

Contact Information

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Citizenship

Spain, and United States

Profile Summary

Toni is a licensed architect with a PhD in Architecture gained in 2016 at the Polytechnic University of Valencia (UPV), Spain, and he is currently an Associate Professor at Drexel University, Department of Architecture, Design & Urbanism, where he leads the Architectural Technology Curriculum. He has broad international experience in sustainable architectural design obtained in a number of countries, including the United Kingdom, Spain, Italy, Denmark, the Czech Republic, New Zealand, and the United States. His research activities are focused on sustainable design, building technology, and occupant comfort, health and well-being. While he currently conducts the bulk of his research at Drexel University, he is also collaborating with The University of Auckland (UoA), The University of Texas at San Antonio (UTSA), the Lawrence Berkeley National Laboratory (LBNL), Pennsylvania State University, and The California Lighting Technology Center (CLTC) at The University of California-Davis. Notably, he spent two years as a Visiting Scholar at the Building Energy Technology Laboratory (BETLab) at North Carolina State University in the field of technology and sustainable design, worked as a Research Associate with the Welsh School of Architecture (WSA) at Cardiff University, United Kingdom, where he worked on UK's first low carbon, positive-energy, smart house. Additionally, he was an Assistant Professor of high performance building design at The School of Architecture and Planning (SA+P) in The University of Texas at San Antonio (UTSA), leading the Building Performance Laboratory (BPLab). Lastly, he is also a skilled educator with a Masters degree in teaching and with lecturing experience at Drexel, UTSA, NCSU, and UPV. His current role as an Associate Professor at Drexel brings together the skills he has honed in through his diverse pedagogical and research experience and allows him to implement low-carbon technologies into sustainable designs for the creation of a more comfortable, healthy, and efficient built environment, particularly focusing on vulnerable population.

At Present

Associate Professor; Department of Architecture, Design & Urbanism; Antoinette Westphal College of Media Arts & Design. Affiliated Associate Professor - Department of Civil, Architectural and Environmental Engineering (CAEE), College of Engineering Drexel University, Philadelphia, PA, USA – 2022-present

Leading the architectural technology curriculum and comprehensive/integrated design studios, and teaching courses centered around performance-driven design with advanced building technology. Developing sponsored and other interdisciplinary initiatives, industry collaborations and competitions centered around integrated architectural design. Conducting applied research focused on architectural work integrating innovative solutions as well as sustainable design and construction, advanced building performance, building materials and technologies.

Education

Ph.D. in Architecture, Polytechnic University of Valencia UPV; Spain–2016

M.Ed. in Teaching, Valencian International University VIU; Spain–2014

M.Eng. in Building Engineering, Polytechnic University of Valencia UPV; Spain–2011

B.Arch. in Architectural Technology, VIA University College; Denmark–2009

B.Eng. in Architectural Engineering, Polytechnic University of Valencia UPV; Spain–2006

Academic Experience

Assistant Professor; School of Architecture and Planning; Klesse College of Engineering and Integrated Design KCEID, University of Texas at San Antonio UTSA, San Antonio, TX, USA – 2018-2022

Teaching studio and lecture courses at the undergraduate and graduate levels in the areas of Sustainable Design, Building Technology, Environmental Systems, Renewable Energy, and Indoor Environmental Quality. Leading the Building Performance Laboratory researching on the question of how to enhance building performance with sustainable design and innovative building technologies.

Research Associate; Welsh School of Architecture, Cardiff University, Cardiff, UK – 2017-2018

Working in a team designing low-carbon buildings and energy efficient retrofits, and attracting architectural research work. For example, the performance optimization, monitoring and data analysis of the [SOLCER house](#) (the UK's first positive-energy building) has put WSA at the forefront of nearly zero energy building research in Europe and secured multiple grants from both the local and national governments. Additionally, working on ten low-carbon retrofit design projects, which aim to combine appropriate renewable energy supply, energy storage and energy demand reduction technologies to create a more sustainable and healthier built environment that is both scalable and affordable.

Research Associate; School of Architecture and Planning, University of Auckland, Auckland, NZ – 2017-2018

Developing a solid knowledge of how to save energy while renovating historic buildings through conservation-compatible energy retrofit approaches, starting from the examination of previous research regarding Indoor Environmental Quality (IEQ) and energy performance. The research goal is to understand how to preserve historical and aesthetic values of heritage buildings in New Zealand while increasing comfort, lowering energy bills.

Research Associate; Architettura>Energia, University of Ferrara, Ferrara, Italy – 2015

Energy and environmental control of the built environment in Mediterranean regions. Design and retrofit methodologies with attention on energy efficiency and indoor environmental quality of both individual buildings and urban compounds for post-earthquake evaluation and re-building.

Visiting Scholar; North Carolina State University NCSU, Raleigh, NC, USA – 2014-2016

Conducting research in building technology, renewable energies, building energy simulation, and energy efficiency at the Building Energy Technology Lab ([BETLab](#)).

Publications

Peer-reviewed journal articles

Sanchez-Ostiz, A; Premier, A; Boarin, P; **Martinez-Molina, A.** "How Post-Pandemic Housing Design Can Enable Effective Working from Home?. Understanding the New Post-COVID Architecture: Experiences from New Zealand, Spain and the USA." (In Progress).

Iskandar, L.; **Martinez-Molina, A.**; Toker Beeson, S. "Energy Retrofit of a Historic Building – Quantification of Inherent Energy Efficiency Features – Hot and Humid Climate" (In Progress).

Nichiforov, C.; **Martinez-Molina, A.**; Alamaniotis, M. "Control Efficiency Analysis of Fuzzy Logic and Artificial Neural Network Technologies in a Cooling System Responding to Thermal Comfort and Preservation Requirements". (In Progress).

Martinez-Molina, A., Boarin, P. "Microclimatic Monitoring of an UNESCO World Heritage Building using a Modern Cooling System: Implications for the Preventive Conservation of its Cultural Heritage". (In Progress).

Karaiskos, P.; Munian, Y.; **Martinez-Molina, A.**; Alamaniotis, M. "Indoor Air Quality Prediction Modeling for a Naturally Ventilated Fitness Building with RNN-LSTM Artificial Neural Networks" (Submitted).

Iskandar, L; Bay, E; **Martinez-Molina, A.**; Toker Beeson, S. "Evaluation of Passive Cooling Through Natural Ventilation Strategies in Historic Residential Buildings Using CFD Simulations" (Under Review).

Faubel, C; Martinez-Molina, A; Suk, J. "Indoor Air Quality analysis of a CrossFit facility based on CO₂ generation rate and Particulate Matter concentration" (Under Review).

Karaiskos, P.; **Martinez-Molina, A.** Alamaniotis, M. "Analyzing Indoor Air Pollutants in Naturally Ventilated Athletic Facilities. A Case of Study." *Journal of Building Engineering*, Elsevier (2023). [10.1016/j.jobe.2023.107457](https://doi.org/10.1016/j.jobe.2023.107457).

Nichiforov, C.; Alamaniotis, M.; **Martinez-Molina, A.** "An Intelligent Big Data Analytics Method for Two-Dimensional Non-Residential Building Energy Forecasting". *Intelligent Decision Technologies*, IOS Press (2022). [10.3233/idt-220212](https://doi.org/10.3233/idt-220212).

Bay, E; **Martinez-Molina, A.** "Assessment of Natural Ventilation Strategies in Historical Buildings in a Hot and Humid Climate Using Energy and CFD Simulations". *Journal of Building Engineering*, Elsevier (2022). [10.1016/j.jobe.2022.104287](https://doi.org/10.1016/j.jobe.2022.104287).

Martinez-Molina, A; Williamson, K.; Dupont, W. “*Thermal Comfort Assessment of Stone Historic Religious Buildings in a Hot and Humid Climate during Cooling Season.*” Energy and Buildings, Elsevier (2022). [10.1016/j.enbuild.2022.111997](https://doi.org/10.1016/j.enbuild.2022.111997).

Boarin, P.; **Martinez-Molina, A.** “*Integration of environmental sustainability considerations within architectural programmes in higher education: A review of teaching and implementation approaches.*” Journal of Cleaner Production, Elsevier (2022). [10.1016/j.jclepro.2022.130989](https://doi.org/10.1016/j.jclepro.2022.130989).

Munian, Y; **Martinez-Molina, A.**; Alamaniotis, M. “*Intelligent System Utilizing HOG and CNN for Thermal Image-Based Detection of Wild Animals in Nocturnal Periods for Vehicle Safety.*” Applied Artificial Intelligence, Taylor & Francis (2022), [10.1080/08839514.2022.2031825](https://doi.org/10.1080/08839514.2022.2031825).

Munian, Y; **Martinez-Molina, A.**; Alamaniotis, M. “*Active Advanced Arousal System to Alert and Avoid the Crepuscular animal based vehicle collision.*” Intelligent Decision Technologies, IOS Press (2021), Impact Factor: 1.235. [10.3233/ijd-210204](https://doi.org/10.3233/ijd-210204).

Williamson, K; **Martinez-Molina, A.**; Dupont, W. “*In Situ Assessment of HVAC System Impact in Façades of a UNESCO World Heritage Religious Building.*” ANUARI d'Arquitectura i Societat, Universitat Politècnica de València (2021). [10.4995/anuari.2021.16331](https://doi.org/10.4995/anuari.2021.16331).

Nichiforov, C.; **Martinez-Molina, A.**; Alamaniotis, M. “*An Intelligent Approach for Performing Energy Driven Identification of Buildings Utilizing Joint Electricity-Gas Patterns.*” Energies, MDPI (2021), Impact Factor: 3.004. [10.3390/en14227465](https://doi.org/10.3390/en14227465).

Núñez-Andrés, M.A.; **Martinez-Molina, A.**; Casquero-Modrego, N; Suk, J. “*The Impact of Peer Learning on Student Performance in an Architectural Sustainability Course.*” International Journal of Sustainability in Higher Education, Emerald (2021), Impact Factor: 2.854. [10.1108/ijsh-11-2020-0447](https://doi.org/10.1108/ijsh-11-2020-0447).

Martinez-Molina, A.; Alamaniotis, M. “*Enhancing Historic Building Performance with the Use of Fuzzy Inference System to Control the Electric Cooling System.*” Sustainability, MDPI (2020), Impact Factor: 3.251. [10.3390/su12145848](https://doi.org/10.3390/su12145848).

Boarin, P; **Martinez-Molina, A.**; Juan-Ferruses, I. “*Understanding Students' Perception of Sustainability in Architecture Education: A Comparison Among Universities in Three Different Continents.*” Journal of Cleaner Production, Elsevier (2020), Impact Factor: 9.297. [10.1016/j.jclepro.2019.119237](https://doi.org/10.1016/j.jclepro.2019.119237).

Martinez-Molina, A.; Boarin, P; Tort, I; Vivancos, J.L. “*Assessing visitors' thermal comfort in historic museum buildings: Results from a Post-Occupancy Evaluation on a case study.*” Building and Environment, Elsevier (2018), Impact Factor: 4.820. [10.1016/j.buildenv.2018.02.003](https://doi.org/10.1016/j.buildenv.2018.02.003).

Martinez-Molina, A.; Boarin, P; Tort, I; Vivancos, J.L. “*Post-Occupancy Evaluation of a Historic Primary School Building in Spain: Comparing PMV, TSV and PD for Teachers' and Children's Thermal Comfort.*” Building and Environment, Elsevier (2017), Impact Factor: 4.539. [10.1016/j.buildenv.2017.03.010](https://doi.org/10.1016/j.buildenv.2017.03.010).

Martinez-Molina, A.; Tort, I; Cho, S; Vivancos, J.L. “*Energy Efficiency and Thermal Comfort in Historic Buildings. A review.*” Renewable and Sustainable Energy Reviews, Elsevier (2016), Impact Factor: 9.184. [10.1016/j.rser.2016.03.018](https://doi.org/10.1016/j.rser.2016.03.018).

Book chapters

Martinez-Molina, A.; Tort, I, Llinares, J. (2014). Chapter: “*Simulation of Energy Performance of Buildings: A case study in Prague.*” Construction and Building Research, Springer, Part III, 263-269. [10.1007/978-94-007-7790-3_32](https://doi.org/10.1007/978-94-007-7790-3_32).

Martinez-Molina, A.; Tort, I, Vivancos, J.L. (2014). Chapter: “*Modeling and Simulation of History Museum of Valencia.*” Construction and Building Research, Springer, Part III, 255-262. [10.1007/978-94-007-7790-3_33](https://doi.org/10.1007/978-94-007-7790-3_33).

Peer-reviewed conference proceedings

Alkhatib, R; Wibranek, B; **Martinez-Molina, A.**; (2024) “*Performance Evaluation of Digitally Prefabricated and Perforated Screens Inspired by the Mashrabiya in Hot and Humid Climate.*” ARCC-EAAE 2024 International Conference, Aarhus, Denmark, (Abstract submitted).

Karaiskos, P; **Martinez-Molina, A.**; Alamaniotis, M. (2024) “*Exploring Energy Efficiency with Adaptive Temperature Ranges: Thermal Envelope Optimization in Tiny House Design. A case study in the hot and humid climate of San Antonio, Texas, USA.*” PLEA 2024 International Conference, Wroclaw, Poland, (Abstract Accepted, Full Paper In Progress).

Iskandar, L; Faubel, C; **Martinez-Molina, A.**; Toker Beeson, S. (2024) “*Energy Performance Evaluation Of Affordable Residential Prototypes With Different Construction Types.*” PLEA 2024 International Conference, Wroclaw, Poland, (Abstract Accepted, Full Paper In Progress).

Iskandar, L; Faubel, C; **Martinez-Molina, A.**; Toker Beeson, S. (2024) “*Hygrothermal Evaluation and the Impact of Occupancy in Three Historic Churches Located in Different Climate Zones.*” ARCC-EAAE 2024 International Conference, Aarhus, Denmark, (Abstract submitted).

Karaiskos, P; **Martinez-Molina, A.**; Alamaniotis, M. (2024) “*Investigating Indoor Air Quality Performance in Tiny Houses Equipped with Energy Recovery Ventilation (ERV): A Case Study in a Hot and Humid Climate.*” ARCC-EAAE 2024 International Conference, Aarhus, Denmark (Abstract submitted).

Martinez-Molina, A. (2023) *"The Impact of Natural Ventilation on Indoor Air Quality and HVAC Operation in Historic Buildings. A Case of Study."* 43rd AIVC - 11th TightVent & 9th Venticool Conference, Aalborg University, Copenhagen, Denmark ([Abstract Submitted](#))

Munian, Y; **Martinez-Molina, A;** Alamaniotis, M. *"Comparative Analysis of Thermogram and Pre-processed HoG Images using Machine Learning classifiers."* International Conference on Information, Intelligence, Systems and Applications IISA 2023, Volos, Greece ([In Press](#)).

Iskandar, L; **Martinez-Molina, A;** Toker Beeson, S. (2023) *"A Methodological Approach for the Assessment of Passive Retrofit Measures in Wood-Frame Historic Buildings: A Case Study of a Naturally Ventilated Residence in a Hot and Humid Climate."* Building Technology Educators' Society (BTES) Conference, Phoenix, AZ, ([Accepted, In Press](#)).

Karaiskos, P; Iskandar, L; **Martinez-Molina, A;** Alamaniotis, M. (2023) *"Exposure to Particle Matter and Carbon Dioxide in a Naturally Ventilated Athletic Facility during the COVID-19 Pandemic."* ARCC Conference, Dallas, TX, USA [978-1-935129-33-2](#).

Iskandar, L; Karaiskos, P; **Martinez-Molina, A;** Toker Beeson, S. (2023) *"Learning From the Past: The Evaluation and Optimization of the Inherent Energy Behavior of a Residential Historic Building in a Hot and Humid Climate."* ARCC Conference, Dallas, TX, USA [978-1-935129-33-2](#).

Bay, E; **Martinez-Molina, A.** *"The Impact of Efficient Natural Ventilation on the Indoor Environmental Air Quality: The Case of a Social Housing in Turkey".* ARCC-EAAE 2022 International Conference, Miami, FL, USA [978-1-935129-31-8](#).

Awolusi, I; **Martinez-Molina, A;** Nnaji, C; Alamaniotis, M; Sulbaran, T. (2022) *"Utility of Wearable Sensing Devices for Environmental Monitoring on Construction Sites."* Construction Institute (CI) and Construction Research Council (CRC) Joint Conference - American Society of Civil Engineers (ASCE), Arlington, VA, USA [10.1061/9780784483985.076](#).

Martinez-Molina, A; Williamson, K; Awolusi, I; Alamaniotis, M. (2021) *"The impact of different building assemblies on thermal and air quality performance. An experimental student project in an architectural course comparing city building code versus Passivhaus standard."* Building Technology Educators' Society (BTES) Conference, Auburn, AL, USA, [10.7275/w3zn-gw65](#).

Munian, Y; **Martinez-Molina, A;** Alamaniotis, M. (2021) *"Comparison of Image segmentation, HOG and CNN Techniques for the Animal Detection using Thermography Images in Automobile Applications."* 12th International Conference on Fall 2023

Information, Intelligence, Systems and Applications IISA 2021 (IEEE), Chania, Crete, Greece, [10.1109/IISA52424.2021.9555562](#).

Martinez-Molina, A; Williamson, K. (2021) *"Investigation of HVAC Environmental Impact on the San Antonio Missions."* 82nd Texas Society of Architects (TxA) Conference, San Antonio, TX, USA (Presented).

Alamaniotis, M., **Martinez-Molina, A.,** Karagiannis, G. (2021) *"Data Driven Update of Load Forecasts in Smart Power Systems using Fuzzy Fusion of Learning GPs."* 14th IEEE PowerTech — Power for the Sustainable Development Goals, Madrid, Spain, [10.1109/PowerTech46648.2021.9494757](#).

Munian, Y; **Martinez-Molina, A;** Alamaniotis, M. (2021) *"Design and implementation of a Nocturnal Animal Detection Intelligent System in Transportation Applications."* ASCE International Conference on Transportation & Development (ICTD 2021), Austin, TX, USA, [10.1061/9780784483534.038](#).

Bay, E; **Martinez-Molina, A.** *"Thermal Preference and Comfort Assessment: Historic Buildings in Hot and Humid Climates".* ARCC 2021 International Conference, Tucson, AZ, USA, [978-935129-30-1](#).

Williamson, K; **Martinez-Molina, A;** Dupont, W. (2020) *"In Situ Assessment of Superficial Moisture Content in Façades of a UNESCO World Heritage Church Using Electrical Resistance Measuring (ERM). The Impact of the HVAC System."* APT & National Trust Joint Conference, Edmonton, Canada (Presented).

Martinez-Molina, A; Rashed-Ali, H; Suk, J (2020) *"Indoor Environmental Analysis of a LEED Gold-Certified office building in ASHRAE Climate Zone 6."* EAAE-ARCC International Conference —2nd Valencia International Biennial of Research in Architecture, Valencia, Spain. [978-84-9048-982-6](#).

Suk, J; **Martinez-Molina, A;** Rashed-Ali, H. (2020) *"Daylighting and Electric Lighting Post-Occupancy Evaluation Study of a LEED Gold Certified Office Building."* EAAE-ARCC International Conference—2nd Valencia International Biennial of Research in Architecture, Valencia, Spain. [978-84-9048-982-6](#).

Munian, Y; **Martinez-Molina, A;** Alamaniotis, M. (2020) *"Intelligent System for the Detection of Wildlife using HOG and CNN in Automobile Application."* 11th International Conference on Information, Intelligence, Systems and Applications IISA 2020, Piraeus, Greece, IEEE. [10.1109/IISA50023.2020.9284365](#).

Martinez-Molina, A; Tort, I, Vivancos, J.L. (2016) *"Analysis of the implementation of occupant thermal environment surveys in different buildings with different uses."* 20th International Congress on Project Management and Engineering, Cartagena, Spain, 1734-1746, ISBN 978-84-617-4180-9.

Martinez-Molina, A; Tort, I, Vivancos, J.L. (2016) “*Thermal Comfort in Historic Buildings: The Museum of History of Valencia.*” 14th International Forum of Studies ‘Le Vie dei Mercanti’. World Heritage and Degradation. Smart Design, Planning and Technologies, Capri, Italy, 41-50, ISBN 978-88-6542-257-1.

Tort, I; Vivancos, J.L; **Martinez-Molina, A;** Cerra, S; Mendoza, C.M. (2015) “*Thermal comfort and occupants’ feedback in Historical buildings.*” Proceedings of the 19th International Congress on Project Management and Engineering, Granada, Spain, 1809-1820, ISBN: 978-84-608-2864-8.

Tort, I; Vivancos, J.L; **Martinez-Molina, A;** Mendoza, C.M. (2014). “*Energy Analysis and Improvement Proposal of a Traditional House in Requena (Spain) Using Different Simulation Tools.*” Proceedings of the 1st International Conference Energy Efficiency in Historic Buildings, Madrid, Spain, 281-291, ISBN 978-84-617-3440-5.

Tort, I; Vivancos, J.L; **Martinez-Molina, A;** Cerra, S; Mendoza, C.M. (2015). “*Thermal comfort and energy efficiency in historic buildings with new uses.*” Proceedings of the 3rd International Conference on Documentation, conservation and Restoration of the Architectural Heritage and Landscape protection, Valencia, Spain, 569-577, ISBN 978-84-9048-386-2.

Tort, I; Vivancos, J.L; **Martinez-Molina, A;** Mendoza, C.M. (2014). “*Energy Assessment of the History Museum of Valencia Using Various Simulation Tools.*” Proceedings of the 1st International Conference Energy Efficiency in Historic Buildings, Madrid, Spain, 249-256, ISBN 978-84-617-3440-5.

Tort, I; **Martinez-Molina, A;** Vivancos, J.L. (2014). “*A Review of Papers in Buildings from the Energetic Perspective.*” Proceedings of the 1st International Conference Energy Efficiency in Historic Buildings, Madrid, Spain, 292-301, ISBN 978-84-617-3440-5.

Davoli, P.M; Boarin, P; **Martinez-Molina, A;** Arieti, F. (2014). “*From Preliminary Audit to Sustainable Retrofit Strategies for Historic Settlements. A Case of Study.*” Proceedings of the 30th International Congress Scienza Beni Culturali, Bressanone, Italy, 176-187, ISSN 2039-9790, ISBN 978-88-95409-18-4.

Martinez-Molina, A; Tort, I, Llinares, J. (2012). “*Simulation of Energy Performance of Buildings: a Case of Study in Prague.*” Proceedings of the 2nd International Conference on Construction and Building Research, Valencia, Spain, Part III, 263-269, 10.1007/978-94-007-7790-3_32.

Martinez-Molina, A; Tort, I, Vivancos, J.L. (2012). “*Modeling and Simulation of History Museum of Valencia.*” Proceedings of the 2nd International Conference on Construction and Building Research, Valencia, Spain, Part III, 255-262, 10.1007/978-94-007-7790-3_33.

Research Funding

Co-Principal Investigator - William Penn Foundation (2023-25), *Academic Network to Support Urban Water Resilience (ANSUWR)*; \$200,000.

Principal Investigator - City of San Antonio - Neighborhood and Housing Services Department (2022), *Life Cycle Environmental and Affordability Assessment of Prototype Homes, TX*; \$37,000.

Principal Investigator - City of San Antonio - Office of Sustainability (2022), *Experimental Analysis of Cool Pavement Strategies for Heat Island Mitigation in San Antonio, TX*; \$15,000.

Principal Investigator - KANEKA MS Polymer, Inc. (2022), *Indoor Air Quality (IAQ) assessment of adhesive materials + airtightness performance of air-sealing materials using mock-up building structures*; \$16,100.

Principal Investigator - City of San Antonio - Office of Sustainability (2020), *Heat Risk Assessment in Residential Buildings and Opportunities to Implement Urban Heat Island Reduction Measures with a Focus on Vulnerable Populations*; \$40,000.

Principal Investigator - U.S. Department of Interior - The National Park Service (NPS) - National Center for Preservation Technology and Training (NCPTT) Grant (2020), *A Methodical Investigation of HVAC Integration and Impact on U.S. Historic Stone Buildings*; \$20,000.

Principal Investigator - University of Texas at San Antonio, Office of Sustainability - Sustain Grant (2019), *UTSA Sustainable Positive-Energy Housing Design*; \$30,000.

Principal Investigator - University of Texas at San Antonio, Vice President for Research, Economic Development and Knowledge Enterprise (VPREDKE) - INTRA Grant (2019), *The Impact of Sustainability Education on the Practice and Lifestyle of Architecture Students Around the World*; \$5,000.

Co-Principal Investigator - Overland Partners Inc. (2019), *Overland Partners Post-Occupancy Evaluation*; \$23,000.

Principal Investigator - Ford, Powell and Carson Architects and Planners Inc. & Archdiocese of San Antonio (2019), *HVAC Assessment and Indoor Climate Management Study of Mission Concepcion*; \$40,000.

Invited Speaker

Martinez-Molina, A., Comprehensive Building Technology Lecture Series, College of Architecture and Planning, The University of Utah. January 28, 2022.

Martinez-Molina, A., (2021). Air & Waste Management Association (A&WMA) - Alamo Chapter. 2021 Speaker Series, San Antonio, TX. January 21, 2021.

Martinez-Molina, A., (2020). “*San Antonio Missions’ influence on Sir David Adjaye’s design. The Light at Ruby City*” Gallery Talk at Ruby City. San Antonio, TX.

Martinez-Molina, A., (2019). “Methodologies for Positive Energy Homes and Post-Occupancy Evaluations” Lake Flato Architects - R+D Program. San Antonio, TX.

Martinez-Molina, A., (2019). “*Building Energy Simulation in European Historic Buildings: A Review*” World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium (WMCAUS). Guest Speaker & Session Chairman. Prague, Czech Republic.

Martinez-Molina, A., (2019). “*Identifying and Improving the Energy Performance of Historic Homes*”. California Preservation Foundation (CPF), AIA San Francisco and Pacific Gas & Electric (PG&E). San Francisco, CA.

Martinez-Molina, A., (2019). “*Environmental Analysis of Mission Concepcion*”. Elderberries Seniors Group, John Igo Branch Library San Antonio. San Antonio, TX.

Awards/Recognitions

Sustainability Advisor, Office of Sustainability— City of San Antonio, TX. 2020-2022

Contribution to Teaching Excellence Award, College of Engineering and Integrated Design, The University of Texas at San Antonio (2020-21).

Peer Reviewer of Scientific Journals: [Energy and Buildings](#); [Journal of Building Engineering](#); [Building and Environment](#); [Energy Strategy Reviews](#); [Energy and Environment](#); [Sustainability](#); [Energies](#); [Buildings](#); [VLC Arquitectura. Research Journal](#); [International Journal of Environmental Research and Public Health](#); [Indoor Air](#) and [Architectural Engineering and Design Management](#).

Extraordinary Honor Prize to Ph.D. Thesis, Polytechnic University of Valencia, Spain (2018). **ESTUDIA VLC award to Ph.D. Thesis**, Valencia InnDEA Foundation, Spain (2017).

University Achievement Award for International Path, Polytechnic University of Valencia, Spain (2011).

Fall 2023

Teaching Experience

Program Development

Bachelor of Architecture, Zero Energy Design Designation (ZEDD), U.S. Department of Energy. (2023)

Bachelor of Architecture, Building Systems and Integrated Studio redesign and restructure. (2023)

Courses taught

Fall 2023

ARCH487 Architecture Studio 5A - Comprehensive / Integrated Design (Evaluation: avg. X/X).

ARCH394 Building Systems IV (Evaluation: avg. X/X).

ARCH395 Building Systems V (Evaluation: avg. X/X).

Summer 2022

ARCH I480 Bauhaus Implementation Israel - Independent Study (Evaluation: N/A).

Spring 2023

ARCH489 Architecture Studio 5C - Comprehensive / Integrated Design

Winter 2023

ARCH488 Architecture Studio 5B - Comprehensive / Integrated Design

ARCH395 Building Systems V

Fall 2022

ARCH487 Architecture Studio 5A - Comprehensive / Integrated Design (Evaluation: avg. 4.0/5.0).

ARCH291 Building Systems I (Evaluation: avg. 4.7/5.0).

ARCH394 Building Systems IV (Evaluation: avg. 5.0/5.0).

Summer 2022

CE6953 *Artificial Intelligence in Building Performance Optimization* - Independent Study (Evaluation: N/A).

Spring 2022

ARC4183/5953 *Environmental Systems* (Evaluation: avg. 4.8/5.0).

ARC6323 *Master Thesis Preparation* (Evaluation: N/A).

Fall 2021

ARC6126 *Advanced Design Studio (Design-Build) - San Pedro Creek Lawn - Interactive Sustainability Garden* (Evaluation: avg. 4.9/5.0).

ARC5743 *Building Performance Modeling and Simulation* (Evaluation: avg. 4.9/5.0).

Spring 2021

ARC6136 *Advanced Topics Studio - HELP! Healthy Eco-Living Projects*. Online instruction. (Evaluation: avg. 4.9/5.0).

ARC2233 *Principles of Environmental Systems*. Online instruction. (Evaluation: avg. 4.7/5.0).

Fall 2020

ARC2233/5943 *Principles of Environmental Systems*. Online instruction. (Evaluation: avg. 4.8/5.0).

ARC3433/5763 *Architecture and Thought - Post-Occupancy Evaluation of Buildings*. Online instruction. (Evaluation: avg. 4.2/5.0).

ARC6976 *Special Topics Studio - Independent Study - Weathering the Storm*. Online instruction. (Evaluation: N/A).

Summer 2020

ARC6951 *Master's Thesis Preparation - Independent Study*. Online instruction. (Evaluation: N/A).

ARC6951 *Master's Thesis Preparation - Independent Study*. Online instruction. (Evaluation: N/A).

Spring 2020

ARC2233 *Principles of Environmental Systems*. Hybrid instruction. (Evaluation: N/A).

ARC4156 *Building Design Studio - Sustainable Retrofits of Existing Buildings in Hot and Humid Climates*. Hybrid instruction. (Evaluation: N/A).

Fall 2019

ARC2233/5943 *Principles of Environmental Systems* (Evaluation: avg. 4.5/5.0).

ARC6146 *Advanced Technical Studio - Positive Energy Homes* (Evaluation: avg. 5.0/5.0).

ARC 6951 *Master's Thesis Preparation - Independent Study*. (Evaluation: N/A).

Summer 2019

ARC4913 *Introduction to the Passive House Standard - Independent Study*. (Evaluation: N/A).

Spring 2019

ARC2233 *Principles of Environmental Systems* (Evaluation: avg. 4.4/5.0).

ARC6973 *Special Topics - Innovative Homes* (Evaluation: avg. 4.8/5.0).

Fall 2018

ARC2233/5943 *Principles of Environmental Systems* (Evaluation: avg. 4.5/5.0).

Student Success

Building Technology Educators Society (BTES) Edward Allen Student Award (2023) B.Arch. Student: Michael Motyka. Advisor: **Martinez-Molina, A.**

Association for Preservation Technology (APT) Conference Student Scholar (2022). PhD Student: Iskandar, L. Advisor: **Martinez-Molina, A.** "Historic Preservation Tax Incentives: The Real Impact on the Built Heritage." Detroit, MI.

Fall 2023

Building Technology Educators Society (BTES) Edward Allen Student Award (2022) Ph.D. Student: Layla Iskandar. Advisor: **Martinez-Molina, A.**

Architectural Research Centers Consortium (ARCC) King Student Medal For Excellence in Architectural + Environmental Research (2021-2022) Ph.D. Student: Panagiotis Karaiskos. Advisor: **Martinez-Molina, A.**

Professional Internship (2022) Graduate Student: Kelsey Brown, D. WT Partnership (North America).

UTSA College of Engineering and Integrated Design Outstanding Graduate Research Award (2021). PhD Student: P. Dimitroulis. Co-Advisor: **Martinez-Molina, A.**

Undergraduate Student: Britto, R. Advisor: **Martinez-Molina, A.** (2021) National Science Foundation (NSF) Undergraduate Research Program Funding: \$1,800.

UTSA Department of Architecture 1st Year Graduate Student (2021) Faculty Choice Design Award. Graduate Student: Brown, K. Advisor: **Martinez-Molina, A.**

Professional Internship (2021) Graduate Student: Gonzalez, F. and Gonzalez, D. *MP2 Urban Development*.

Undergraduate Student: Llamas, K. Advisor: **Martinez-Molina, A.** (2021) UTSA Office of Undergraduate Research. "Assessment of Natural Ventilation Strategies in a UNESCO World Heritage Site. The case study of Mission Concepcion in San Antonio, TX." Funding: \$1,500.

Association for Preservation Technology (APT) - National Trust Joint Conference Student Scholar (2020). Graduate Student: Brown, K. Advisors: **Martinez-Molina, A.** and Dupont, W. "In Situ Assessment of Superficial Moisture Content in Façades of a UNESCO World Heritage Church Using Electrical Resistance Measuring (ERM). The Impact of the HVAC System."

Professional Internship (2020) Undergraduate Student: Gonzalez, D. *French & Michigan Architects*.

Undergraduate Student: Llamas, K. Advisor: **Martinez-Molina, A.** (2020) UTSA College of Engineering. "Assessment of Natural Ventilation Strategies in a UNESCO World Heritage Site. The case study of Mission Concepcion in San Antonio, TX." Funding: \$1,500.

Undergraduate Student: Baughman, R. Advisor: **Martinez-Molina, A.** (2020) UTSA Office of Undergraduate Research. "Assessment of Natural Ventilation Strategies in a UNESCO World Heritage Site. The case study of Mission Concepcion in San Antonio, TX." Funding: \$1,500.

Undergraduate Student: Aguirre Molina, A. Advisor: **Martinez-Molina, A.** (2020) REEU Grant - National Institute of Food and Agriculture NIFA. *"The Impact of Vegetation on Urban Temperature and Energy Consumption in UTSA Campuses"*. \$3,500.

Graduate Students: Barrios, J.; Trinh, P. Advisor: **Martinez-Molina, A.** (2019) UTSA Office of Sustainability. *"Purifying the Industrial Revolution via Sustainable Green Wall Design at UTSA"*. Funding: \$7,800.

PhD Student: Dimitroulis, P. Advisors: Alamaniotis, M.; **Martinez-Molina, A.** (2019) UTSA Office of Sustainability *"UTSA AI-Driven Energy Internet Technologies for Smart Home"*. Funding: \$9,000.

Undergraduate Student: Aguirre Molina, A. Advisor: **Martinez-Molina, A.** (2019) UTSA Office of Sustainability. *"The Impact of Vegetation on Environmental Sustainability at UTSA"*. Funding: \$1,500.

Undergraduate Student: Heitz, A. Advisor: **Martinez-Molina, A.** (2019) UTSA Office of Undergraduate Research. *"Building Energy Simulation in Historic Buildings. A literature review"* Funding: \$1,000.

Undergraduate Student: Aguirre Molina, A. Advisor: **Martinez-Molina, A.** (2019) UTSA UTSA Office of Undergraduate Research. *"Architecture Students' Perception of Building Technology Education"* Funding: \$1,000.

Graduate Committee Chair

Layla Iskandar (Current) - External Co-Advisor, Ph.D. in Civil Engineering. Building Performance Track.

Panagiotis Karaiskos (Current) - External Co-Advisor, Ph.D. in Civil Engineering. Building Performance Track.

Madison Stout (Graduated in Spring 2022) - Master in Architecture *"Pre-School Ergonomics"*

Lauren Goff (Graduated in Spring 2022) - Master in Architecture *"Green Education."*

Seyedehsaba Fatemi Abhari (Graduated in Spring 2022) - Master of Science in Architecture. *"Impact of façade Impact of Façade Characteristics on Energy and Daylighting Performance of Medium Office Buildings in Hot Humid Climates."*

Dillan J. Graham (Graduated in Spring 2021) - Master in Architecture. *"Inside/Outside."*

Tyler Jessie (Graduated in Spring 2021) - Master in Architecture. *"Outside In: A Critical Response to Nature's Integration with the Residential Typology."*

Alejandra Rodriguez Guajardo (Graduated in Spring 2021) - Master in Architecture. *"EcoVilla: A neighborhood to Mitigate Air pollution in Monterrey, Mexico."*

Graduate Committee Membership

Yuvaraj Munian (Graduated in Spring 2023) - Ph.D. in Electrical Engineering. *"Intelligent System for Wild Animal Detection in Nocturnal Time in Automobile Applications."*

Refaa' Alkhatib (Graduated in Spring 2023) - Master of Science in Architecture. Sustainable Architecture Concentration. *"Performance Evaluation for a digital Prefabricated Perforated Screens Inspired by Mashrabiya Screens in San Antonio."*

Siyao Gu (Graduated in Summer 2022) - Ph.D. in Electrical Engineering. *"Solar Power Planning in Smart Cities."*

Pantelis Dimitroulis (Graduated in Fall 2021) - Ph.D. in Electrical Engineering. *"Fuzzy Logic Controller for On-Grid Hybrid Electrical System in Residential Buildings."*

Luis Fermin (Graduated in Fall 2020) - Master of Science in Electrical Engineering. *"AI Driven Multitrack Audio Mixing Using Fuzzy Logic Tools."*

Practice Experience

Co-Founder and Architect; GreenHomes Architects, Spain – 2012-2017

GreenHomes was a company whose goal was to deliver services to support low-carbon design and construction and thereby fostered sustainable retrofits and management of existing buildings while improving occupant comfort. The company catered to both private consumer needs and undertakes community projects on a volunteering basis.

Architect; O₂ Telefonica, Prague, Czech Republic – 2010-2012

Improving internal thermal comfort conditions and energy consumption of O₂ Telefonica buildings in the Czech Republic.

Architectural Engineer; Avantgarde Architecture, Spain – 2006-2007

Leading the composition and arrangement of all projects, including supervision of all works, quality control and preparation of project agreements, scopes of work and creation of project budgets and estimates.

Media Contributions

Television

KSAT12 Local News - [San Antonio to be the first Texas city to try out cooler pavement to combat warm temperatures](#) (November 26, 2021)

Telemundo 60 Noticias - [Estudiantes de UTSA construyen hogar completamente autosuficiente](#) (January 14, 2020).

KSAT12 Local News - [UTSA smart home project aims to address needs of San Antonio's aging population](#) (December 9, 2019).

Spectrum News - [Finding Ways to Preserve Mission Concepcion in a Modern World](#) (August 27, 2019).

KLRN SciTech Now - [Keeping Mission Concepcion cool](#) (August 8, 2019)

KENS5 Local News - [UTSA Researchers on a Mission to Save San Antonio's Missions](#) (July 9, 2019).

Newspaper

UTSA Today - [Researchers discover modern method to preserve historic S.A. Missions](#) (September 10, 2020).

San Antonio Express News - [Expert work on Mission Concepción seeks to ensure historic church continues for another 300 years](#) (January 21, 2020).

UTSA Today - [UTSA students to build smart home on Downtown Campus](#) (December 6, 2019).

San Antonio Express News - [UTSA study will help cool, preserve one of San Antonio's historic mission churches](#) (July 4, 2019).

UTSA Today - [UTSA to research environmental comfort at the San Antonio Missions](#) (June 24, 2019).

Radio

Texas Public Radio - [Heating, Cooling And Preserving Historic San Antonio Missions](#) (October 19, 2020)

Texas Public Radio - [Cooling Mission Concepción — A Balance Of Preservation And Parishioner Comfort](#) (August 22, 2019).

Languages

English, Spanish (Native or bilingual proficiency)

Memberships

WELL Accredited Professional, International WELL Building Institute (In Progress)

Board Member - Building Technology Educators Society (BTES), 2023 - 2025

Member, Building Technology Educators Society (BTES), 2020 - Present

Member, Society of Building Science Educators (SBSE), 2020 - Present

Certified Passive House Designer, Passive House Institute, 2019-Present

Technical Committee on Sustainable Preservation (TC-SP), The Association for Preservation Technology International (APTi) 2018-Present

LEED Green Associate, U.S. Green Building Council, 2017-Present

Registered Architect, Spain, 2010-Present

Service

Public - Professional

Editorial Board Member - [Urbanization, Sustainability and Society](#) Journal. Emerald Publishing. October 2023 - Present.

Attendee - International Network of Networks on Well-being in the Built Environment ([IN2WIBE](#)), National Science Foundation NSF funded project. September 14th and 15th, 2023, Philadelphia, PA, USA.

Member - AIA Philadelphia COTE Design Awards Subcommittee. 2023 - Present.

Board Member - Building Technology Educators Society (BTES), 2023 - 2025

Guest Reviewer - ARCH 708: Bioclimatic Design Studio, Department of Architecture, Stuart Weitzman School of Design, University of Pennsylvania. May 3, 2023.

Reviewer - Building Technology Educators' Society (BTES) Conference, The Cosanti Foundation (TCF), AZ, USA. 2023.

External Examiner - Ph.D. in Architecture, Building, Urban Planning and Landscape Student: Jordi Martinez Ventura. *La Necesidad de un Cambio en la Enseñanza de la Arquitectura. Experiencia académica y resultados de aprendizaje del alumnado del Máster Universitario en Arquitectura de España desde la perspectiva de la Educación para el Desarrollo Sostenible.* Polytechnic University of Valencia, Spain. 2022.

Reviewer - 3rd Valencia International Biennial of Research in Architecture Conference, VIBRArch, Valencia, Spain. 2022.

Art Judge - Interstate 35 Bridge Overpass at San Pedro Creek Culture Park public art call, San Antonio River Authority. June, 2022.

Guest Reviewer - Integrated/Comprehensive Studio at Tulane School of Architecture, Tulane University. April 13, 2022.

Committee Member - City of San Antonio, Deconstruction Advisory Committee. January 2022 - 2023.

Associate Editor, [VLC Arquitectura. Research Journal](#), 2020 - 2022.

Guest Editor, [Sustainability](#), MDPI, Special Issue "[Smart Electric Power Systems and Smart Grids](#)". 2020.

Reviewer - ARCC International Conference, Tucson, AZ, USA. 2020-2021.

Session Chair - EAAE-ARCC International Conference, Valencia, Spain. November 12, 2020.

Reviewer - EAAE-ARCC International Conference, Valencia, Spain. 2019-2020.

Attendee - National Workshop on Architectural Faculty in Environmental Sustainability Research (WAFES), National Science Foundation (NSF), Toronto, Canada. June 28-29, 2019.

Reviewer - ARCC Conference, Toronto, Canada. 2019-2020.

University

Guest Reviewer - AE 391 Architectural Engineering Design II - Department of Civil, Architectural and Environmental Engineering (CAEE), College of Engineering, Drexel University. March 20, 2023.

Member - Drexel University Climate Action Plan (CAP) Task Force. February 2023 - Present.

Reviewer - Transdisciplinary Team Grand Challenge: Water. UTSA Graduate School/Office of Inclusive Excellence December 2021.

Chair - UTSA University Faculty Awards Committee (Community Engagement Award). 2021.

Committee Member - Roadrunner Days, Undergraduate Research Panel. January 20, 2021.

Reviewer - Transdisciplinary Team Grand Challenge: Social Justice . UTSA Graduate School/Office of Inclusive Excellence. December 2020.

Reviewer - COVID-19 Transdisciplinary Team Grand Challenge. July-August 2020.

Facilitator - Architecture, Construction, Planning and Engineering Community Charrette. June 10, 2020.

Fall 2023

Guest Speaker - Research Seminar Talk, UTSA Electrical and Computer Engineering Department, January 24, 2020.

Faculty Judge - 2019 PREP Year 4 Scholars Symposium. July 27, 2019.

College

Committee Member - Future of Teaching & Teaching Spaces Implementation Committee (Facilities Subgroup). Antoinette Westphal College of Media Arts and Design. Drexel University. 2023-Present.

Committee Member - Klesse College of Engineering and Integrated Design, College Working Group for Promotion and Tenure Standards and Guidelines. 2022.

Committee Member - College of Architecture, Construction and Planning, Internal Research Awards (INTRA) Proposal review. 2021.

Committee Member - College of Architecture, Construction and Planning, Monterey building Entrance Restoration Committee. 2020.

Guest Speaker - STEM Degree Exploration Luncheon for UTSA Pre-Freshman Engineering Program (PREP). January 25, 2020.

Guest Speaker - STEM Degree Exploration Luncheon for UTSA Pre-Freshman Engineering Program (PREP). January 26, 2019.

School / Department

Faculty Advisor - Architectural Engineering Senior Design team, AEI International Student Design Competition. 2023-2024.

Reviewer - Bachelor of Architecture Students Applications. Department of Architecture, Design & Urbanism, Drexel University. 2023.

Faculty Search Committee Co-Chair - Architecture Program Director Position, Department of Architecture, Design & Urbanism, Drexel University. 2022-23.

Master of Science in Architecture Executive Committee Chair - Graduate Program Committee (GPC), School of Architecture and Planning. 2021-2022.

Committee member - Ph.D. program in Civil Engineering, Building Performance track. 2019-2022.

Reviewer - Master of Science in Architecture Students' Applications. 2019-2022.

Committee Member - Department of Architecture Graduate Program Committee (GPC). 2018-2022.

Committee Member - Graduate Certificate in High Performance Design and Sustainability. 2018-2022.

Reinstatement Committee Member - UTSA School of Architecture and Planning. 2022

Faculty Mentor - William J. Lambert, UTSA School of Architecture and Planning. 2021-2022.

Master of Science in Architecture Executive Committee Member - Graduate Program Committee (GPC), School of Architecture and Planning. 2019-2021.

Committee Member - Annual Faculty Review Committee (Faculty Service), UTSA School of Architecture and Planning. 2020-2021.

Committee Chair - School of Architecture and Planning Speaker Series. 2021-2023

Committee Member - Promotion and tenure guidelines committee (Research). 2020-2021

Reinstatement Committee Member - Department of Architecture Committee. August 8, 2019.

Speaker - Speaker Series UTSA Department of Architecture. April 5, 2019.

Sub-Committee Member - Department of Architecture Graduate Program Committee (GPC), Student Success. 2018-2019.

Reviewer - Master of Architecture 2 Students' Applications. 2018-2019.

Committee Member - Annual Faculty Review Committee (Faculty Teaching), UTSA Department of Architecture. 2018-2019.