Omobolanle Ogunseiju

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RESEARCH INTERESTS

Leveraging emerging technologies (e.g., sensors, augmented and virtual reality, and robotics) and computational tools (e.g., machine learning and computer vision) to develop innovative solutions to attain sustainable construction projects and develop the future workforce.

EDUCATION

2019 – 2022   **Ph.D. in Environmental Design and Planning**
Building Construction,
Myers Lawson School of Construction,
Virginia Polytechnic Institute and State University, Blacksburg, VA

2017 – 2019   **Master of Science** in Quantity Surveying (Estimating)
Obafemi Awolowo University, Nigeria

2009 – 2014   **Bachelor of Science** in Quantity Surveying (Estimating)
Obafemi Awolowo University, Nigeria

ACADEMIC EXPERIENCE

2022– Present   Assistant Professor
School of Building Construction,
College of Design,
Georgia Institute of Technology, Atlanta, GA

2019 – 2022   Research Assistant
Department of Building Construction,
Myers Lawson School of Construction,
Virginia Polytechnic Institute and State University, Blacksburg, VA

2019 – 2022   Teaching Assistant
Department of Building Construction,
Myers Lawson School of Construction,
Virginia Polytechnic Institute and State University, Blacksburg, VA

INDUSTRIAL EXPERIENCE

February- May 2019   Construction Estimator/ Quantity Surveyor - Rodger Young Ltd, Nigeria.
- **Duties:** Preparation of project estimates, material schedule, and market price analysis; Cost control for building construction projects; Supervision of work done on site; Procurement of sub-contractors for ongoing projects; Preparation of sub-contractors' contracts.

2015   Construction Estimator/ Quantity Surveyor - Lee Fakino Nigeria Ltd, Nigeria.

- **Duties:** Preparation of bids under strict deadlines and little supervision; Mentoring Interns quantity take-off and estimating; Conducting work measurements on construction sites.

REFEREED JOURNAL

2020   Akanmu, A. A., Olayiwola, J., **Ogunseiju, O**., & McFeeters, D. (2020). Cyber-physical postural training system for construction workers. *Automation in Construction*, 117, 103272.

2021   **Ogunseiju, O**., Olayiwola, J., Akanmu, A., & Olatunji, O. A. (2021). Evaluation of postural-assist exoskeleton for manual material handling. *Engineering, Construction, and Architectural Management*. Vol. ahead-of-print No. ahead-of-print.

2021   **Ogunseiju, O. R**., Olayiwola, J., Akanmu, A. A., & Nnaji, C. (2021). Digital twin-driven framework for improving self-management of ergonomic risks. *Smart and Sustainable Built Environment*. Vol. ahead-of-print No. ahead-of-print.

2021   **Ogunseiju, O. R**., Olayiwola, J., Akanmu, A. A., & Nnaji, C. (2021). Recognition of workers' actions from time-series signal images using deep convolutional neural network. *Smart and Sustainable Built Environment*. Vol. ahead-of-print No. ahead-of-print. (Special issue of 20th International Conference on Construction Applications of Virtual Reality)

2021   Akanmu, A. A., Anumba, C., & **Ogunseiju, O**., Towards next-generation cyber-physical systems and digital twins for construction. *Journal of Information Technology in Construction (ITcon)*. Vol. 26, Special issue Next Generation ICT - How distant is ubiquitous computing?, pg. 505-525.

2021   **Ogunseiju, O**., Akanmu, A., & Bairaktarova, D. Mixed Reality-based Environment for Learning Sensing Technology Applications in Construction. Journal of Information Technology in Construction (ITcon). Vol.26, Construction 4.0: Established and Emerging Digital Technologies within the Construction Industry (ConVR 2020), pg. 863-885.

2021   Gonsalves, N., **Ogunseiju, O.**, Akanmu, A. A., & Nnaji, C. Assessment of a passive wearable robot for reducing low back disorders during rebar work. Journal of Information Technology in Construction (ITcon) Vol.26, Construction 4.0: Established and Emerging Digital Technologies within the Construction Industry (ConVR 2020), pg. 936-952.

2022   **Ogunseiju, O**., Akanmu, A., Bowman, D., & Jazizadeh, F. "Mixed reality environment for learning sensing technology applications in Construction: A usability study." Advanced Engineering Informatics 53 (2022): 101637.

REFEREED CONFERENCE PROCEEDINGS

2020   **Ogunseiju, O**., Akanmu, A., & Bairaktarova, D. (2020, January). Holographic Learning Environment for Bridging the Technical Skill Gap of the Future Smart Construction Engineering Students. In *Enabling the Development and Implementation of Digital Twins: Proceedings of the 20th International Conference on Construction Applications of Virtual Reality*, N. Dawood, F. Rahimian, S. Seyedzadeh, & M. Sheikhkhoshkar (Eds.), Middlesbrough, UK: Teesside University Press, 151-162.

2020   **Ogunseiju, O**., Akanmu, A., & Bairaktarova, D. (2020, January). Digital twin-driven musculoskeletal injury prevention system. In *Enabling the Development and Implementation of Digital Twins: Proceedings of the 20th International Conference on Construction Applications of Virtual Reality*, N. Dawood, F. Rahimian, S. Seyedzadeh, & M. Sheikhkhoshkar (Eds.), Middlesbrough, UK: Teesside University Press, 139-150.

2021   Gonsalves, N., **Ogunseiju, O**., Akanmu, A., & Nnaji, C. (2021). Influence of a Back-Support Exoskeleton on Physical Demands of Rebar Work. *EPiC Series in Built Environment*, 2, 1-9.

2021	**Ogunseiju, O**., Akanmu, A., & Bairaktarova, D. (2021). Sensing Technologies in Construction Engineering and Management Programs: A Comparison of Industry Expectations and Faculty Perceptions. *EPiC Series in Built Environment*, *2*, 505-513.
2021	**Ogunseiju, O**., Gonsalves, N., Akanmu, A., & Nnaji, C. (2021). Subjective Evaluation of Passive Back-Support Exoskeleton for Flooring Work. *EPiC Series in Built Environment*, *2*, 10-17.
2021	**Ogunseiju, O**., Akanmu, A., Bowman, D., & Jazizadeh, F. (2021). Assessment of Holographic Environment for Learning Sensing Technologies in CEM Education. *2021 ASCE International Conference on Computing in Civil Engineering (i3CE 2021).* 12-14 September 2021, Orlando, Florida.
2021	**Ogunseiju. O.,** Gonsalves, N. & Akanmu, A. Automated Detection of Learning Stages and Interaction Difficulty from Eye-Tracking Data within Mixed Reality Learning Environment. *21st International Conference on Construction Applications of Virtual Reality,* 08-10 December 2021, Middlesbrough, UK.
2021	Gonsalves, N., **Ogunseiju. O.** & Akanmu, A. Activity Recognition from Trunk Muscle Activation for Wearable and Non-Wearable Robot Conditions. *21st International Conference on Construction Applications of Virtual Reality,* 08-10 December 2021, Middlesbrough, UK.
2022	Akanmu, A., Akligo, V., **Ogunseiju. O.,** Lee, S., & Murzi., H. Data Analytics and Computational Thinking in Construction Engineering and Management Education: A Conceptual System. *2022 ASCE Construction Research Congress (CRC) 2022.* 9-12 March 2022, Arlington, Virginia.
2022	Gonsalves, N. J., M. Khalid, A. Akinniyi, O. Ogunseiju, and A. Akanmu. "Subjective Evaluation of Passive Back-Support Wearable Robot for Simulated Rebar Work." 2022 39th International Symposium on Automation and Robotics in Construction (ISARC 2022), Bogota, Columbia.

BOOK CHAPTER

2022	Okpala I., Nnaji C., **Ogunseiju O.**, Akanmu A. (2022). Assessing the Role of Wearable Robotics in the Construction Industry: Potential Safety Benefits, Opportunities, and Implementation Barriers. In: Jebelli H., Habibnezhad M., Shayesteh S., Asadi S., Lee S. (eds) *Automation and Robotics in the Architecture, Engineering, and Construction Industry.* Springer, Cham.

RESEARCH REPORTS

2020-2022	IUSE: Impact of Interactive Holographic Scenes in Learning Applications of Data Sensing and Modeling". National Science Foundation (Award #: IUSE – 1916521).
	• Prepared reports on the results and findings of the ongoing research.

POSTER PRESENTATION

2020	**Ogunseiju, O.,** Olayiwola, J., Akanmu, A., & Olatunji, O. A. (2020). *"Effects of Postural-Support Exoskeleton Use for Construction Work".* Poster presentation at Construction Research Congress 2020: Safety, Workforce, and Education, pp. 509-519. Reston, VA: (March 8-10, 2020).

TEACHING EXPERIENCE

Georgia Tech – Instructor (2022-Present)
Undergraduate level
BC 3600 - Construction Cost Management
The course introduces students to cost principles and cost analysis of construction projects, including classification of work, quantity survey techniques, construction operation costs, and bid proposals. At the end of the course, students will be able to prepare approximate cost estimates; explain the construction bidding process from the bidder's or estimator's perspective and be able to identify the various documents of the construction bid package; explain different project delivery methods; apply cost management techniques to construction projects; and use Bluebeam software for effective communication, document management, and quantity takeoffs.

Virginia Tech – Teaching Assistant (2019-2022)
Undergraduate level
CEM 3154 - Smart Construction
This course exposes students to the inefficiencies associated with the traditional approaches to construction and the intelligence requirements of the building lifecycle. This course aims to develop undergraduate students' understanding of smart planning, design, and contracting practices, enabling technologies, and strategies for involving downstream stakeholders in the design of buildings for constructability and maintainability. The course also provides students with hands-on experience with the implementation of digital infrastructure in enhancing the productivity and safety of construction projects.

- **Duties:** Conducting lab sessions and grading students' labs, homework, and exams; Supervising students' use of various sensing technologies for smart construction class; Teaching students data processing with machine learning algorithms; Preparing manuals and lecture notes for teaching sensing technologies like laser scanners, Global Positioning System, and Electroencephalogram; Grading of students' assignment and exams.

BC 3114 - Building Systems Technology
This course emphasizes the physical installation and integration of passive and active environmental control systems including heating, ventilation, air conditioning, lighting, acoustics, and plumbing.

- **Duties:** Conduct lab sessions on water supply systems design, drain systems, fan coil units plan reading, heating, ventilating, and air conditioning systems design and electrical systems design; Grade students' labs, homework, and exams.

Graduate level
CNST 5034 - Wireless Sensing in Construction Management
This course introduces students to the concepts, approaches, and implementation issues associated with data acquisition in the construction industry. The course equips students with hands-on technical capabilities of various sensing and modeling technologies. Students also have the opportunity to use utilize machine learning techniques to model the sensor data.

- **Duties:** Demonstrating the use of various sensing technologies; Preparing manuals and lecture notes for teaching sensing technologies like **laser scanners**, GPS, and Electroencephalography; Grading students' assignments and exams for smart construction.

GUEST LECTURE – Virginia Tech
ARCH4164/5064 – Computer application design & Topics in Computer application design

- Supervision and coordination of students in ARCH4164/5064 class, on using and processing **laser scans**.

APPLICATIONS USED
BlueBeam, Primavera P6, Autodesk Revit, Autodesk Naviswork, AutoCAD, Autodesk Recap, Faro Scene, Trimble Realworks, SAS, Minitab, SPSS, Microsoft Projects, and Unity 3D.

PROGRAMMING LANGUAGES
Python, R, and MATLAB

PROFESSIONAL AFFILIATION/ CERTIFICATION
- Future Professoriate Certificate, *Graduate Certificate Program, Virginia Tech,* 2021
- Construction Manager in Training (CMIT), *Construction Management Association of America,* 2020
- Construction Project Management, *Royal Institute of Chartered Surveyors (RICS) certified* 2017
- Student member, Center for Human-Computer-Interaction (CHCI), Virginia Tech.
- Member, Building Women in Construction (BWIC), Virginia Tech.

UNIVERSITY SERVICE
2022 – Present   Member of the Diversity and Inclusion Council, at the College of Design, Georgia Tech. The DEI committee aims at creating an equitable and inclusive community; recruiting, retaining, and developing a diverse community; and supporting innovative and inclusive scholarship and teaching.

2020 – 2022   Diversity, Equity, and inclusion (DEI) committee, Myers Lawson School of construction. The DEI committee aims at building a welcoming environment, increasing representational diversity, and integrating DEI into the academic curriculum.
- **Duties:** I was actively involved in brainstorming DEI ideas and implementation techniques. To promote awareness of DEI, I am actively involved in the development of a rich website that consistently features their recent accomplishments and current DEI trends. In the last semester, I worked on developing and analyzing surveys for assessing students' perceptions of inclusion and procuring students' DEI stories.

PROFESSIONAL SERVICE
Journal paper Reviewer
2021 – Present Journal of Information Technology in Construction
2021 – Present Journal of Smart and Sustainable Built Environment
2022 – Present Journal of Engineering, Construction and Architectural Management
2022 – Present Journal of Applied Sciences

Conference paper Reviewer
2021   Construction Research Congress (CRC) 2022

OUTREACH/ COMMUNITY SERVICE
2019   'Mission Tomorrow' Career Exploration, Richmond, VA| October 23-24, 2019. **Mission Tomorrow is** an interactive career exploration event for students, held every year in Richmond designed to expose 12,000 8th graders (from across the Richmond School District) to career options in engineering and answer parent questions about our programs. This event includes students from underrepresented groups.
- **Duty:** I demonstrated the potential of cameras, computer vision, and mixed reality in the construction industry to the students. During this event, students had the opportunity

of interacting with the augmented objects in mixed reality and imagine applications that will excite them about science and engineering.

2019   'Serve our city', The Bridge Church, Christiansburg, VA| September 29, 2019
- **Duty:** Constructed wood house frame for the Bridge Church rehabilitation center.

2020   'Future women in construction' program for High school women from Buchanan County, VA at the Myers Lawson school of construction, Virginia Tech, VA| February 13, 2020.
- **Duty:** I provided high school women with several hands-on learning modules including computer vision, virtual reality, and augmented reality.

2021   'STEM design challenge competition'. March 24, 2021.
- Duty: Judge for the 2021 annual STEM design challenge competition between K-12 students of Crittenden Middle School.

2021   'Engineering Open House Lab Tour' Virginia Tech, VA| April 2, 2021.
- **Duty:** Demonstration of holographic scenes for learning sensing technologies to prospective students at Virginia Tech specifically high school juniors and seniors and transfer students who have been offered admission to Virginia Tech for Fall 2021 and their family members.

2021   '2021 Center for Human-Computer Interaction (CHCI) Student Symposium', Virginia Tech, VA| May 6, 2021
- **Duty:** Demonstration of holographic scenes for learning sensing technologies to student and faculty members of the Center for Human-Computer Interaction.

2021   'Homecoming Tailgate', Myers Lawson school of construction, Virginia Tech, VA| October 16, 2021.
- **Duty:** Experiential demonstration of smart construction for alumni and their families.

MENTORSHIP SERVICE
2019 – 2022   Wearable Robots research.
- Mentoring master's students on experimental design, data collection, data analysis, conferences, and journal paper writing.

2019 - 2022   Student mentoring.
- Conducting one-on-one meetings with students to resolve challenges encountered in the taught courses.

HONORS AND AWARDS
2015   Overall best graduating student in advance cost control | *Francis Oluwole Adetola Prize* | 2015, Obafemi Awolowo University, Nigeria.

2015   Overall best graduating student in professional practice | *Consol Associate Prize* | 2015, Obafemi Awolowo University, Nigeria.

2022   Outstanding Doctoral Student in the College of Architecture and Urban Studies | 2022, Virginia Tech, USA.

2022   Outstanding Doctoral Student of Building Construction department | 2022, Virginia Tech, USA.