory accessibility in buildings" Building and Environment (Under Review).

Algargoosh, Alaa., (2024). "The Link between the Acoustic Characteristics of Worship Spaces Case Studies to Their Emotional Impact" The Journal of the Acoustical Society of America (Under Review).

Ishii, H., Pataranutaporn, P., Pillis, D., Xiao, X., Algargoosh, A., Li, L., Labrune, J. (2024). "TeleAbsence: A Vision of Afterlife Telepresence" ACM Conference on Designing Interactive Systems 2024, Denmark, USA. (Under Review).

Algargoosh, A., Navvab, M., and Granzow, J. (2022). "A method for analyzing room modal response using auralization," Appl. Acoust., 195, 108859. doi:10.1016/J.APACOUST.2022.108859

Algargoosh, A., Soleimani, B., O'Modhrain, S., and Navvab, M. (2022). "The impact of the acoustic environment on human emotion and experience: A case study of worship spaces," Build. Acoust., , doi: 10.1177/1351010X211068850

Algargoosh, A. S. (2016). "Review of aspects that shape the aural experience in worship spaces," Proc. Meet. Acoust. 22ICA, Acoustical Society of America, doi:10.1121/2.0000435. doi:10.1121/2.0000435

Algargoosh, A. S., Eldien, H. H., and El-Wakeel, H. (2013). "Improving the indoor sound quality by using cymatic shapes," Proc. Meet. Acoust., doi:10.1121/1.4799428. doi:10.1121/1.4799428

Algargoosh, A. (2011). "Increasing the effectiveness of the architectural design process by simulation," Second Sci. Conf. Grad. Students, Jeddah.

Conference Presentations and Proceedings

Algargoosh, A., Allam, A. (2023). "Parametric Analysis of the Impact of Geometry on Room Modes at Low Frequencies Using Wave-based Simulation," 184 ASA, Chicago, USA.

Algargoosh, A., Singh, N. (2023). "Using Machine Learning to Reconstruct Room Geometry from an Impulse Response," 184 ASA, Chicago, USA.

Algargoosh, A. (2022). "Enhancing well-being through acoustic environments," ICA 2022, Gyeongju, Korea. (Invited Presentation).

Algargoosh, A. (2020). "Analysis of the acoustic characteristics of spaces relating to their emotional impact," Acoust. Virtually Everywhere.

Algargoosh, A. (2020). "The emotional impact of acoustic environments: cases studies of worship spaces," Virtual Student Summer Talks.

Algargoosh, A. ; S. B. (2019). "The impact of the acoustic environments on the emotional experience of worship spaces," J. Acoust. Soc. Am., doi: 10.1121/1.5137477. doi:10.1121/1.5137477

Algargoosh, Alaa; Granzow, J. (2019). "Developing a new method for analyzing room acoustics based on auralization," J. Acoust. Soc. Am., doi: 10.1121/1.5136710. doi:10.1121/1.5136710

Algargoosh, A. (2017). "Creating a psychologically supportive environment through aural architecture," 24th Int. Congr. Sound Vib. ICSV 2017,.

Al-Ghamdi, Sarah A.; **Algargoosh, Alaa;** Alshaibani, K. A. (2015). "Energy conservation by retrofitting: an overview of office buildings in saudi arabia," Int. Inst. Eng. May 22-23, 2015 Dubai, doi:10.15242/iie.e0515005. doi:10.15242/iie.e0515005

Patents

Algargoosh, Alaa; Hossameldin, Hany; El-Wakeel, H. (2015). *Sound diffuser inspired by cymatics phenomenon*, United States patent, 9058799. doi:10.13140/RG.2.1.2092.2408

Algargoosh, Alaa; Hossameldin, Hany; El-Wakeel, H. (2015). *Sound diffuser inspired by cymatics phenomenon*, Saudi Arabia patent, 4439.

Other Publications

Algargoosh, Alaa; Granzow, J. (2019). *Developing A New Method for Analyzing Room Acoustics Based on Auralization "How can a room shape your voice?"*

Algargoosh, A. (2011). "The memory of the senses and architectural ethics," *Albenaa Mag.*

Scholarships and Grants

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| 2024 | MIT-IBK Research Award (\$25,000) , Massachusetts Institute of Technology (MIT). |
| 2022 | MIT-IBK Post-Doctoral Fellowship (\$152,500) , Massachusetts Institute of Technology (MIT). |
| 2020 | Humanities Institute Graduate Student Fellowship (\$30,000) , LSA Institute for the Humanities, |
| 2019 | CHRG 2019 Summer Institute Scholarship , Concert Hall Research Institute. |
| 2019 | Andrew W. Mellon Foundation Grant for Michigan-Mellon Project on the Egalitarian Metropolis Grant, Mapping the Egalitarian Metropolis: Spaces of Hope. |
| 2019 | Barbour Scholarship (\$20,400) , one of the oldest and most prestigious awards for female leaders in Science and other fields, Rackham Graduate School, University of Michigan. |
| 2019 | Dow Sustainability Fellowship (\$15,000) , The Graham Institute at the University of Michigan, and The Dow Chemical Company. |
| 2019 | Rackham Conference Travel Grants (\$2,400) , University of Michigan. |
| 2018 | Arts Integrative Interdisciplinary Research Grant (\$3,000) , Arts Engine, University of Michigan, |
| 2018 | Rackham Graduate Student Research Grant (\$3,000) , University of Michigan. |
| 2018 | Engaged Pedagogy Fellowship , Community-Engaged Academic Learning, University of Michigan. |
| 2017 | Rackham International Students Fellowship for Outstanding International Students (\$10,000) , University of Michigan. |
| 2017 | Acoustical Society of America's Student Council Travel Award. |
| 2017 | Rackham Conference Travel Grant , University of Michigan. |
| 2016 | Rackham Conference Travel Grant , University of Michigan. |
| 2013 | Saudi Arabian Cultural Mission Scholarship Program. |
| 2012 | Master Thesis Grant (\$8000) , University of Dammam |

Awards and Honors

- 2023 **MIT Research Slam Competition**, won two prizes at the competition.
- 2021 Nominated for the **ARCC Dissertation Award**, The Architectural Research Centers Consortium.
- 2021 **Certificate of Excellence in Sustainability** program at the University of Michigan.
- 2021 Nominated for the **Willie Hobbs Moore Achievement Award**, which recognizes individuals in STEM whose achievements encourage and inspire others to achieve their goals.
- 2020 **ARCC King Student Medal for Excellence in Architectural and Environmental Research**, The Architectural Research Centers Consortium.
- 2019 **MIT Technology Review- Innovators Under 35 MENA**, An award that recognizes the "innovators under the age of 35 who will shape the future by transforming existing industries and establishing new ones."
- 2019 Nominated by Taubman College of Architecture and Urban Planning for **Rackham Outstanding Graduate Student Instructor Award**, University of Michigan.
- 2019 Selected to participate at the **MIT Reality Virtually Hackathon**, Massachusetts Institute of Technology (MIT).
- 2018 **Outstanding Doctoral Student Award**, Taubman College of Architecture and Urban Planning, University of Michigan.
- 2016 **Honored by Ambassador** Abdallah AlMouallimi during the "This is My Fingerprint" exhibition in New York, which presents the best Saudi students' achievements.
- 2015 **University of Michigan Doctoral Program Scholarship**.
- 2014 **Saudi Council and Ambassador in the U.S.**, honored for my achievements and inventions.
- 2013 **King Abdulaziz and His Companions Foundation for Giftedness and Creativity**, won the Competition and was selected to present my invention (cymatic sound diffuser) in Ibtikar (an international exhibition for inventions).
- 2013 **King Abdulaziz Center for World Culture (Keystone program)**, selected to represent my team and participate with our invention (sound absorbers decorative tile) in the annual ArtScience Innovation Workshop in Paris.
- 2013 **King Abdulaziz Center for World Culture (Keystone program)**, selected to conceptualize and translate creative ideas into marketable products and services in Synthetic Biology. The program was affiliated with Harvard ArtScienceLab.
- 2007 Honorary three years' membership for Academic Excellence by **The Saudi Council of Engineering**.
- 2003 - 2007 **Yearly Honor for Academic Excellence**, University of Dammam.

Guest/Invited Lectures and Talks

- May. 2023 **Aural Architecture and Well-being**
Center for Computer Research in Music and Acoustics (CCRMA), Stanford University.

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- Dec. 2022 **The Impact of Acoustic Environments on Human Experience**
City Science Lab, MIT Media Lab, Massachusetts Institute of Technology.
- Oct. 2022 **Acoustic Environments and Human Experience**
Course: ARCH 3231/6531: Environmental Systems I, School of Architecture, The Georgia Institute of Technology.
- Oct. 2022 **The Music of Space**
Invited talk by ArchiNet (a networking platform for architects)
- Oct. 2022 **Aural Architecture as Affect :Understanding the Impact of Acoustic Environments on Human Experience.**
Course: (PAT 521) Advanced Psychoacoustics. Performing Arts & Technology department, University of Michigan.
- Mar. 2022 **Acoustic Environments and Human Experience**
Course: (ARCH 563) Building Science Research Topics, School of Architecture, Portland State University.
- Feb. 2022 **Acoustic Environments and Human Experience**
Public lecture. Alasala College.
- Nov. 2021 **Aural Architecture as Affect :Understanding the Impact of Acoustic Environments on Human Experience**
Public lecture. College of Design, IAU.
- Oct. 2021 **Aural Architecture as Affect :Understanding the Impact of Acoustic Environments on Human Experience.**
Course: (PAT 521) Advanced Psychoacoustics. Performing Arts & Technology department, University of Michigan.
- Oct. 2021 **Architectural Acoustics**
Course: (ARCH 563) Building Science Research Topics, School of Architecture, Portland State University.
- Feb. 2021 **Aural Architecture as Affect :Understanding the Impact of Acoustic Environments on Human Experience**
Course: (ARCH 825) Research for Design Practices. Taubman College of Architecture, University of Michigan
- Sep. 2020 **Architectural Acoustics**
Course: (ARC 48768) Indoor Environmental Quality (IEQ); Energy, Health and Productivity, Architecture School, Carnegie Mellon University.
- Apr. 2020 **Impact of the Acoustic Environments on Emotions and Well-being.**
Michigan University-wide Sustainability and Environment (MUSE) Workshop.
- Feb. 2020 **Aural Architecture as Affect: Room Acoustics & the Human Experience.**
Seminar. Performing Arts & Technology department, University of Michigan.
- Nov. 2019 **Sound Affects:The Impact of the Acoustic Environments on the emotional experience of Worship Spaces.**
Course: (PAT 521) Advanced Psychoacoustics. Performing Arts & Technology department, University of Michigan.
- Oct. 2019 **Aural Architecture: Auditory Experiences Created by Spatial Attributes.**
Course: (ARCH 506) Research for Design Practices. Taubman College of Architecture, University of Michigan.

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- Apr. 2019 **Aural Architecture: Auditory Experiences Created by Spatial Attributes.**
Course: (PAT 102) Acoustics and Psychoacoustics. Performing Arts & Technology department, University of Michigan.
- Feb. 2019 **Sound Affects: The Emotional Impact of Aural Architecture.**
Event: Research Remix: Art, Technology, & User Experience. Duderstadt Center, University of Michigan.
- Feb. 2019 **V.R. for Advancing Research vs. Research For Advancing V.R.**
Event: Media & Studio Arts Symposium. Duderstadt Center, University of Michigan.
- Apr. 2018 **Beyond Journaling: A Reflection Toolbox for Community Engagement.**
Engaged Pedagogy Initiative Symposium. LSA's Community-Engaged Academic Learning and Rackham's Program in Public Scholarship, University of Michigan.
- Oct. 2018 **Architectural Acoustics Simulation.**
Course: (ARCH 605) Environmental Design Simulation. Taubman College of Architecture, University of Michigan.
- Oct. 2018 **Research and Invention.**
Course: (ARCH 506) Research for Design Practices. Taubman College of Architecture, University of Michigan
- Nov. 2017
Nov. 2016
Mar. 2016

Media Coverage

- 05/03/2023 **MIT News**
An Article about the Research Slam Competition and the two awards I won at it.
- 11/14/2021 **Dubai Future Podcast**
Interviewed to talk about my work in acoustics and my experience as an inventor.
- 18/02/2021 **Stories from Pioneers on the Front Lines of Innovation**
Interviewed to talk about my work which received the Innovators Under 35 Award by MIT Technology Review, the future of sound technology, research, and innovation.
- 12/17/2019 **Student Spotlight, Website of Rackham Graduate School, University of Michigan**
An article about my research titled "Virtual Buildings, Real Emotions."
- 12/10/2019 **Adwa Podcast**
Interviewed by Phonograph Radio to talk about my research
- 10/30/2019 **Emirates News Agency**
Mentioned as one of the Winners of the Innovators Under 35 Award by MIT Technology Review with a description of my work.
- 04/14/2019 **Okaz Newspaper**
Mentioned as a panelist in the Summit of Saudi Students in the U.S. titled "Transformation Journey through Studying Abroad" at Indiana State University.
- 04/14/2019 **Alwatan Newspaper**
Mentioned as a panelist in the Summit of Saudi Students in the U.S. titled "Transformation Journey through Studying Abroad" at Indiana State University.
- 02/05/2017 **Hia Magazine**, interviewed to talk about my achievements.

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- 03/09/2016 **"Bssmat Mbt3th" book**
Included a page about my achievements as part of the influential international achievements of Saudi students worldwide. The book was launched by the Ambassador (Prince Abdullah Bin Turki) and the Saudi Cultural Attaché in America (Dr. Mohammed Al-Issa) in Washington on September 3rd, 2016.
- 12/01/2016 **Alyaum Newspaper**
An article about my invention, which was granted a Saudi and a U.S. patent.
- 05/09/2015 **Makkah Newspaper**
Mentioned as an inventor in an article about the outstanding achievements of Saudi students studying in the U.S.
- 14/02/2014 **Subscribe Show**
Interviewed on MBC channel in the show that represents the achievements of innovative Saudi youth.
- 03/07/2013 **Asharq Alawsat Newspaper**
An article about my contribution to the Art Science Innovation workshop in Paris.
- 08/03/2012 **Alyaum Newspaper**
Selected to represent the successful Saudi working women on International Working Women's Day.

Professional Organizations

- 2013 Membership of Saudi Inventors.
2012 Membership of Acoustical Society of America.
2006 Membership of the Saudi Council of Engineering.

Teaching Experience

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| 2022 | INDSG 504 | Design studios 10 |
| 2022 | INDSG 409 | Research Methods |
| 2021, 2013,
2012 | INDSG 404 | Environmental Control Systems 2 |
| 2021 | INDSG 501 | Design studios 9 |
| 2021 | INDSG 402 | Production Drawings 1 |
| 2020 | PAT 102 | Acoustics and Psychoacoustics |
| 2018, 2017,
2016 | ARCH 425 | Environmental Systems |
| 2018, 2016 | ARCH 527 | Integrative systems |
| 2013 | INDSG 503 | Graduation Project Thesis |
| 2012, 2011,
2010 | INDSG 301 | Design studios 5 |

2012	INDSG 308	Working Details 2
2012, 2011	INDSG 307	Design studios 6
2011	INDSG 302	Working Details 1
2010	INDSG 504	Design studios 10
2010	INDSG 213	Building Construction Methods

Languages

Arabic (Native), English (Fluent), and French (Basic).

Certificates

2024	Research Mentoring Certificate.
2023	MIT Kaufman Teaching Certificate.
2019	LEED Green Associate Certificate.
2019	U-M Graduate Teacher Certificate, Center for Learning and Teaching, University of Michigan.

Computer/Technical Skills

Operating Audio recording studios.

Acoustics software: EASE, Acoustic 3D (AC3), Odeon, QRDude, DIRAC, Chuck, Raven, and Audacity.

Programming software: MATLAB, Arduino.

Statistics software: R studio.

Virtual reality: Oculus, 360 Samsung Gear, ambisonic V.R. audio.

Energy simulation software: e QUEST, Energyplus and Ecotect.

Drafting and graphics software: Rhino, Sketchup, AutoCAD, Form Z, PhotoShop, and 3D Studio Max.

Management simulation software: Extend.

Leadership and other Activities

2023	Member of the MIT Intellectual Property Committee.
2023	External examiner for the PhD Dissertation of Andrea Giglio, Architecture, Politecnico di Milano.
2023	Presenting a sound piece that engages the public through utilizing resonance in meditation to enhance well-being as part of an event titled "Meditation, Art, and Neuroscience in Conversation" at the MIT Museum.
2023	Organizing a workshop named "Resonated with Me" as part of the Learning Festival at the MIT Media Lab.
2022	UKAN Impactful Public Engagement Program by the United Kingdom Acoustics Network.
2022	Advisory board member for the Interior Design Program at IAU.
2022	Selected as a member of the advisory committee of Sound Concept at the International Well Building Institute (IWBI).

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- 2022 Participated as a review committee member for the Simulation for Architecture and Urban Design Conference (SimAUD).
- 2022 Participated in the Acoustical Society of America's Taskforce A (Emerging Areas in Acoustics).
- 2021 Founding member of the Architectural Acoustics Society in Saudi Arabia as part of the Architectural Society "Saudi Umran."
- 2021 Reviewed papers for the Building Acoustics Journal.
- 2021 Quality Control Coordinator for the Interior Design Department, College of Design, IAU.
- 2021 Supervised students during the summer internship at IAU.
- 2020 Mentored Master's student in Architecture as part of the Equity in Architecture Education Consortium Mentoring Program.
- 2020 Chaired a session at the Acoustical Society of America's Virtual Conference.
- 2020 Participant at Midwest I-Corps Node Introduction to Customer Discovery & Value Proposition Design, a program sponsored by the National Science Foundation to help researchers improve the impact of their innovations.
- 2020 Moderated a session in the graduate student conference titled "Utopia Vs. the City" at the University of Michigan.
- 2019 Invited as a reviewer for Design Studio (Institutions- ARCH 552).
- 2019 Volunteered at Xplore Engineering workshops to teach students (entering the 4th through 7th grade) about acoustics as part of the Michigan Acoustics student group.
- 2019 Mixed Methods Dissertation intensive three-day workshop organized by the University of Michigan.
- 2019 Principle researcher for the project titled "Sounds in the City: Mapping Acoustic Environments in Communities of Faith in Detroit and Dearborn". The project was part of the Michigan-Mellon Project on the Egalitarian Metropolis which resulted in an exhibition titled "Mapping the Egalitarian Metropolis: Spaces of Hope".
- 2019 A Judge for the students' research at the Undergraduate Research Symposium, University of Michigan.
- 2019 Organized a workshop on teaching efficiently with technology for graduate student instructors at the University of Michigan
- 2018 Member of the Search Committee for the Director of Doctoral Studies, University of Michigan.
- 2018 Organized a workshop titled: Using Digital Tools to Facilitate Student Collaboration with the Center for Research on Learning and Teaching, University of Michigan.
- 2018 Consultant for Graduate Student Instructors, Center for Research on Learning and Teaching, University of Michigan.
- 2018 Elected to be the Doctoral Student Representative at the College of Architecture, University of Michigan.
- 2018 Organizing member of the Graduate students International Conference at the College of Architecture, University of Michigan.

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- 2018 Michigan Acoustics' student chapter representative.
- 2017 Board member of the Planning and Architecture Research Group.
- 2017 Member of the Sound Studies group at Rackham Graduate School- University of Michigan.
- 2017 Curated the doctoral colloquium conversation (The Critical City) at the University of Michigan.
- 2016 Curated the doctoral colloquium conversation (Conversations on Building Technology) at the University of Michigan.
- 2014 Participated in designing a proposal for a green roof for the building of CELOP (Center of English Language and Orientation) at Boston University.
- 2014 Assisted with various activities in the Boston Children's Museum.
- 2013 Presented a lecture for beginner entrepreneurs with the collaboration of the Sayhat Association for Social Services.
- 2012 Organizing member of the Sustainability through Biomimicry conference.
- 2012 Prepared documents for the accreditation of the National Organization for Assessment and Accreditation (NCAAA).
- 2010 - 2013 Participated in planning many symposiums and conferences at the University of Dammam, contributing as:
- Leader of the exhibition committee.
 - Coordinator of College of Design website.
 - Member of the scientific committee.
 - Member of the media committee.

Contact References

1. Mojtaba Navvab, Associate Professor of Architecture, Taubman College of Architecture and Urban Planning at the University of Michigan, USA.
Email: moji@umich.edu
Address: 2000 Bonisteel Blvd, Ann Arbor, MI 48109
2. Sile O'Modhrain, Associate Professor of Music, Performing Arts Technology Department at School of Music, Theatre & Dance and Associate Professor of Information, School of Information at the University of Michigan, USA.
Email: sileo@umich.edu
Address: 1100 Baits Dr, Ann Arbor, MI 48109
3. Michael Vorländer, Professor at the Institute for Hearing Technology and Acoustics of RWTH Aachen University, Germany.
Email: mvo@akustik.rwth-aachen.de
Address: RWTH Aachen University, Templergraben 55, 52056 Aachen, Germany.
4. Hiroshi Ishii, Professor of Media Arts and Sciences and director of the Media Lab's Tangible Media Group, MIT Media Lab, MIT, USA.
Email: ishii@media.mit.edu
Address: 75 Amherst St, Cambridge, MA 02139

5. Tod Machover, Professor of Music and Media and director of the Media Lab's Opera of the Future group, MIT Media Lab, MIT, USA.
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Address: 75 Amherst St, Cambridge, MA 02139

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