

Amna Salman

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1. Education

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|---|---------------|
| Ph.D. in Building Construction
McWhorter School of Building Science
Auburn University, Auburn, Alabama | December 2023 |
| Master in Community Planning
School of Architecture, Planning, and Landscape Architecture
Auburn University, Auburn, Alabama | December 2013 |
| Master in Public Administration
Department of Political Science
Auburn University, Auburn, Alabama | December 2013 |
| Bachelor in Architecture
School of Architecture
University of Engineering and Technology, Lahore, Pakistan | December 2007 |

2. Employment History

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| • Assistant Professor
<i>McWhorter School of Building Science, Auburn University</i> | 2022-Present |
| • Instructor of Record/Graduate Assistant
<i>McWhorter School of Building Science, Auburn University</i> | 2020 – 2022 |
| • Adjunct Faculty Member
<i>McWhorter School of Building Science, Auburn University</i> | 2016 – 2020 |
| • Design and Sustainability Consultant (Contract)
Architecture and Structures (ANS) Associates, Lahore, Pakistan | 2014 –2015 |
| • Planning/Design Intern (Summer: Full-time, Fall: Part-time)
Office of University Architect, Facilities Management, Auburn University | May. - Dec. 2013 |
| • Graduate Teaching and Research Assistant
McWhorter School of Building Science, Auburn University | 2011 –2013 |
| • Design Consultant (Contract)
Architecture and Structures (ANS) Associates, Lahore, Pakistan | 2009 –2011 |
| • Course Developer (Contract)
Pearson Higher Education, Indianapolis, IN | Feb. - May. 2010 |

- **Design and Construction Intern** (Full time)
Architecture and Structures (ANS) Associates, Lahore, Pakistan

Jun. – Aug. 2006 & 2007

3. Research Experience

3.1 Research Interests

Occupant health and safety, Offsite construction, Facilities operations and maintenance, Construction informatics, Construction education

3.2 Publications

Journal Papers

1. **Salman, A.** (2023, September). Field Trips and Their Effect on Student Learning: A Comparison of Knowledge Assessment for Physical versus Virtual Field Trips in a Construction Management Course. In *Virtual Worlds* (Vol. 2, No. 3, pp. 290-302).
2. **Salman, A.**, & Ahmad, W. (2023). Implementation of augmented reality and mixed reality applications for smart facilities management: a systematic review. *Smart and Sustainable Built Environment*.
3. **Salman, A. (80%)**; Sattineni, A.; Azhar, S.; and Leousis, K. (2021). "A Systematic Review of Building Systems and Technologies to Mitigate the Spread of Airborne Viruses." *Journal of Facilities Management*, Emerald, 19 (4), DOI 10.1108/JFM-01-2021-0015. [\[Download\]](#)
4. Farrow, C.B., Leathem, T., & **Salman, A. (15%)** (2021). "Evaluation of Learner-Centered Versus Teacher-Centered Syllabi in Construction Management Courses: An Initial Investigation."

Edited Conference Proceedings (Co-Editor)

1. Azhar, S.; Khan, M.A.; Arif, S.; and **Salman, A. (25%)** (2018). *Proceedings of the First International Conference on High Performance Energy Efficient Buildings and Homes (HPEEBH 2018)*, Lahore, Pakistan, August 1-2.

Conference Papers

1. **Salman, A.**, Sattineni, A. (2023). A Standardized Framework for Assessment of Building Resilience Against Airborne Viruses and its Improvement Measures. Annual International Conference of Digital Transformation of Health and Safety in Construction, Porto, Portugal, June 21-22.
2. **Salman, A.** (2023). Impact of COVID-19 on the Construction Industry: Disruptions and Recovery Strategies from Owner's Perspective. International Conference of Construction in the 21st Century (CITC), Arnhem, Netherlands, May 8-11, 2023
3. **Salman, A.**, Sattineni, A., Wetzel, E., Rahn, K., & Reece, J. (2022). Development of a Building Readiness Rating Index for an Outbreak/Pandemic: A Pilot Study. *Proceedings of the 12th International Conference of Engineering, Production, and Project Management*, Athens, Greece, 12-14 October 2022.
4. **Salman, A.**, Rahn, K., & Sattineni, A. (2022). Establishing Indicators for Reducing the Transmission of Airborne Viruses in Buildings. *Proceedings of the World Building Congress 2022*, Melbourne, Australia.

5. Farrow, C.B., Leathem, T., & **Salman, A. (15%)** (2021). "An Exploratory Study on CM Syllabi Components." *Proceeding of the 57th Associated School of Construction International Virtual Conference*, April 2021. [\[Download\]](#)
6. **Salman, A.** (2020). "Student Learning Assessment from a Virtual Field Trip." *Proceeding of the 56th Associated School of Construction International Virtual Conference*, September 2020. [\[Download\]](#)
7. **Salman, A.** (2019). "Pedagogical Transformations in Structures Classroom: Immersing Students into Virtual World for In-Depth Understanding of Steel Connections". *Proceedings of the 19th International Conference on Construction Applications of Virtual Reality (CONVR-2019)*, Bangkok, Thailand, November 13-15.
8. Han, D., Dastider, S.G., Azhar, S., and **Salman, A. (10%)** (2019). "Strategies and Lessons Learned to Create Virtual Reality Immersive Games for Construction Safety Training." *Proceedings of the 19th International Conference on Construction Virtual Reality (CONVR 2019)*, Bangkok, Thailand, November 13-15.
9. **Salman, A.** (2019). "Implementing Experimental Research: A Case Study of Teaching Lateral Forces in an Introductory Structures Course." *Proceeding of the 55th Associated School of Construction International Conference*, Denver, CO, April 10-13th. [\[Download\]](#)
10. **Salman, A. (80%)**, and Ahmed, M. (2018). "Implementing Active Learning Strategies in Structural Analysis and Design Course: Pedagogy Development and Lesson Learnt." *Proceeding of the 11th Annual Conference of Education, Research, and Innovation (ICERI 2018)*, Seville, Spain, November 12-14th. [\[Download\]](#)
11. Azhar, S., Kim, J., & **Salman, A. (25%)** (2018). "Implementing Virtual Reality and Mixed Reality Technologies in Construction Education: Students' Perceptions and Lessons Learned". *Proceeding of the 11th Annual Conference of Education, Research, and Innovation (ICERI 2018)*, Seville, Spain, November 12-14th.
12. Azhar, S., and **Salman, A. (40%)** (2018). "Capacity Building in Research, Education, and Practice for High-Performance Energy-Efficient Buildings and Houses: A Case Study of Pakistan." *Proceedings of the 6th International Conference on Capacity Building for National Sustainable Development (CBNSD 2018)*, Nairobi, Kenya, August 29-31.
13. Azhar, S.; Ahmed, K.; and **Salman, A. (25%)** (2018). "Development, Testing, and Life Cycle Cost Analysis of Energy Efficient Designs for Typical Single Family Detached Houses in Pakistan." *Proceedings of the First International Conference on High Performance Energy Efficient Buildings and Homes (HPEEBH 2018)*, Lahore, Pakistan, August 1-2.
14. Lauterbach, E.M.; Azhar, S.; and **Salman, A. (20%)** (2017). "A Comparison of Paid vs. Free Weather Services for Site Specific Weather Forecasts for Construction Projects." *Proceedings of the 8th Engineering, Project, and Production Management Conference (EPPM 2017)*, Amman, Jordan, September 19-21. [\[Download\]](#)
15. Crews, E.; Azhar, S.; and **Salman, A. (15%)** (2017). "Are LEED Certified Buildings Better in Performance? A Comparison of LEED & Non-LEED Certified Institutional Buildings." *Proceedings of the 3rd West Africa Built Environment Conf.*, Accra, Ghana, August 16-18.
16. Azhar, S., **Salman, A. (33%)**, and Choudhry, R.A. (2014), "Establishing a Center of Excellence to Promote Construction Safety Research, Education and Training in Pakistan." *Proceedings of the W55/65/89/92/96/102/117 & TG72/81/83 International Conference on Construction in a Changing World*, Kandalama, Sri Lanka, May 4-7.

Peer Reviewed Abstracts/Posters

1. Azhar, S.; Shao, G.; and **Salman, A. (20%)** (2021). "Experimental Investigation to Measure Improvements in Students' Comprehension in Building Structures using Augmented and Mixed Reality Applications." *Auburn University Faculty Research Symposium*, January 2021 (Virtual).
2. **Salman, A.** (2019). "Creating Virtual Reality Models for BSCI 3440: Structure of Buildings-II to Improve Conceptual Clarity of Architecture and Building Science Students." *Auburn University Faculty Research Symposium*, October 4.

3.3 Research Grants

Project	My Role	Other Contributors	Funding Agency	Amount	Duration /Status
Teaching Precast Concrete Construction via Collaborative and Experiential Learning using Studio Environment in a Structures Classroom	PI	Il Kim	Precast Institute Foundation (PCI Foundation)	\$100,000	2023-2027
Gulf Scholar Program: Preparing The Next Generation to Address Critical Challenges of the Gulf of Mexico Region	Co-PI	1. Rebecca Retzlaff 2. Natalia Ruiz-Junco 3. Christopher Anderson 4. Jose Vasconcelos	National Academies of Sciences, Engineering, and Medicine	\$575,000	2023-2027
An Experimental Investigation to Measure Improvements in Students' Comprehension in Building Structures Using Augmented and Mixed Reality Applications (Phase 2)	Co-PI	Salman Azhar (PI), Justin Miller (Co-PI)	McWhorter Fund for Excellence, CADC	\$7,500	Dec. 2019 - Apr. 2021 / Complete
An Experimental Investigation to Measure Improvements in Students' Comprehension in Building Structures Using Augmented and Mixed Reality Applications (Phase 1)	PI	Salman Azhar (Co-PI)	Breeden Grant, Biggio Center, Auburn University	\$2,500	Nov. 2019 - Dec. 2020 / Complete
Developing Case Studies of State-of-the-Art Buildings in China for Use as a Teaching Tool in Structures of Buildings-I & II Courses	PI	Mark Tatum (Co-PI)	Office of International Programs, Auburn University	\$5,000	Dec. 2018 – Sep. 2019 / Complete
Creating Virtual Reality Models for BSCI 3440: Structures of Building-II to Improve Conceptual Clarity of Architecture and Building Science Students	PI	Mary English (Co-PI)	McWhorter Fund for Excellence, CADC	\$5,000	Oct. 2018 – Jul. 2019 / Complete

Introducing Building Science and Architecture Students to Experimental Research via Designing and Testing Tall Building Prototypes under Lateral Loads	PI	Salman Azhar (Co-PI)	Office of Undergraduate Research, Auburn University	\$3,500	Jun. 2018 – May 2019 / Complete
Utilization of Artificial Intelligence (AI) to Monitor Construction Safety	PI	Anoop Sattineni (Co-PI)	Center for Construction Innovation and Collaboration	\$13,746	Feb. 2020 - Jan. 2021 / Complete

3.4 Education and Personal Development to Reinforce Research Skills

- Participated in *ARCOM Workshop for Doctoral Students: Rethinking Construction Management Research Methods in Disruptive Times*, April 23, 2021 (Virtual).
- Participated in *Proposal and Grant Writing Workshops*, CADC, Fall 2018 and 2020.
- Completed following graduate courses (as part of Ph.D. and Master coursework):
 - ERMA 7210: Theory and Methodology of Qualitative Research (3), Fall 2021.
 - BSCI 8070: Advanced Research Methods in Building Science-II (3), Spring 2021.
 - BSCI 8060: Advanced Research Methods in Building Science-I (3), Fall 2020.
 - POLI 7520: Program Evaluation (3), Spring 2013.
 - CPLN 7240: Quantitative Methods for Planning Research (3), Spring 2012.

4. Service

Reviewer (Journal/Conference/Book)

- Book reviewer, *Understanding Construction Drawings* by Mark Huth, 7th Ed, Cengage Learning, August 2020.
- Reviewer, *Journal of Construction and Building Materials*, Elsevier, March 2021 – to date.
- Reviewer, *Journal of Architecture Engineering*, ASCE, June 2020 – to date.
- Paper and poster reviewer, *Annual Associated Schools of Construction International Conference*, January 2019 – to date.
- Reviewer, *Construction in the 21st Century (CITC) International Conference*, March 2019 – to date.

Conference Session Chair/Moderator

- Session Chair, *12th International Conference on Engineering, Project, and Production Management (EPPM2022)*, Athens, Greece, 12-14 October 2022.
- Session Chair, *19th International Conference on Construction Applications of Virtual Reality (CONVR 2019)*, Bangkok, Thailand, November 13-15, 2019.
- Session Chair, *55th Annual Associated School of Construction International Conference (ASC 2019)*, Denver, CO, April 10-13, 2019.
- Session Chair, *1st International Conference on High Performance Energy Efficient Buildings & Homes (HPEEBH 2018)*, Lahore, Pakistan, August 1-2, 2018.

Conference Committees

- Assistant Coordinator, *12th International Conference on Construction in the 21st Century (CITC-12)*, Amman, Jordan, March 7-10, 2022.

- Coordinator, *1st International Conference on High Performance Energy Efficient Buildings & Homes* (HPEEBH 2018), Lahore, Pakistan, August 1-2, 2018.

Professional Committees

- Member, Research Committee, Associated Schools of Construction (ASC), April 2019 – to date.

Community Service

- Student Advisor, Pakistan Student Association (PSA) at Auburn University
- Mentor, First Year Experience (FYE) Program for International Students, Auburn University, August 2020 to date.
- Volunteer, AuburnNext® (Youth Organization for Auburn Kids for Community Service), August 2019 to date.
- Coach, Alabama State Bridge Competition for 5th Graders, Pick Elementary, Spring 2019.

5. Honors & Awards

- **Dylan Thomas Memorial Scholarship, CMAA (South Atlantic Chapter), August 2021**
Received prestigious CMAA's Dylan Thomas Memorial Scholarship for exhibiting exemplary academic performance, professional work in the AEC industry, and community service. Scholarship amount: \$5,000.
- **AGC Robert L. Bowen Industry Residency, May 2021**
The AGC industry residencies are created through partnerships between an educational institution, an AGC contractor, and the AGC Education and Research Foundation. Each recipient spends several weeks on site with the intent of gaining field experience to enhance teaching and research. AGC annually awards four residencies to early and mid-career faculty members. Since its inception in 2011, I am the only PhD student who received this prestigious award. I worked with Bailey-Harris Construction on *Auburn Culinary Science Center project* from May-July, 2021. Funding amount: \$24,288. [\[Link\]](#)
- **AGC Heffner Graduate Scholarship, March 2021**
AGC annually awards seven scholarships to graduate students based on applicants' academic records, extracurricular activities, and employment experience. In 2021, I am the only graduate student from the State of Alabama who received this prestigious scholarship. Scholarship amount: \$3,750 per year for 3 years. [\[Link\]](#)
- **Auburn University Presidential Graduate Research Fellowship, August 2020**
Auburn University annually awards 33 prestigious fellowships to graduate students who intend to pursue doctoral degree in emerging areas. Fellowship award: \$15,000 per year for 3 years.
- **Runner-up for Best Paper Award, EPPM Conference, September 2017**
Lauterbach, E.M.; Azhar, S.; and **Salman, A.** (2017). Paper Title: A Comparison of Paid vs. Free Weather Services for Site Specific Weather Forecasts for Construction Projects. *8th Engineering, Project, and Production Management Conference (EPPM 2017)*, Amman, Jordan, September 19-21.

6. Professional Memberships/Registration

- Member, American Planning Association, December 2013 – to date.
- Student Member, Construction Management Association of America (CMAA), April 2021 – to date.
- Student Member, Associated General Contractors of America (AGC), August 2021 – to date.
- Registered Architect, Pakistan Council of Architects and Town Planners, January 2008 – to date.