Luciana Debs, Ph.D. – CV

Degrees

- Ph D, Technology, Purdue University, 2016. West Lafayette, IN
- MS, Housing: planning and technology, Instituto de Pesquisas Tecnologicas de Sao Paulo (IPT-SP), 2013. Sao Paulo, Brazil
- BS, Architecture and Urban Planning, Universidade de Sao Paulo, 2005. Sao Paulo, Brazil

Positions at Texas State University

2024 – Present Assistant Professor of Engineering Technology, San Marcos

Positions at other institutions or organizations

2016 – 2024 Assist. Professor of Construction Management, Purdue University Main Campus
2020 – 2021 Undergraduate Program Chair, School of Construction management Technology (SCMT), Purdue University
2014 – 2016 Graduate Teaching and Research Assistant, SCMT, Purdue University
2014 (Summer) Project Engineer Intern, Clayco. Chicago, IL
2013 Invited Instructor, IDD Institute. Sao Paulo, Brazil
2011 – 2013 Architect Design Manager, Schahin Engineering. Sao Paulo, Brazil
2007 – 2011 Architect Design Manager, Chemin Real Estate Developer. Sao Paulo, Brazil
2005 – 2006 Architect Inspector, Ieme Brasil Consultants. Sao Paulo, Brazil
2005 – 2005 Architectural Drafter, Precast Consultants. Sao Paulo, Brazil

Honors and awards

2024 – Best Division Paper Award, ASEE Construction Engineering Division
2023 – Purdue Polytechnic Outstanding Faculty in Learning, Purdue University
2023 – Outstanding Faculty in Teaching, SCMT, Purdue University
2022 – Finalist for Exceptional Early Career Teaching Award (2021-2022) (campus-wide), Purdue University
2022 – Outstanding Faculty in Teaching, SCMT, Purdue University
2021 – Best Division Paper Award, ASEE Construction Engineering Division
2021 – Outstanding Faculty in Teaching, SCMT, Purdue University
2021 – Purdue Exceptional Teaching and Instructional Support Award
2016 – Finalist for the 2016 "Best Diversity Paper", American Society of Engineering Education (Annual Conference)
2013-2014 – Science without Borders Scholarship, Brazilian Education Ministry

Licenses, Registrations and Certifications

LEED AP (USGBC), Licensed Architect in Brazil (inactive since 2013 due to foreign residency)

Memberships in academic, professional, and scholarly societies

Sigma Lambda Chi (Construction Honor Society), United States Green Building Council, USGBC, American Society of Engineering Education (ASEE).

PUBLICATIONS

Full articles in refereed journals

1. Zheng, Y, Debs, L. Besiktepe, D & Oh, J. (2025). Insights for key professional competencies of U.S. entry-level construction positions: A structural topic modeling approach. *Journal of Civil Engineering Education, 151*(8). ASCE. https://doi.org/10.1061/JCEMD4.COENG-16343

2. Besiktepe, D., Sparkling, A., Debs, L., & Manuel, R. (2024). Digital Technology Applications in Construction Education: A Systematic Review of Methodological Pluralism. *International Journal of Construction Education and Research*, *20*(4), 421-443. https://doi.org/10.1080/15578771.2024.2405620

3. Debs, L., Besiktepe, D., Talley, K. G., & Mosier, R. (2025). Sense of Belonging of US Construction Students. *International Journal of Construction Education and Research 21*(3), 1-25. https://doi.org/10.1080/15578771.2024.2384378

4. de Souza, A. S. C., & Debs, L. (2024). Concepts, innovative technologies, learning approaches and trend topics in education 4.0: A scoping literature review. *Social Sciences & Humanities Open*, *9*, 100902. https://doi.org/10.1016/j.ssaho.2024.100902

5. Fan, Y, Akanbi, T., Chong, O.W. [G], Zhang, J., Debs, L., Chen, Y. & Hubbard, B. (2024). Case Study: Project-Based Introduction to Computing in Construction Management Curriculum. *Journal of Civil Engineering Education*. https://doi.org/10.1061/JCEECD.EIENG-1905

6. Gusmao Brissi, S. & Debs, L. (2024). Principles for Adopting Offsite Construction in Design and Construction Companies. *Engineering, Construction and Architectural Management, 31*(11). doi.org/10.1108/ECAM-03-2022-0262.

7. Clemente de Souza, A. & Debs, L. (2023). Identifying emerging technologies and skills required for construction 4.0 *Buildings.* https://doi.org/10.3390/buildings13102535

8. Debs, L. & Hubbard, B. (2023). Gathering and disseminating lessons learned in construction companies to support knowledge management. *Construction Economics and Buildings*. *23*(1/2) https://doi.org/10.5130/AJCEB.v23i1/2.8390

9. Debs, L., Gray, C. M., & Asunda, P. A. (2023). Students' perceptions and reasoning patterns about the ethics of emerging technology. *International Journal of Technology and Design Education, 33*. doi.org/10.1007/s10798-021-09719 -w.

10. Kota, B. R., Debs, L., & Davis, T. (2022). Exploring generation Z's perceptions of green homes. *Sustainability*, *14*(16), 10148. doi.org/10.3390/su141610148.

11. Debs, L., & Metzinger (2022). A comparison of energy consumption in American homes by climateregion. *Buildings* (MDPI)*, 12*(1). doi.org/10.3390/buildings12010082.

12. Gusmao Brissi, S., Wong Chong, O., Debs, L., & Zhang, J. (2022). A review on the interactions of robotic systems and lean principles in offsite construction. *Engineering, Construction and Architectural Management 29*(1). doi.org/10.1108/ECAM-10-2020-0809.

13. Brissi, S. G., Debs, L., & Elwakil, E. (2021). A review on the factors affecting the use of offsite construction in multifamily housing in the United States. *Buildings* (MDPI). *11*(1). doi.org/10.3390/buildings11010005.

14. Debs, L., & Shaurette, M. E. (2021). An exploration of telephone and e-mail communications fordesign-related construction problems. *International Journal for Construction Education and Research*. *17*(2). doi.org/10.1080/15578771.2020.1713934.

15. de Cresce El Debs, L., Miller, K. D., Ashby, I., & Exter, M. (2019). Students' perspectives on different teaching methods: comparing innovative and traditional courses in a technology program. *Research in Science and Technological Education, 37*(3), 297-323. doi.org/10.1080/02635143.2018.1551199.

16. de Cresce El Debs, L., Brunese, P. S., & Shaurette, M. E. (2018). Use of concept maps to illustrate barriers to construction industry inter-organizational communication: a comparative view from students and professionals. *International Journal of Construction Education and Research, 14*(2), 77-94. doi.org/0.1080/15578771.2016.1226214.

17. de Cresce El Debs, L., & Kelley, T. R. (2015). Gathering design references from nature. *The Technology and Engineering Teacher., 75*(1), 10-14.

18. Debs, L., & Leal Ferreira, S. (2014). Guidelines for a design process for facades with precast concrete panels in a BIM environment. *Ambiente Construido, 14*(2), 41-60. doi: doi.org/10.1590/S1678-86212014000200004.

Peer reviewed conference proceedings

1. Debs, L., Besiktepe, D., & Galvao, F. R. (2025, June). Career support services in construction-related programs in the US. In *2025 ASEE Annual Conference & Exposition*.

2. Besiktepe, D., Kumar, Y. R. M., Zheng, Y., Manuel, J. R., & Debs, L. (2025). Exploring Job Selection Influences of Construction Management Students. *Proceedings of Associated Schools of Con*, *6*, 654-663.

3. Debs, L., & Souza, A. S. C. (2025). Academic help-seeking resources for construction students: a scoping review. In *CIB Conferences* (Vol. 1, No. 1, p. 421).

4. Zheng, Y., Besiktepe, D., & Debs, L. (2025). A Pilot Study on ChatGPT's Potential in Developing Construction Education Assessments Through a Lens of Bloom's Taxonomy. In *CIB Conferences* (Vol. 1, No. 1, p. 149).

5. Debs, L., Souza, A., & Galvao, F. R. (2024). Requirements and Qualifications of Emerging Construction 4.0 Job Categories. In *2024 ASEE Annual Conference & Exposition*. Portland, OR: June 23-26, 2024.

6. Clemente de Souza, A.S. & Debs, L. (2023). A review of synergies between Industry 4.0, Construction 4.0, and Education 4.0 in the engineering education context. *Frontiers in Education Annual Conference.* College Station, TX: October 18-21, 2023.

7. Tian, C., Kang, K, Zheng, Y. & Debs, L. (2023). Automated Detection and 3D Reconstruction of Fire Hydrants using Different Sizes of Crop Functions and Software. *2023 International Conference on Computing in Civil Engineering.* Corvallis, OR: June 25-28, 2023.

8. Ademiloye, J. & Debs, L. (2023). Feedback Systems in Sustainable AEC Projects: A MetaAnalysis. *Institute of Industrial and Systems Engineers (IISE) Annual Conference and Expo 2023*. New Orleans, LA: May 20-23. IISE.

9. Gadakh, O. & Debs, L. (2023). Analysis of Qualifications for Entry-Level Positions in Construction Management. *American Society of Engineering Education Annual Conference.* Baltimore, MD: June 25-28, 2023.

10. Debs, L. & Martani, C. (2023). Developing a new course in design, construction and society. *American Society of Engineering Education Annual Conference.* Baltimore, MD: June 25-28, 2023.

11. Buscemi, L., Debs, L. & Zimpfer, M. (2022). WIP: Teaching of emerging technology construction workforce development programs. *Frontiers in Education Annual Conference.* Uppsala, Sweden: October 8-11. IEEE.
12. Yang, F., Zhang, J., Chen, Y., & Debs, L. (2022) A new framework of logic representation and reasoning for automated building code compliance checking. *Polytechnic Summit*. Darmstadt, Germany: June 28-30, 2022.
13. Hubbard, B., & Debs, L. (2022) Development of an introductory course in design phase management for constructors. *2022 CIB World Building Congress*. Melbourne, Australia: June 2730, 2022. CIB.
14. Debs, L., Hubbard, B., & Zimpfer, M. (2022) Teaching of emerging technology in construction education. *2022 CIB World Building Congress*. Melbourne, Australia: June 27-30, 2022. CIB.
15. Moraes, F. R., & Debs, L. (2022). The Capstone Course – A new approach. *American Society of Engineering Education Annual Conference.* Minneapolis. Minneapolis, MN: June 26-29, 2022.
16. Debs, L., Moraes, F. R., & Benhart, B. (2022). A review and comparison of associated schools of construction (ASC) capstone course content. *2022 Associated Schools of Construction International Conference*. Atlanta, GA: April 20-23, 2022.
17. Li, H., Zhang, J., Xue, X., Debs, L., Chang, S., Qu, M., Sparkling, A. E., & Goldwasser, D. (2022). Issues in bi-directional interoperability between BIM and BEM. *Construction Research Congress 2022*. Reston, VA: March 9-12, 2022. ASCE.
18. Wu, J., Zhang, J., & Debs, L. (2022). Model validation for automated building code compliance checking. *Construction Research Congress 2022*. Reston, VA: March 9-12, 2022. ASCE.
19. Kuang , B., Tian, C., Wu, H., Chen, Y., & Debs, L. (2022). The impact of remote learning on college students' workload and productivity during the COVID-19 pandemic. *Construction Research Congress 2022*. Reston, VA: March 9-12, 2022. ASCE.
20. Debs, L., & Hubbard, B. J. (2021). Integrating energy simulation in design and construction studios: experiences from two undergraduate courses. *2021 CIB W78 Annual Conference*. Luxembourg / Online: October 11-15, 2021.
21. Debs, L., & Kota, B. (2021). Gender differences in construction management students' sense of belonging. *2021 American Society of Engineering Education Annual Conference*. Online: July 2629, 2021. (Best Paper for Construction Engineering Division)
22. Wu, S. [G], Tedeschi, B., Schreiber, Z., Hutzel, W. J., & Debs, L. (2021). Elementary school renovation to achieve net zero energy. *6th International High-Performance Buildings Conference at Purdue*. West Lafayette, IN: May 24-28, 2021.
23. Debs, L., B. K., & Metzinger, J. (2021). Recent energy consumption trends in American homes.*2021 Associated Schools of Construction International Conference.* Online: April 5-9, 2021.
24. Debs, L., Zhang, J., Hubbard, B. J., & Cory, C. A. (2021). Quantity take-off using buildinginformation modeling (BIM) for construction students. *14th AiC BIM Academic Symposium.* Online: March 22-23, 2021.
25. Gusmao Brissi, S., Debs, L., & Zimpfer, M. D. (2020). Construction students' confidence in their ability to visualize construction methods. *2020 Frontiers in Education Conference.* Uppsala, Sweden / Online: October 21-24, 2020.
26. Debs, L., & Gusmao Brissi, S. [G] (2020). Academic collaboration in journal publications: pilot findings from a sustainability perspective. *2020 Associated Schools of Construction (ASC) International Conference.* Online.

27. Debs, L., Chen, Y., & Zhang, J. (2020). Engaging high-school students in building prefabrication(resource exchange). *2020 American Society of Engineering Education Annual Conference*. Online: June 21-24, 2020.
28. Debs, L., & Hubbard, B. J. (2020). Faculty experience in team-teaching in construction management higher education. *2020 American Society of Engineering Education Annual Conference*. Online: June 21-24, 2020.
29. Tian, C., Guo, X., Chen, Y., Debs, L., & Zhang, J. (2019). The change of building information modeling maturity in the last five years. *2019 CIB World Building Congress.* Hong Kong: June 1721, 2019.
30. Gusmao Brissi, S., & Debs, L. (2019). Lean, automation and modularization in Construction. *2019 International Group for Lean Construction (IGLC).* Dublin, Ireland: July 1-7, 2019.
31. Gusmao Brissi, S. [G], Watanabe, M.[U], & Debs, L. (2019). Sustainable design experience: the race to zero competition. *2019 American Society of Engineering Education Annual Conference.* Tampa, FL: June 16-19, 2019.
32. Zhang, J., Chen, Y., Liu, R., & De Cresce El Debs, L. (2019). Cartesian points visualization in game simulation for analyzing geometric representations of AEC objects in IFC. *36th International Symposium on Automation and Robotics in Construction (ISARC 2019)*. The International Association for Automation and Robotics in Construction (IAARC). Edmonton, Canada: May 21-24, 2019.
29. Metzinger, J. R., Cabral, J. E., Debs, L., Santon, S. D., & Zimpfer, M. D. (2019). Construction management curriculum transformation through project-based learning: initial implementation. *2019 Associated Schools of Construction International Conference*. Denver, CO: April 10-13, 2019.
30. Debs, L., & Gusmao Brisi, S. (2019). Undergraduate construction students' likelihood of attending courses in other AEC disciplines. *2019 Associated Schools of Construction International Conference*. Denver, CO: April 10-13, 2019.
31. Debs, L., Zhang, J., & Chen, Y. (2019). Developing a request for qualifications activity to integrate construction topics at the sophomore level. *2019. American Society of Engineering Education Annual Conference.* Tampa, FL: June 16-19, 2019.
32. Debs, L., & Zimpfer, M. D. (2018). Developing and applying an undergraduate cross-course team assignment. *2018 Frontiers in Education Conference*. San Jose, CA: October 3-6, 2018.
33. Shaurette, M. E., & de Cresce El Debs, L. (2018). Study abroad to promote design and construction collaboration. *2018 Associated Schools of Construction International Conference.* Minneapolis, MN: April 17-21, 2018.
34. de Cresce El Debs, L., Brophy, S., & Espinoza Morales, C. (2017). Identifying student communication strategies involving spatial information. *2017 Frontiers in Education Conference*. IEEE. Indianapolis, IN: Oct 18-21, 2017.
35. de Cresce El Debs, L., Shaurette, M. E., Kwon, H. J., Barbarash, D. M., Hutzel, W. J., & Hynes, W. J. (2017). Cross college faculty collaboration for the development of a new major in design and construction integration. *2017 American Society of Engineering Education Annual Conference.* Columbus, OH: June 24-28, 2017.
36. de Cresce El Debs, L., Shaurette, M. E., & McAllister Wilder, D. (2017). Undergraduate opportunities for construction students' multidisciplinary AEC collaboration and awareness. *2017 American Society of Engineering Education Annual Conference.* Columbus, OH: June 24-28, 2017.

37. de Cresce El Debs, L., Shaurette, M. E., & Rybkowski, Z. K. (2017). Selection of communication media by design and construction personnel for problem-solving. In: *Proceedings of 2017 Associated Schools of Construction International Conference.* Seattle, WA: April 5-8, 2017.

38. Gray, C. M., Debs, L., Exter, M., & Krause, T. (2016). Instructional strategies for incorporatingempathy in transdisciplinary technology education. *2016 American Society of Engineering Education Annual Conference*. New Orleans, LA: June 26-29, 2016. (one of six finalists for overall conference best diversity paper)

39. de Cresce El Debs, L., Shaurette, M. E., & Benhart, B. L. (2016). Professional certifications inconstruction industry: a comparative view from students and companies. *2016 Associated Schools of Construction (ASC) International Conference*. Provo, UT: April 13-16, 2016.

40. de Cresce El Debs, L., Dionne, R. M., Exter, M., & Shaurette, M. E. (2015). Problem solving in a multidisciplinary environment: observations from a newly developed program. *2015 American Society of Engineering Education Annual Conference*. Seattle, WA: June 14-17, 2015.

41. Debs, L., Leal Ferreira, S., & Villares, A. B. A. (2012). Application of automated code checking inBrazilian building regulations. *2012 CIB W78 Annual Conference.* Beirut, Lebanon: October 17-19, 201.

Other publications and editorial contributions

1. Debs, L., Zheng, Y., Ademiloye, J., Chen, Y., & Zhang, J. (2023). Synthesis study on employing snowplow driving simulators in training (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2023/07). West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284317614

2. "Designing worlds: The Big Read. Dawn or Doom" (presented by the Purdue English Department). Panel discussion participation with publication. Purdue University, West Lafayette, IN. September 2017.

3. Debs, L., Zhang, J. & Chen, Y. (2021). *Introduction to Prefabrication and Automation in Construction* (Curriculum Material). (pp. 40). West Lafayette, IN: Purdue University., (deposited in e-Pubs, March 2022).

FUNDED GRANTS AND CONTRACTS AWARDED

1. Collaborative Research: Enhancing Undergraduate STEM Learning by Mitigating Misalignment of Augmented Capability in Assistive Technology Use for Construction Education. National Science Foundation. Funding Duration: 3 years (2025-2028). Total Amount Awarded: $150,210. Role: PI at Texas State University.

2. REU Site: Research Experience for Undergraduates in Built Environment Decarbonization. National Science Foundation. Funding Duration: 3 years (2025-2028). Total Amount Awarded: $439,266. Role: Senior Personnel (TXST subaward: $12,725.45).

3. SPR-5008: Strategic Expansion of Driving Simulators in INDOT Driver Training Programs, Indiana Department of Transportation (INDOT). Proposed Funding Duration: 2.5 years (2025-2028)**.** Total Amount Awarded: $1,412,695**.** Role: PI until Aug 2024. Co-PI starting Aug. 2024 (TXST subaward: 164,274.24).

4. SPR-4836: Best Practices for Implementing Driving Simulators in INDOT Driver Training. Indiana Department of Transportation (INDOT). Funding Duration: 2.5 years (2023-2025)**.** Total Amount Awarded: $654,860**.** Role: PI until Aug 2024. Co-PI starting Aug. 2024 (TXST subaward: 13,368.00).

5. SPR 4651: Synthesis Study on Employing Snowplow Driving Simulators in Training. INDOT. Duration of Funding: 1 year (2022-2023)**.** Total Amount Awarded: $147,537 (includes at-cost extension)**.** Role: PI.

6. Review of Three Academic Programs at Universidad Nacional San Agustin (UNSA)**.** Universidad Nacional de San Agustin (UNSA). Duration of Funding: 1 year (20202021)**.** Total Amount Awarded: $65,939. Role: Co-PI.

7. Purdue SCMT Construction Channel. National Housing Endowment (NHE). HELP Grant. Duration of Funding: 5 years (2018-2023). Total Amount Awarded: $100,000. Role: Co-PI.

8. Automating building code compliance checking and modular construction through interoperable building information modeling technology**.** National Science Foundation (NSF). Partnerships for Innovation (PFI) Program. Duration of Funding: 6 years (2018-2024). Total Amount Awarded: $1,108,003. Role: Co-PI. Co-PI until Jan 2025. Senior Personnel starting Jan 2025.

9. Study Abroad in Intercultural Learning (SAIL-Grant). Purdue University. Duration of Funding: 1 year (2017). Total Amount Awarded: $15,000. Role: PI.

PhD and MS thesis and directed project committees, chair or member

	Name	Position	Type	Research Topic	Status
1	Yanchao Zheng	Co-Chair	Ph.D. dissertation	TBD (Construction curriculum and education)	In progress
2	Candice Sexton	Member	Ph.D. dissertation	TBD (Women in construction)	In progress
3	Jesutoba Ademiloye	Member	M.S. thesis	Circularity Barriers In Small And Medium-Sized Construction Enterprises (Smes): A U.S. Multi-Case Study	Graduated
4	Yanchao Zheng	Chair	M.S. thesis	Utilizing T-O-E framework for evaluating the use of simulators in snowplow driver training	Graduated
5	Oscar Wong Chong	Member	Ph.D. dissertation	IFC-based system and methods to support analysis of robot-assisted offsite construction.	Graduated
6	Xiaorui Xue	Member	Ph.D. dissertation	Natural language processing-based automated information extraction from building codes to support automated compliance checking	Graduated
7	Sara Gusmao Brissi	Chair	Ph.D. dissertation	Guidelines for the adoption of offsite construction in design and construction companies	Graduated
8	Bhavya R. Kota	Chair	M.S. thesis	Investigating Generation Zs' Perceptive of Green Home and Green Home Features	Graduated

	Name	Position	Type	Research Topic (continued)	Graduation Date
9	Jin Wu	Member	Ph.D. dissertation	Invariant signatures for supporting BIM interoperability	Graduated
10	Temitope Akanbi	Member	Ph.D. dissertation	IFC-based systems and methods to support construction cost estimation	Graduated
11	Sulyn Gomez Villanueva	Member	M.S. thesis	Conceptual framework for implementing integrated project delivery infrastructure projects in Peru	Graduated
12	Pranavi Settipalle	Co-chair	M.S. thesis	Smart home technology and smart user lifestyles	Graduated
13	Wesley Young	Chair	M.S. thesis	A Study of Student Comfort and Satisfaction within Green Residence Halls	Graduated
14	Christy Madril	Chair	M.S. Directed Project	Why Owners Should Embrace the Collaboration of Design and Construction Professionals.	Graduated
15	Heather Brink	Chair	M.S. Directed Project	Employer Requirement or Preference for Certified Construction Managers: CCM, CPC, LEED-AP, and PMP	Graduated
16	Rohan Parge	Co-chair	M.S. thesis	How Effective are Non-Monetary Incentives in Encouraging Dormitory Residents to Save Energy?	Graduated
17	Zoohee Choi	Co-chair	M.S. thesis	Indoor Environmental Quality of Public Space in Healthcare: Developing a Framework for Assessment	Graduated

SERVICE & ENGAGEMENT

Leadership in professional societies or organizations

1. Program Chair - Construction Engineering Division (Division Officer), American Society of Engineering Education (ASEE) (2025 – present).
2. Secretary – Construction Engineering Division (Division Officer), American Society of Engineering Education (ASEE) (2023 – 2025).
3. Treasurer – Construction Engineering Division (Division Officer), American Society of Engineering Education (ASEE) (2021 – 2023).