

Curriculum Vitae

Tomás Méndez Echenagucia Ph.D.
Assistant Professor
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I	Career Summary	1
II	Research	3
III	Architectural Practice	17
IV	Teaching	22
V	Service	33

I Career Summary

I.A Education

- 2011 - 2014 **Doctor of Philosophy**
Politecnico di Torino - Italy
Architecture and Building Design (March 2014)
Dissertation: "Computational Search in Architectural Design"
Advisors: Prof. Mario Sassone, Prof. Arianna Astolfi and Prof. Pierre-Alain Croset
Awarded the title of "Excellence" by examining board
- 2004 - 2007 **Master's degree** (Dual degree)
Politecnico di Torino - Italy
Architecture and Construction
Thesis: "Forma acustica, architettonica e strutturale"
Advisors: Arch. Maarten Jansen, Prof. Mario Sassone and Prof. Arianna Astolfi
- 2000 - 2007 **Architecture Degree** (Dual degree)
Universidad Central de Venezuela - Venezuela
Architecture
Thesis: "Forma acustica, architettonica e strutturale"
Advisors: Arch. Maarten Jansen, Prof. Mario Sassone and Prof. Arianna Astolfi
- 2000 **Summer design studio**
Columbia University, United States of America
Introduction to Architecture summer course in New York City
Design of a fine arts museum in the meat packing district
Advisor: Prof. Mojdeh Baratloo

I.B Academic and Professional Experience

- 2019 - present **Assistant Professor**
University of Washington
Department of Architecture
College of Built Environments
- 2014 - 2019 **Post-doctoral researcher**
ETH Zürich
Block Research Group (BRG)
Institute of Technology in Architecture
- 2011 - 2014 **PhD Student / Teaching Assistant**
Politecnico di Torino
Department of Architecture and Design

- 2008 - 2014 **Co-Founder / Lead Architect**
TMS Arquitectura
Caracas - Venezuela & Turin - Italy
- 2007 - 2008 **Architect / Project manager**
Arquitectura Multimedia
Caracas - Venezuela
- 2005 - 2007 **Architectural Intern**
Frlan+Jansen Architetti
Turin - Italy

I.C Awards and Recognitions

- 2022 **AIA Seattle Honors** Award of Merit
With Vidhya Rajendran (UW) and Ryan Mullenix (NBBJ)
In the category "Research & Innovation"
- 2022 **ARC Award 2022** - Swiss Architecture Award
Block Research Group - ETH Zürich
Awarded to the HiLo Research Unit in the category "Digitalization."
- 2022 **IABSE Projects and Technology Awards (shortlisted)**
International Association for Bridge and Structural Engineering
Block Research Group - ETH Zürich
- 2021 **Fast Company's Most Creative People**
Selected for work on acoustic meta-materials with NBBJ and Vidhya Rajendran
- 2017 **The Structural Awards 2017 (shortlisted)** The Institution of Structural Engineers - UK
Block Research Group - ETH Zürich
The Armadillo Vault was shortlisted in the categories of structural artistry and small projects, receiving a commendation for the latter.
- 2016 **DETAIL Prize 2016** *DETAIL* magazine - DE
Block Research Group - ETH Zürich
Readers' Prize and acknowledgment in the category "Structures"
- 2008 **Hangai Prize - IASS**
Awarded by the International Association for Spatial and Shell Structures (IASS) to young researchers for innovative papers
Awarded paper: **Méndez Echenagucia, T.** et al. (2008)

I.D Professional Licensure and Certification

2011 - 2019	Ordine degli Architetti di Torino Turin - Italy
2007 - present	Colegio de Ingenieros de Venezuela* Caracas - Venezuela licensed as an Architect

II Research

II.A Publications

Peer-reviewed journals

Méndez Echenagucia, T., Astolfi, A., Jansen, M., and Sassone, M. (2008). "Architectural acoustic and structural form." *Journal of the International Association for Shell and Spatial Structures*, 49(159):181–186. ISSN 1028365X.

Palma, M., Sarotto, M., **Méndez Echenagucia, T.**, Sassone, M., and Astolfi, A. (2014). "Sound strength driven parametric design of an acoustic shell in a free field environment." *Building Acoustics*, 21(1):31–42. ISSN 1351010X.

Méndez Echenagucia, T., Sassone, M., Astolfi, A., Shtrepi, L., and Van der Harten, A. (2014). "EDT, C 80 and G driven auditorium design." *Building Acoustics*, 21(1):43–54.

Méndez Echenagucia, T., Capozzoli, A., Cascone, Y., and Sassone, M. (2015). "The early design stage of a building envelope: Multi-objective search through heating, cooling and lighting energy performance analysis." *Applied Energy*, 154:577–591. ISSN 03062619.

Block, P., Schlueter, A., Veenendaal, D., Bakker, J., Begle, M., Hischier, I., Hofer, J., Jayathissa, P., Maxwell, I., **Méndez Echenagucia, T.** and Nagy, Z., Pigram, D., Svetozarevic, B., Torsing, R., Verbeek, J., Willmann, A., and Lydon, G. (2017). "NEST HiLo: Investigating lightweight construction and adaptive energy systems." *Journal of Building Engineering*, 12:332–341.

Roosen, N., Leclère, Q., Urbán, D., **Méndez Echenagucia, T.**, Block, P., Rychtáriková, M., and Glorieux, C. (2018). "Assessment of the airborne sound insulation from mobility

*Venezuelan architecture certification is awarded by the guild of engineers (Colegio de Ingenieros) to those who have obtained a five year degree in architecture from a certified architecture school without examination.

vibration measurements; a hybrid experimental numerical approach." *Journal of Sound and Vibration*, 432:680–698.

Méndez Echenagucia, T., Pigram, D., Liew, A., Mele, T.V., and Block, P. (2019). "A cable-net and fabric formwork system for the construction of concrete shells: Design, fabrication and construction of a full scale prototype." *Structures*, 18:72 – 82. ISSN 2352-0124. Advanced Manufacturing and Materials for Innovative Structural Design.

Shtrepi, L., **Méndez Echenagucia, T.**, Badino, E., and Astolfi, A. (2020). "A performance-based optimization approach for diffusive surface topology design." *Building Acoustics*.

López López, D., Roca, P., Liew, A., **Méndez Echenagucia, T.**, Van Mele, T., and Block, P. (2021). "A three-dimensional approach to the extended limit analysis of reinforced masonry." *Structures*. ISSN 2352-0124.

Rajendran, V., Piacsek, A., and **Méndez Echenagucia, T.** (2022). "Design of broadband helmholtz resonator arrays using the radiation impedance method." *The Journal of the Acoustical Society of America*, 151(1):457–466.

Méndez Echenagucia, T., Moroseos, T., and Meek, C. (2023). "On the tradeoffs between embodied and operational carbon in building envelope design: The impact of local climates and energy grids." *Energy and Buildings*, 278:112589. ISSN 0378-7788.

Méndez Echenagucia, T., Piacsek, A., and Roozen, N. (2023). "Laser doppler vibrometry and fea studies of the sound transmission of cross laminated timber samples with varying geometries." *Journal of Sound and Vibration*. **(In Preparation)**.

Peer-reviewed conferences with proceedings

Sassone, M., **Méndez Echenagucia, T.**, and Pugnale, A. (2008). "On the interaction between architecture and engineering: the acoustic optimization of a reinforced concrete shell." In J. Abel and R. Cooke, editors, *Proceedings of the 6th International Conference on Computation of Shell and Spatial Structures IASS-IACM 2008: "Spanning Nano to Mega"*. May 28 - 31.

Méndez Echenagucia, T., Astolfi, A., Jansen, M., and Sassone, M. (2008). "Architectural, acoustic and structural form." In *The IASS-SLTE 2008 Symposium "Shell and Spatial Structures: New Materials and Technologies, New Designs and Innovations – A Sustainable Approach to Architectural and Structural Design"*. October 27 - 31.

Méndez Echenagucia, T., Astolfi, A., Sassone, M., Shtrepi, L., and Van der Harten, A.

- (2012a). “Esplorazione Multi obiettivo nella progettazione acustica architettonica.” In *Convegno nazionale AIA 2012*, pages 1–6. Rome. July 4 - 6.
- Méndez Echenagucia, T.**, Pugnale, A., and Sassone, M. (2012b). “Multi-Objective Optimization of Concrete Shells.” In P. Cruz, editor, *Structures and Architecture. Concepts, Application and Challenges*, pages 217–218. CRC Press/Balkema, Leiden. July 24 - 26.
- Méndez Echenagucia, T.** and Sassone, M. (2012). “Multi-Objective Oriented Design of Shell Structures.” In *IASS-APCS Symposium 2012: From Spatial Structures to Space Structures*, pages 1–7. May 21 - 24.
- Méndez Echenagucia, T.**, Sassone, M., Astolfi, A., and Croset, P.a. (2012c). “Multi-Objective Search in the Early Phase of Architectural Design.” In P. Cruz, editor, *Structures and Architecture. Concepts, Application and Challenges*, pages 341–342. CRC Press/Balkema, Leiden. July 24 - 26.
- Palma, M., Sarotto, M., **Méndez Echenagucia, T.**, Sassone, M., and Astolfi, A. (2013). “Sound strength driven parametric design of an acoustic shell in a free field environment.” In *International Symposium on Room Acoustics 2013*, pages 1–10. ISSN 1351010X. June 9-11.
- Méndez Echenagucia, T.**, Astolfi, A., Sassone, M., Shtrepi, L., and Harten, A.V.D. (2013a). “NURBS and Mesh geometry in Room Acoustic Ray-tracing Simulation.” In *AIA-DAGA 2013 Conference on Acoustics*, pages 1–4. Merano. March 18-21.
- Méndez Echenagucia, T.**, Sassone, M., Astolfi, A., Shtrepi, L., and Van der Harten, A. (2013b). “Interactive Design Methods for Complex Curved Reflectors in Concert Halls.” In *International Symposium on Room Acoustics 2013*, pages 1–10. June 9-11.
- Méndez Echenagucia, T.**, Sassone, M., Astolfi, A., Shtrepi, L., and Van der Harten, A. (2013c). “EDT , C 80 and G driven auditorium design.” In *International Symposium on Room Acoustics 2013*, pages 1–10. June 9-11.
- Rajabzadeh, S., Sassone, M., **Méndez Echenagucia, T.**, Rosada, A., and Rian, I. (2014). “The BRICKSHELL Meditation Centre : A Collaborative Masonry Project.” In *Proceedings of the IASS-SLTE 2014 Symposium “Shells, Membranes and Spatial Structures: Footprints”*, pages 1–10. September 15 - 19.
- Méndez Echenagucia, T.**, Sassone, M., Astolfi, A., Shtrepi, L., and Van der Harten, A. (2014). “Multi-Objective Acoustic and Structural design of shell structures for concert halls.” In *Proceedings of the IASS-SLTE 2014 Symposium “Shells, Membranes and Spatial Structures: Footprints”*, pages 1–12. September 15 - 19.
- Méndez Echenagucia, T.** and Block, P. (2015). “Acoustic optimization of funicular shells.”

In *IASS 2015 Amsterdam Symposium: Future Visions*, pages 1–13. August 17 - 20.

Rippmann, M., Van Mele, T., Popescu, M., Augustynowicz, E., **Méndez Echenagucia, T.**, Calvo Barentin, C., Frick, U., and Block, P. (2016). “The Armadillo Vault: Computational design and digital fabrication of a freeform stone shell.” In *Advances in Architectural Geometry 2016*, pages 344–363. September 12 - 13.

Méndez Echenagucia, T. and Roozen, B. and Block, P. (2016). “Minimization of sound radiation in doubly curved shell structures by means of stiffness.” In *Proceedings of the International Association for Shell and Spatial Structures (IASS) Symposium 2016*. Tokyo, Japan. September 26 - 30.

Van Mele, T., Mehrotra, A., **Méndez Echenagucia, T.**, Frick, U., Augustynowicz, E., Ochsendorf, J., DeJong, M., and Block, P. (2016). “Form finding and structural analysis of a freeform stone vault.” In T.T. K. Kawaguchi M. Ohsaki, editor, *Proceedings of the International Association for Shell and Spatial Structures (IASS) Symposium 2016*. Tokyo, Japan. September 26 - 30.

Méndez Echenagucia, T., Pigram, D., Liew, A., Van Mele, T., and Block, P. (2018). “Full-scale prototype of a cable-net and fabric formed concrete thin-shell roof.” In *Proceedings of the IASS Symposium 2018*. Boston. July 16-20.

Shtrepi, L., **Méndez Echenagucia, T.**, Badino, E., and Astolfi, A. (2019). “Optimizing diffusive surface topology through a performance-based design approach.” In *Proceedings of the International Symposium on Room Acoustics*. Amsterdam. September 15-17.

Bouvet, G., Shtrepi, L., Bo, E., **Méndez Echenagucia, T.**, and Astolfi, A. (2020). “Computational Design: Acoustic shells for Ancient Theatres.” In *Proceedings of the FA2020 Conference*. Lyon. December 7 - 11.

Masmeijer, T., **Méndez Echenagucia, T.**, Slavič, J., Loendersloot, R., and Habtour, E. (2023). “Effect of eccentricity on sensing in spider web inspired cable nets.” In *EURODYN 2023 - XII International Conference on Structural Dynamics*. Delf - The Netherlands. July 2 - 5 - **(Abstract accepted for publication)**.

Rajendran, V., **Méndez Echenagucia, T.**, and Piacsek, A. (2023). “Design of sound absorptive metamaterials with shared waveguides by means of numerical analysis and analytical modeling.” In *Forum Acusticum 2023 - Acoustics for a green world*. Turin - Italy. September 11 - 15 - **(Abstract accepted for publication)**.

Recart, C., **Méndez Echenagucia, T.**, and Sturts Dossick, C. (2023). “Impacts of air cavities on hygrothermal performance of retrofitted timber frame assemblies in six us climates.” In *ASCE International Conference on Computing in Civil Engineering*. Corvallis, Oregon. June 25 - 28 - **(Paper accepted for publication)**.

Wiggins, M., Woo Lee, H., and **Méndez Echenagucia, T.** (2024). “Concurrent modeling of embodied carbon and construction costs for mass timber construction.” In *Construction Research Congress 2024 - Constructing Connections across Research and Industry*. Des Moines - Iowa. March 20 - 23 - **(Paper submitted for review)**.

Book chapters

Filomeno Coelho, R., **Méndez Echenagucia, T.**, Pugnale, A., and Richardson, J.N. (2014). “Genetic algorithms for structural design.” In S. Adriaenssens, P. Block, D. Veenendaal, and C. Williams, editors, *Shell Structures for Architecture - Form finding and optimization*, chapter Apendix C, pages 290–294. Routledge, London.

Pugnale, A., **Méndez Echenagucia, T.**, and Sassone, M. (2014). “Computational Morphogenesis - Design of a free-form concrete shell.” In S. Adriaenssens, P. Block, D. Veenendaal, and C. Williams, editors, *Shell Structures for Architecture - Form finding and optimization*, chapter 18, pages 224–236. Routledge, London.

Hebel, D., Block, P., Heisel, F., and **Méndez Echenagucia, T.** (2017). “Beyond mining - urban growth: The architectural innovation of cultivated resources through appropriate engineering.” In A.Z.P. Hyungmin Pai, editor, *Imminent Commons: The Expanded City*. Actar Publishers. Seoul Biennale of Architecture and Urbanism 2017.

Van Mele, T., **Méndez Echenagucia, T.**, Pigram, D., Liew, A., and Block, P. (2021). “Ultralight formwork system for thin, textile-reinforced concrete shells.” In J. Schoof, editor, *Robust Resilient Resistant: Reinforced Concrete Structures*, pages 20–28. Edition DETAIL, Munich.

Anik, M.S. and **Méndez Echenagucia, T.** (2023). “Efficient parametric design-space exploration with reinforcement learning recommenders.” In N. Abbasabadi, editor, *Artificial Intelligence in Performance-Driven Design: Theories, Methods, and Tools*. Wiley. **(Invited chapter in preparation)**.

Peer-reviewed conferences without proceedings

Méndez Echenagucia, T. (2010a). “Herramientas informáticas para la investigación y proyectos en el campo de la arquitectura y construcción: Caso de estudio, sistema de parasoles en madera de teca para fachadas de edificios de mediana altura.” In *XXVII Jornadas de Investigación del IDEC*. July 6 - 8.

Méndez Echenagucia, T. (2010b). “Sistema de parasoles en madera de teca para fachadas de edificios de mediana altura: Caso de estudio, edificios de oficina en caracas.” In *XXVII Jornadas de Investigación del IDEC*. July 6 - 8.

Shtrepi, L., Menichelli, J., Astolfi, A., **Mendez Echenagucia, T.**, and Masoero, M.C. (2017). "Improving scattering surface design with rapid feedback by integrating parametric models and acoustic simulation." In *Acoustic Society of America 2017 Annual Meeting*. New Orleans - Louisiana. December 4 - 8.

Rajendran, V., **Méndez Echenagucia, T.**, and Piacsek, A. (2020). "Design of efficient low-frequency sound absorbers using an array of helmholtz resonators." In *Acoustic Society of America 2020 Annual Meeting*. Virtual conference. December 7 - 11.

Brown, N. and **Méndez Echenagucia, T.** (2021). "Minimizing radiated sound power through geometric stiffness in mass timber floor systems." In *Acoustic Society of America 2021 Annual Meeting*. Seattle - Washington. November 29 December 3.

Rajendran, V., Piacsek, A., and **Méndez Echenagucia, T.** (2021). "Design of broadband helmholtz resonator arrays using the radiation impedance method." In *Acoustic Society of America 2021 Annual Meeting*. Seattle - Washington. November 29 December 3.

Conference posters

Méndez Echenagucia, T., Shtrepi, L., Badino, E., and Astolfi, A. (2019). "Investigating the importance of geometrical accuracy in acoustic simulations: A comparison of NURBS and mesh-based approaches."

Bjarvin, C., Pierobon, F., **Méndez Echenagucia, T.**, and Ganguly, I. (2023). "Reuse, recycle, incinerate or landfill? Ica-based environmental implications of end-of-life scenarios for mass timber buildings." Conference Poster - Mass Timber conference, Portland Oregon 2023.

Brown, N., **Méndez Echenagucia, T.**, Sprague, T., Lohr, J., Di Furia, R., and Hunter, J. (2023). "Mass timber joinery design for digital fabrication and de-constructability." Conference Poster - Mass Timber conference, Portland Oregon 2023.

Droog, L., Pierobon, F., Huang, M., Carlisle, S., **Méndez Echenagucia, T.**, Simonen, K., and Ganguly, I. (2023). "Parametric open data for life cycle assessment." Conference Poster - Mass Timber conference, Portland Oregon 2023.

Magazine articles

Van Mele, T., **Méndez Echenagucia, T.**, Pigram, D., Liew, A., and Block, P. (2018). "A prototype of a thin, textile-reinforced concrete shell built using a novel, ultra-lightweight, flexible formwork system." *DETAIL*.

Academic studio books

Méndez Echenagucia, T. and Meek, C. (2021). *Designing for low emissions: A computational approach to mass timber buildings*. Self published.

Méndez Echenagucia, T. and Meek, C. (2023). *Mass timber studio: Designing for low emissions*. Self published. **(In preparation)**.

II.B Research projects and prototypes

This folder contains research projects, prototypes and lab experiments I have been involved in as an Assistant Professor at the University of Washington, Postdoctoral Researcher at the Block Research Group in ETH Zürich, and a Doctoral student at the Politecnico di Torino:

1- Assistant Professor - University of Washington

2022 - 2023 **Mass timber floor system prototypes and LDV measurements**
with Nathan Brown (UW), Bert Roozen (KU Leuven) and Andy Piacsek (CWU)
Role: PI
Design, fabrication and assembly of two CLT floor prototypes on a Glulam frame
Laser Doppler Vibrometry measurements for acoustic vibro-acoustic performance
Seattle - WA, USA
Sample publication: Brown and **Méndez Echenagucia, T.** (2021)

2020 **Helmholtz resonator array prototypes**
with Vidhya Rajendran (UW), NBBJ and Arup acoustics
Role: co-PI
Design, fabrication and on-site testing of resonant acoustic absorption panels in Cross
Laminated Timber
Seattle - WA, USA
Sample publication: Rajendran et al. (2022)
Popular Media: [Fast Company](#), [Input](#)

2- Postdoctoral researcher - Block Research Group (BRG), ETH Zürich

2015 - 2019 **NEST HiLo**
with BRG, Architecture and Building Systems Group, ROK Architects, Buergin
Creations, Dr. Schwartz Consulting AG and Marti AG
Role: BRG co-lead on the concrete shell roof and fabric formwork system
Design and construction of a flexible workspace unit for the NEST building
Structural design, system design and fabrication for a concrete sandwich shell roof built
with a cable-net and formwork system
Dübendorf, Switzerland
Sample publication: Block et al. (2017)
Popular Media: [Designboom](#)

- 2017 **Acoustic testing of funicular floor system**
with Bert Roozen (KU Leuven)
Role: PI
Large scale prototype of funicular floor system for vibroacoustic lab testing
Structural design and digital fabrication of floor sample
Sample publication: **Méndez Echenagucia, T.** and Roozen and Block (2016)
- 2017 **Cable-net and fabric formwork prototype**
with BRG, supermanouvre, Marti AG and Bollinger Grohman
Role: BRG co-lead
Large scale prototype for the Cable-net and fabric formwork for the HiLo roof
Structural design and digital fabrication of 1:1 scale thin shell concrete prototype
On-site supervision of fabricators and general contractor
Sample publication: **Méndez Echenagucia, T.** et al. (2019)
Popular Media (selected): [Archdaily](#), [BBC News](#), [Architect Magazine](#)
- 2017 **Mycotree**
with BRG, chair of Sustainable Construction (KIT)
Role: Contributor on structural design and fabrication
Design of a compression only branching structure in mycelium for the Seoul Biennale
Seoul, South Korea
Sample publication: Hebel et al. (2017)
Popular Media (selected): [Dezeen](#), [Detail](#), [Word-Architects](#)
- 2015 - 2016 **Beyond Bending**
with BRG, John Ochsendorf, ODB Engineering, and Escobedo construction
Role: Contributor on structural design and fabrication
Exhibition at the Venice Biennale 2016
Structural design and construction of a 15m span compression only vault in sandstone
Structural design and fabrication of a concrete funicular floor system prototype
Venice, Italy
Sample publication: Rippmann et al. (2016)
Popular Media (selected): [Wired](#), [Forbes](#), [Domus](#)
- 2015 - 2016 **Droneport Prototype**
with BRG, Norman Foster Foundation, EPFL, ODB, Universidad Politécnica de Madrid
Role: Contributor on structural design and construction
Exhibition at the Venice Biennale 2016, Italy
Structural Design and construction of a thin tile vault pavilion
Popular Media (selected): [L'Architecture d'Aujourd'hui](#) , [Dezeen](#), [Architects Journal](#)
- 2015 **ETH Pavillion**
with BRG, chair of Sustainable Construction (KIT)
Role: BRG Lead
Ideas City Festival New York City, USA
Design and construction of a pavilion in recycled materials for the “Ideas City Festival”
New York City, USA
Popular Media (selected): [Dezeen](#), [Azure](#)

2014 - 2015 **Fábrica de Cultura**
with BRG, Urban Think Tank (ETH), Universidad de Norte Barranquilla
Role: BRG co-lead
Structural design and acoustic analysis of a vaulted auditorium for a public arts school
Sample publication: **Méndez Echenagucia, T.** and Block (2015)
Barranquilla, Colombia

3- Ph.D. Student - Politecnico di Torino

2012 **Summer studio pavilions**
Role: Studio instructor
Design and construction of three pavilions built with students during a summer studio
Pavilions made in on-site concrete, tile vaulting and timber frames
Turin, Italy

2012 **Brickshell**
Role: Studio instructor
Design and construction of tile vaulted shell built with students during a summer studio
Sample publication: Rajabzadeh et al. (2014)
Turin, Italy

2011 **Monalisa pavillion**
Role: Studio instructor
Design and construction of a timber pavilion for the MADE exhibition
Milan, Italy

II.C Open-source software development

2022 - present **COMPAS Energy+**
University of Washington
Python library for room building energy performance simulation based using Energy+
Role: Lead developer
[GitHub repository](#)

2021 - 2022 **UpStream**
University of Washington
with Chuou Zhang, Indroneil Ganguly (UW), Marty Brennan, Jacob Dunn (ZGF)
Role: Faculty supervisor with Prof. Indroneil Ganguly (UW)
UpStream Forestry Carbon and LCA Tool
Published in: [Metropolis](#)
[GitHub repository](#)

2020 - present **COMPAS Room Acoustics**
University of Washington
Role: Lead developer
Python library for room acoustics simulation based on the COMPAS framework
[GitHub repository](#)

- 2019 - 2020 **COMPAS Helmholtz**
 University of Washington
 Role: Lead developer
 Python library for the design of acoustic resonant absorption panels
[GitHub repository](#)
- 2018 - present **COMPAS Vibro**
 University of Washington / ETH Zürich
 Role: Lead developer
 Python library for vibro-acoustic simulation based on the Rayleigh integral
[GitHub repository](#)
- 2016 - 2020 **COMPAS FEA**
 University of Washington / ETH Zürich / University of Sheffield
 Role: Co-lead developer
 Python library for finite element analysis of building structures
[GitHub repository](#)
- 2015 - 2019 **COMPAS**
 ETH Zürich
 Computational framework for Architecture and Structures
 Role: Co-developer
[GitHub repository](#)

II.D Grants, fellowships and third-party funding

- 2023 **NSF - University of Washington**
 The effect of glitches on the performance of Helmholtz resonator arrays for broadband acoustic absorption
 Role: Co-Principal Investigator
 with: Prof. Ed Habtour (UW AA), Mostafa Nouh (University at Buffalo)
 In preparation
- 2023 **UW Population Health initiative planning grant - University of Washington**
 Sustainable materials for structural applications
 Role: Co-Principal Investigator
 with: Prof. Eleftheria Roumeli (UW MSE), Kate Simonen (UW Arch.)
 Submitted
- 2022 **ARPA-e - University of Washington**
 Parametric Open Data for Life Cycle Assessment (POD — LCA)
 Role: Co-Investigator
 with: Kate Simonen, Chris Meek (UW Arch.), Indroneil Ganguli (UW CE)
 Awarded funds: \$ 3,744,303

- 2020 **Royalty Research Fund - University of Washington**
 UW Office of Research internal grant to faculty seeking to establish new research
 Role: Principal Investigator
 Awarded funds: \$ 39.500
- 2020 **Arup Acoustics in-kind contribution**
 Expert advice and on-site measurements of the acoustic performance of a Helmholtz resonator array
 Role: Principal Investigator
 In kind contribution: \$ 16.500
- 2020 **NBBJ Design**
 Funding of a research assistant for summer position
 Role: Principal Investigator
 Funded time: 2 months, 20 hours per week
- 2015 - 2018 **HiLo Industry funding**
 BRG - ETH Zürich
 Role: BRG Lead on roof
 Secured funding of the HiLo project from Holcim Switzerland, BASF, Autodesk and Doka
- 2017 **European Research Council Synergy grant (Unsuccessful)**
 ETH Zürich with Vrije Universiteit Brussel and University of Patras
 Role: Contributor
 Application for research on reducing the carbon emissions of floor slabs
 Requested funds: € 9.664.773
- 2016 **Beyond Bending Industry funding**
 ETH Zürich
 Role: Contributor
 Securing project sponsoring from the Escobedo Group, Artemide and Pro Helvetia
- 2015 - 2016 **ETH Foundation**
 Post-doctoral research grant. Research on sound insulation in the low frequencies by means of structural stiffness
 Role: Principal Investigator
 Awarded funds: CHF 100.000
- 2011 - 2013 **Italian Ministry of Higher Education and Research (MIUR)**
 PhD scholarship at the Politecnico di Torino
 Role: Recipient
 Awarded stipend and tuition fees for 3 years

II.E Invited lectures and Panels

- 2023 **Council on Tall Buildings and Urban Habitat Americas** Conference - Seattle
Panel discussion
“Decarbonizing Design – Material and Technical Advancements”
- 2023 **Passive House Northwest** Conference - Portland, Oregon
Keynote Speech
“Computational geometry for sustainable construction”
- 2023 **University of Nebraska** - Lincoln, Nebraska
Guest lecture for large undergrad course on computational methods
“Computational geometry for sustainable construction”
- 2023 **Carbon Leadership Forum Portland** (remote) February meeting
Presentation on research studio and Operational + Embodied carbon research
“Designing for the triple bottom line: Experience, Energy and Embodied Carbon Emissions”
- 2022 **Society of Building Science Educators (SBSE)** retreat
Presentation on research studio teaching
“Carbon Research Studio 2021: Designing for low emissions”
- 2022 **University of Melbourne** (remote)
Panel discussion after a presentation from Prof. Trevor Cox
ABP Symposium 2022 - Melbourne Australia
- 2022 **Kent State University** (remote)
As part of a workshop on Pachyderm acoustics taught by Arthur Van der Harten
“Computational methods for room acoustic design”
- 2021 **Committee of 33** (remote)
Non-profit organization in Seattle - WA
“Designing for low emissions”
- 2021 **Associazione Italiana di Acustica** (remote)
“Aspettando Matera” live streamed presentation series
“Progettare con/le onde: Performance based design per la progettazione acustica in architettura”
- 2021 **University College London** (remote)
Bartlett Faculty of the Built Environment
“Computational geometry for sustainable construction”

- 2019 **Politecnico di Torino** - Turin, Italy
Dipartimento di Architettura e Design
"Computational geometry for sustainable construction"
- 2019 **University of Toronto** - Toronto, Canada
Daniels Faculty of Architecture, Landscape, and Design
"Computational geometry for sustainable construction"
- 2019 **Université de Montréal** - Montreal, Canada
Faculté de l'Aménagement
"Computational geometry for sustainable construction"
- 2019 **Université Catholique de Louvain** - Louvain-la-Neuve, Belgium
Faculté d'ingénierie architecturale
"Computational geometry for sustainable construction"
- 2019 **University of Washington** - Seattle, United States of America
Department of Architecture
"Computational geometry for sustainable construction"
- 2018 **Universidad de Granada** - Granada, Spain
E.T.S. de Arquitectura
"Geometría de estructuras sostenibles"
- 2018 **Architekturzentrum Wien** - Vienna, Austria
PechaKucha for Concrete manufacturing consortium
"Funicular floor systems"
- 2017 **EMPA Nest** - Zurich, Switzerland
Lafarge Holcim Sustainable construction
"The HiLo research unit"
- 2017 **KU Leuven** - Leuven, Belgium
Division Acoustics and Thermal Physics
"Acoustic insulation through structural stiffness"
- 2017 **Hochschule Ostwestfalen-Lippe** - Detmold, Germany
Master of Engineering in Integrated Design
"Computational search in architectural design"
- 2016 **Università IUAV di Venezia** - Venice, Italy
with Prof. Philippe Block
"Strength through geometry"

2016	Heatherwick Studio - London, England Architecture firm with Prof. Philippe Block "Strength through geometry"
2015	Massachusetts Institute of Technology - Boston, United States of America Building Technology Group "Computational search in architectural design"
2015	University College London - London, England The Bartlett School of Architecture "Search algorithms for acoustic design"
2009	Universidad Simón Bolívar - Caracas, Venezuela Departamento de Diseño, Arquitectura y Artes Plásticas "Forma acústica arquitectónica y estructural"

II.F Peer reviewing

- Natural Sciences and Engineering Research Council of Canada (NSERC)
- International Association for Shells and Spatial Structures (IASS)
- Symposium on Simulation for Architecture and Urban Design (SimAUD)
- University of Washington Royalty Research Fund (RRF)
- Applied Acoustics
- Symposium on Computational Fabrication 2022
- Forum Acusticum 2023

II.G Conference session chairing

2022 **Symposium on Computational Fabrication**
Architecture section
Chair

2018 **IASS Boston**
Shell structures
Co-chair with Tim Michiels

2015 **IASS Amsterdam**
Performance Aided Design
Co-chair with Prof. Dario Parigi

III Architectural Practice

III.A Projects

2020 **Arena design competition (Unbuilt)**
Vienna, Austria
Competition consultant in structural design and acoustics for Mass Timber Arena
with Zaha Hadid Architects, Blumer Lehmann AG, Arup

2014 **Piazza Bernini (Unbuilt)**
Turin, Italy
Residential development in the city center
with Frlan + Jansen Architetti
Architectural Design

2013 **Reale Mutua (Unbuilt)**
Turin, Italy
Invited competition for an Office building in the city center
with Frlan + Jansen Architetti
Architectural Design

2013 **Teatro Colón (Unbuilt)**
Bogotá, Colombia
Competition for an addition to a historical Theater
with ADJKM Arquitectos and Marco Palma
Concert Hall Design, Parametric Modeling and Geometry consultancy

2013 **Lacacao (Unbuilt)**
Boa Vista island, Capo Verde
Preliminary design for a beach resort and residence
with Frlan + Jansen Architetti
Architectural Design

- 2012 - 2013 **Via Nizza**
 Turin, Italy
 Refurbishment an historical building for residential development
 with Frlan + Jansen Architetti
 Architectural Design
- 2011 - 2013 **CASMSB (Unbuilt)**
 Caracas, Venezuela
 Music conservatory and concert hall, Venezuela
 Concert Hall Design
 Parametric Modelling / computational geometry consultancy
- 2012 **Holcom Headquarters**
 Beirut - Lebanon
 Corporate office
 Building envelope & shading consultancy
 Parametric Modelling
- 2011 **Lavazza Headquarters (Unbuilt)**
 Turin - Italy
 Invited competition for Corporate offices
 Architectural Design
 Parametric Modelling
- 2011 **Strada Andezeno**
 Chieri, Italy
 Mixed housing/commercial building
 with Frlan + Jansen Architetti
 Architectural Design
- 2011 **Kleinste Soep Fabriek (Unbuilt)**
 Groningen, the Neatherlands
 Entrance Pavilion and Foyer for a soup Factory
 with Frlan + Jansen Architetti
 Architectural Design
- 2011 **Sestriere**
 Sestriere, Italy
 Ski residence
 with Frlan + Jansen Architetti
 Geometry and Material Optimization consultancy
- 2011 **Santa Clara**
 Chieri, Italy
 Residential development in an ex-consecrated church
 with Frlan + Jansen Architetti
 Architectural Design

- 2011 **Venice city Visions**
 Venice, Italy
 Ideas competition on the future of Venice
 with Claudio Sframelli, Jacopo Bracco and Alberto Lessan
 Architectural Design
- 2011 **Venice city Visions**
 Turin, Italy
 Private Loft Photography studio and exhibition space
 with Frlan + Jansen Architetti
 Architectural Design
- 2010 **CASMSB competition**
 Caracas, Venezuela
 Music Education complex competition
 TMS Arquitectura
 Architectural Design
- 2010 **EIM (Unbuilt)**
 La Guaira, Venezuela
 Shopping center
 TMS Arquitectura
 Solar shading and design consultancy
- 2010 **Stonehill Masterplan**
 Bangalore, India
 Mixed urban development, housing, office space, and cultural center
 with Frlan + Jansen Architetti
 Architectural Design
- 2010 **Residency Road**
 Bangalore, India
 Private Office Building
 with Frlan + Jansen Architetti
 Architectural Design
- 2010 **Oficina La Lagunita**
 Caracas, Venezuela
 Private offices interiors for an investment group
 TMS Arquitectura
 Architectural Design
- 2010 **Centro Simon Díaz competition (Unbuilt)**
 Caracas, Venezuela
 Cultural Center in an informal settlement in Caracas
 TMS Arquitectura
 Architectural Design

- 2010 **Hangar** (Unbuilt)
 Ocumare, Venezuela
 Private hangar in a Civil Airport
 TMS Arquitectura
 Architectural Design
- 2009 **Bima** (Unbuilt)
 Caracas, Venezuela
 Invited competition for a retail Store for a Furniture and design brand
 TMS Arquitectura
 Architectural Design
- 2009 **Campo Plaza**
 Caracas, Venezuela
 Private Apartment Refurbishment
 TMS Arquitectura
 Architectural Design
- 2009 **Campo Norte**
 Caracas, Venezuela
 4 Private Apartment Refurbishments in Caracas
 TMS Arquitectura
 Architectural Design
- 2009 **Centro Empresarial Boleita** (Unbuilt)
 Caracas, Venezuela
 Mixed Office/Commercial building
 TMS Arquitectura
 Architectural Design
- 2008 **Chieri Services Center** (Unbuilt)
 Chieri, Italy
 Mixed use commercial/Hotel and public building
 with Frlan + Jansen Architetti
 Architectural Design
- 2008 **Zona Rental** (Unbuilt)
 Caracas, Venezuela
 Mixed Use commercial / cultural complex competition
 TMS Arquitectura + Miguel Acosta and Alfonso Paolini
 Architectural Design
- 2008 **Las Perezas** (Unbuilt)
 Caracas, Venezuela
 Private Residence
 TMS Arquitectura
 Architectural Design

- 2008 **Superagencia**
Caracas, Venezuela
Refurbishment of private offices for a Design firm
TMS Arquitectura
Architectural Design
- 2008 **Polar La Yaguara**
Caracas, Venezuela
Medical station for a Manufacturing Plant
TMS Arquitectura
Architectural Design
- 2008 **Polar La Guaira**
La Guaira, Venezuela
Office expansion and Medical station for a Distribution center
TMS Arquitectura
Architectural Design
- 2008 **Polar Ocumare**
Ocumare, Venezuela
Storage Building for a distribution center
TMS Arquitectura
Architectural Design
- 2007 **Clínica Plaza (Unbuilt)**
Caracas, Venezuela
Refurbishment and extension of a private Health Care facility
TMS Arquitectura
Architectural Design
- 2007 **Saltarrana**
Caracas, Venezuela
Private Residence
with AM: Arquitectura Multimedia
Architectural Design
- 2007 **Perugia (Unbuilt)**
Perugia, Italy
Student Housing competition
with Frlan + Jansen Architetti
Architectural Design
- 2007 **Casa Facta**
Perinera, Italy
Private sky residence in the Italian Alps
with Frlan + Jansen Architetti
Architectural Design

2006	Falconara Market (Unbuilt) Falconara Maritima, Italy Open air market Competition (1st Prize) with Frlan + Jansen Architetti Architectural Design
2004	Casa Wenzelmann (Unbuilt) Caracas, Venezuela Private residence Architectural Design

IV Teaching

IV.A University of Washington courses

Spring 2023	Arch 508 B	Research Studio II Studio on the trade-offs between operational and embodied emissions of mass-timber housing buildings Co-taught with Prof. Chris Meek	6 credits
Spring 2023	Arch 594 A	Research Studio II Seminar Seminar on computational methods for the estimation carbon emissions Co-taught with Prof. Chris Meek	3 credits
Winter 2023	498 B /598 C	Computational design Applied computational design course based on the Python programming language	3 credits
Autumn 2022	Arch 598 A	Computation and design technology seminar Seminar on the use of computational methods for architectural design technology	3 credits
Autumn 2022	Arch 600	Independent study - Nathan Brown Finite Element Analysis of Timber joinery	3 credits
Spring 2022	Arch 592 A	Research methods an overview of the role and practice of research methods in architecture Co-taught with Prof. Brian McLaren	3 credits

Spring 2022	598 C	Computational design Applied computational design course based on the Python programming language	3 credits
Winter 2022	Arch 598C	Computation and design technology seminar Seminar on the use of computational methods for architectural design technology Newly developed	3 credits
Autumn 2021	Arch 600	Independent study - Nathan Brown Documentation and presentation of vibro-acoustic studies for mass timber floors	3 credits
Autumn 2021	Arch 523	Design Technology IV Integration of structure, environmental systems, spatial organization and architectural form Co-taught with Prof. Rob Peña	3 credits
Spring 2021	Arch 508 B	Research Studio II Studio on the trade-offs between operational and embodied emissions of mass-timber buildings Co-taught with Prof. Chris Meek	6 credits
Spring 2021	Arch 594 B	Research Studio II Seminar Seminar on computational methods for the estimation carbon emissions Co-taught with Prof. Chris Meek	3 credits
Winter 2021	Arch 587 A	Theory of design computing Seminar on the theory and practice of contemporary computational methods	3 credits
Autumn 2020	Arch 523	Design Technology IV Integration of structure, environmental systems, spatial organization and architectural form Co-taught with Prof. Rob Peña	3 credits
Spring 2020	Arch 592 A	Research methods an overview of the role and practice of research methods in architecture Co-taught with Prof. Brian McLaren	3 credits
Spring 2020	Arch 498 / 598 C	Computational design Applied computational design course based on the Python programming language Newly developed	3 credits

Winter 2020	Arch 587 A	Theory of design computing Seminar on the theory and practice of contemporary computational methods	3 credits
Autumn 2019	Arch 523	Design Technology IV Integration of structure, environmental systems, spatial organization and architectural form Re-developed Co-taught with Prof. Rob Peña	3 credits

IV.B ETH Zürich courses

Courses taught at ETH Zürich while working as a post-doctoral researcher. The courses were officially offered by Professors Philippe Block and Joseph Schwartz.

Spring 2019		Structural Design VI State-of-the-art computational structural design Taught with Dr. Matthias Rippmann	3 credits
Spring 2018		Structural Design VI State-of-the-art computational structural design Taught with Dr. Matthias Rippmann	3 credits
Spring 2016		Structural Design (MAS) Introduction to computational structural design for Master of Applied Science in Digital Fabrication Taught with Dr. Matthias Rippmann	3 credits

IV.C Politecnico di Torino courses

Summer courses taught as a Ph.D. student with Prof. Mario Sassone.

Summer 2014		Computational Design Computational design summer workshop Taught with Prof. Mario Sassone	
Summer 2013		Computational Design Computational design summer workshop Taught with Prof. Mario Sassone	
Summer 2012		Computational Design Computational design summer workshop Taught with Prof. Mario Sassone	

IV.D Student teaching evaluation scores

Quarter	Course	Respond / Enrolled	Median	Adj. Median	COVID
Winter 2023	Arch 498B/598 C	15 / 27	4.7	4.7	In person
Autumn 2022	Arch 598 A	7 / 10	4.6	4.2	In person
Spring 2022	Arch 598 C	11 / 16	4.7	4.7	Hybrid
Spring 2022	Arch 592 A	19 / 43	4.2	4.2	Hybrid
Winter 2022	Arch 598 C	10 / 14	4.9	4.6	Hybrid
Autumn 2021	Arch 523	27 / 53	4.4	4.7	Hybrid
Spring 2021	Arch 594 B	7 / 16	4.6	4.3	Remote
Spring 2021	Arch 508 B	6 / 16	4.9	4.5	Remote
Winter 2021	Arch 587	10 / 14	4.8	4.7	Remote
Autumn 2020	Arch 523	24 / 44	4.6	4.7	Remote
Spring 2020	Arch 498 - 598 C	13 / 23	4.6	4.7	Remote
Spring 2020	Arch 592	23 / 32	4.2	4.2	Partially remote
Winter 2020	Arch 587	9 / 13	4.8	4.7	No
Autumn 2019	Arch 523	33 / 46	4.2	4.3	No

IV.E Ph.D. Supervision

2023 - ongoing **Benjamin Tod Jones** - Graduate School Representative
University of Washington - Computer Science and Engineering
Title: "Neural Duals for Symbolic CAD"

2022 - ongoing **Thijs Masmeyer*** - Committee member
University of Washington - Department of Aeronautics & Astronautics
Title: TBD

*Committee to be officially formed in Fall 2023

- 2021 - ongoing **Carolina Recart** - Committee member
 University of Washington - Civil And Environmental Engineering
 Title: Hygrothermal performance of energy retrofits in buildings. An assessment of the residential building stock in the US
- 2021 - ongoing **Hannah Twigg-Smith** - Graduate School Representative
 University of Washington - Human Centered Design and Engineering
 Title: TBD
- 2021 - ongoing **Sarah Wichman** - Graduate School Representative
 University of Washington - Civil And Environmental Engineering
 Title: Seismic Behavior of Tall Rocking Mass Timber Walls
- 2020 **Blanca Perez** - Host
 Visiting PhD student - Universidad Politécnica de Valencia, Spain
 Topic: Parametric modeling of concert hall acoustics and materials

IV.F Ph.D. Supervision as Post-doctoral researcher at ETH Zürich

While holding the position of Post-doctoral researcher, contributed to the supervision of the PhD candidates at the Block Research Group, Institute for Technology in Architecture ETH Zürich. Providing constant feedback on their research topics, imparting instruction in Python programming, computational design, computational geometry and structural design.

- 2018 — 2019 **Alessandro Dell'Endice**
 Assessment methods for historical masonry structures
- 2017 — 2019 **Crstián Calvo Barentin**
 Design and fabrication of funicular floor systems for low environmental impact
- 2015 — 2018 **Juney Lee**
 "Computational Design Framework for 3D Graphic Statics"
- 2014 — 2019 **David López López**
 "Tile vaults as integrated formwork for concrete shells"

IV.G Thesis Supervision at the University of Washington

2022 - 2023	<p>Md. Shariful Anik Role: Chair Master of Science of Architecture - Design Computing AI-Driven design exploration: Use of recommender system in parametric design-space exploration Committee: Narjes Abbasadabi, Karthik Mohan</p>
2022 - 2023	<p>Nathan Brown Role: Chair Master of Science of Architecture - Design Computing Mass Timber Joinery Design for Digital Fabrication and De-constructability Committee: Tyler Sprague</p>
2022 - 2023	<p>Davis Wright Role: Committee member Master's in Civil Engineering TBD Chair: Jeffrey Berman</p>
2022 - 2023	<p>Steven Youn Role: Committee member Master of Urban Planning Improving Pedestrian-Friendly Building-Street Relationships through Computational Design towards Seattle Chair: Daniel Abramson</p>
2021-2022	<p>Preston Pape Role: Committee member Master of Science of Architecture - Design Computing Title: Metamodeling of Energy and Operational Carbon in Detached Accessory Dwelling Units Chair: Rick Mohler</p>
2021-2022	<p>Christina Bjarvin Role: Committee member Master of Science - School of Environmental & Forest Sciences Title: Assessing the Carbon Balance for Mass Timbers Beyond the First Life Chair: Indroneil Ganguly</p>
2021	<p>Matt Wiggins Role: Committee member Master of Science in Construction Management Cost model for embodied carbon reduction: comparative study between mass timber and structural steel Chair: Hyun Woo Lee</p>

2020 - 2021	<p>James Blanchard Role: Chair Master of Architecture Acoustic spatial design methodology and its application in health environments Committee: Heather Burpee</p>
2020 - 2021	<p>Karen Wang Role: Chair Master of Architecture Study of thermal insulation strategies for Taiwanese housing units Committee: Rob Peña</p>
2020 - 2021	<p>Chuou Zhang Role: Chair Master of Architecture Design of mass-timber building components for reusability Committee: Kimo Griggs</p>
2020	<p>Gayle Elam Role: Committee member Master of Architecture “Acoustically Sensitive Large Assembly Spaces at School: An Elementary School Retrofit and Expansion” Chair: Rob Corser</p>
2019 - 2020	<p>Vidhya Rajendran Role: Chair Master of Science of Architecture - Design Computing “Helmholtz Resonators in Open Office Acoustics” Committee: Brian Johnson</p>

IV.H Thesis Supervision at other Institutions

2017 - 2018	<p>Tomás Mena Master of Engineering in Integrated Design - Hochschule Ostwestfalen-Lippe “Concept for intelligent facade configurator” Committee: Hans Sachs, Tomás Méndez Echenagucia</p>
2016 - 2017	<p>Jessica Menichelli Master of Architecture - Politecnico di Torino “Optimization of the acoustic characteristics of diffusive surfaces : an objective evaluation method at the preliminary design phase” Committee: Arianna Astolfi, Louena Shtrepi, and Tomás Méndez Echenagucia</p>

- 2016 - 2017 **Giovanni Bouvet**
 Master of Architecture - Politecnico di Torino
 “Computational design : conchiglie acustiche parametriche per l’utilizzo contemporaneo dei teatri classici”
 Committee: Arianna Astolfi, Elena Bo, and **Tomás Méndez Echenagucia**
- 2013 - 2014 **Denise Barbaroux**
 Master of Architecture - Politecnico di Torino
 “L’influenza delle balconate sulla qualità acustica delle sale da concerto”
 Committee: Arianna Astolfi and **Tomás Méndez Echenagucia**
- 2012 - 2013 **Silvia Pastorino and Chiara Bertolutti**
 Master of Architecture - Politecnico di Torino
 “Studio acustico parametrico per la ricerca delle dimensioni ottimali di sale da concerto a “Shoebox” ed esagonali”
 Committee: Arianna Astolfi, Louena Shtrepi, and **Tomás Méndez Echenagucia**
- 2012 - 2013 **Sabrina Canale**
 Master of Architecture - Politecnico di Torino
 “Lo studio dei riflettori acustici in una sala polivalente tramite simulazione ray-tracing”
 Committee: Arianna Astolfi, Alessia Paola Griginis and **Tomás Méndez Echenagucia**
- 2012 - 2013 **Marco Palma and Maddalena Sarotto**
 Master of Architecture - Politecnico di Torino
 “Loudness : progettazione algoritmico-evolutiva di una conchiglia acustica per un palco rock”
 Committee: Arianna Astolfi, Mario Sassone, Marco Carlo Masoero, Chiara Aghemo and **Tomás Méndez Echenagucia**
- 2012 **Fabio Cerniglia**
 Master of Architecture - Politecnico di Torino
 “Una casa itinerante”
 Committee: Michele Bonino and **Tomás Méndez Echenagucia**

IV.I Applied Research Consortium supervision

This section contains work supervised under the Applied Research Consortium at the College of Built Environments - University of Washington. The work is often related to the thesis work of the same student, however it is always done on separate track with a more applied topic and a different committee. The work is done in collaboration with a Seattle based Architecture firm.

- 2021 - 2023 **Nathan Brown**
 Structural design and fabrication of timber only joinery for structural reuse
 Firm partner: Turner Construction - Josh Lohr, Sean Beatty
 UW supervisor: **Tomás Méndez Echenagucia**

- 2020 - 2022 **Chouo Zhang**
 Biogenic Carbon Accounting Method for Upstream Forest Factors: A Regional Approach
 Firm partner: ZGF Architects - Jacob Dunn, Marty Brennan
 UW supervisors: Indroneil Ganguli and **Tomás Méndez Echenagucia**
- 2019 - 2020 **Vidhya Rajendran**
 “Heavenly Rooms: On the use of Helmholtz resonators for Open Office acoustics”
 Firm partner: NBBJ Design - Ryan Mullenix
 UW supervisor: **Tomás Méndez Echenagucia**

IV.J Research Assistant supervision

- 2021 **Nathan Brown**
 University of Washington
 Summer hourly RA
 Design and vibro-acoustic analysis of mass timber floor systems
- 2020 **Vidhya Rajendran**
 University of Washington
 Summer hourly RA
 Design, fabrication and on-site measurement of a resonant absorption panel in Cross Laminated Timber
- 2020 **Nathan Brown**
 University of Washington
 Summer hourly RA
 Creation of Design technology teaching resources website
- 2018 - 2019 **Theodora Ravanidou**
 ETH Zürich
 Full-time RA
 Flexible formwork system for the HiLo project
- 2017 **Pieter Bieghs**
 ETH Zürich
 Full-time RA
 Parametric study to improve the structural performance of a funicular floor system
- 2016 - 2017 **Alessandro Dell’Endice**
 ETH Zürich
 Full-time RA
 Parametric modeling of masonry cross-vaults for 3d printed structural models
- 2016 - 2017 **Ioannis Mirtsopoulos**
 ETH Zürich
 Full-time RA
 Design and fabrication of a cable-net and fabric formwork system in large prototype

IV.K Guest Lectures in other UW Courses

Spring 2023	Arch 592 - Research Methods “Computational design for sustainable construction” Invited by Profs. Ann Huppert and Tyler Sprague
Winter 2023	Design Symposium “Computational geometry for sustainable construction” Invited by Prof. Rob Peña
Fall 2022	Arch 562 - Contemporary Architectural Theory “Mass Timber Vibro-Acoustics” Invited by Prof. Brian McLaren
Fall 2021	Arch 362 - Architecture and Theory “Orders, Types and Computational Design” Invited by Profs. Alex Anderson and Brian McLaren
Winter 2021	Arch 360 - Introduction to Architectural Theory “Patterns, Structures and Orders” Invited by Profs. Alex Anderson and Kathryn Rogers Merlino
Winter 2020	ME 525 - Applied acoustics “Use of Helmholtz resonators for office acoustics” Invited by Prof. Peter Dahl
Winter 2020	Arch 362 - Introduction to Architectural Theory “Patterns, Structures and Orders” Invited by Profs. Alex Anderson and Brian McLaren
Winter 2020	Arch 524 - Design Technology V “Types, constraints and parametric models” Invited by Prof. Rob Peña
Winter 2020	Arch 528 - Digital design for fabrication and construction “The COMPAS framework” Invited by Jack Hunter
Autumn 2019	Arch 520 - Design Technology I “Compression only structures” Invited by Profs. Rob Peña and Kimo Griggs
Autumn 2019	Arch 592 - Research methods “Computational geometry for sustainable construction” Invited by Profs. Kate Simonen and Ann Huppert

Autumn 2019 **Arch 562 - Contemporary architectural theory**
"Models"
Invited by Profs. Alex Anderson and Brian McLaren

IV.L Studio and Thesis reviews

- 2021 **Innovative Mid-rise Timber** - final review
Weitzman School of Design - University of Pennsylvania (remote)
Instructor: Prof. Masoud Akbarzadeh
- 2021 **TOPOLOGY + timber** - final review
Taubman College of Architecture and Urban Planning - University of Michigan
Instructor: Prof. Tsz Yan Ng
- 2021 **Innovative Mid-rise Timber** - mid review
Weitzman School of Design - University of Pennsylvania (remote)
Instructor: Prof. Masoud Akbarzadeh
- 2020 **Digital Futures 2020 workshop** - final reviews
ETH Zürich - Department of Architecture (remote)
Instructors: Dr. Juney Lee, Dr. Tom van Mele and Prof. Philippe Block
- 2016 **Structural design II** - final review
ETH Zürich - Department of Architecture
Instructors: Prof. Philippe Block
- 2015 **Design Research Laboratory** - studio review
Architectural Association - London
Instructor: Shajay Bhooshan
- 2015 **Structural design II** - final review
ETH Zürich - Department of Architecture
Instructors: Prof. Philippe Block

IV.M Coding workshops

- 2021 **Python workflows for performance based design**
Hochschule Ostwestfalen-Lippe (remote)
Performance based methods for the early phase of design by means of the COMPAS
framework
- 2018 **COMPAS_TNA workshop**
IASS 2018 workshops - MIT
Structural form-finding methods from compression only structures using Thrust Network
Analysis

- 2018 **COMPAS_TNA workshop**
 ETH Zürich - Department of Architecture
 Masonry structures analysis using Thrust Network Analysis
- 2018 **COMPAS_FEA workshop**
 ETH Zürich - Department of Architecture
 Finite element analysis by means of the COMPAS framework

V Service

V.A Academic service positions at the University of Washington

- 2022 - ongoing **Strategic planning committee**
 Role: Committee member
 Department of Architecture
- 2020 - ongoing **Design Technology committee**
 Role: Committee member
 Department of Architecture
- 2021 - 2022 **Cohort hire committee**
 Role: Committee member
 Department of Architecture
- 2021 **FabLab director hiring committee**
 Role: Committee member
 College of Built Environments
- 2021 - 2022 **CBE Technology group**
 Role: Committee member
 College of Built Environments
- 2020 **MS Design computing admissions**
 Role: Chair
 Department of Architecture
- 2020 **Strategic planning review team**
 Role: Committee member
 College of Built environments
- 2019 - 2020 **Strategic planning Technology Task group**
 Role: Committee member
 College of Built environments

V.B Leadership positions in external organizations

2019 - ongoing **Open Research in Acoustical Science and Education**
Role: Board member
Non-profit for the support of acoustics education and research in the US
Founding board member

V.C Affiliations

- Acoustical Society of America (ASA)
- Association for Computer Aided Design in Architecture (ACADIA)
- International Association for Spatial and Shell Structures (IASS)