Viviana Dos Santos

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Education

Ph.D. Industrial Engineering 08/2021 – 12/2025

Safety, Human Factors and Resilience Engineering (SHARE) Lab, Texas Tech University, Lubbock, Texas, United States.

Dissertation: Improving situation awareness (SA) and performance: The role of the three levels of SA and SA-oriented interventions to drive effective Emergency Response.

Faculty Advisor: Dr. Changwon Son.

M.Sc. Systems Engineering 03/2016 – 03/2018

Federal University of Rio Grande do Norte (UFRN), Natal, Rio Grande do Norte, Brazil.

Thesis: A Framework to Assess Organizational Resilience in the Context of Risks and Disaster Management: A Study Applied in Protection and Civil Defense Agencies in Brazil.

Faculty Advisors: Dr. Ricardo José Matos de Carvalho; Dr. Paulo Victor Rodrigues de Carvalho.

Specialist in Safety Engineering 08/2018-08/2019

Candido Mendes University, Rio de Janeiro, Brazil.

Monograph: Analysis of Occupational Risks in a Chemical Industry

Faculty Advisors: Dr. Roger Valentim Abdala.

B.Sc., Systems Engineering 03/2010-05/2015

Federal University of Sergipe, Brazil

Monograph: Analysis of Risk Factors Associated with Work-Related Musculoskeletal Disorders and Repetitive Injuries in an Industry

Faculty Advisors: Dr. Luciano Fernandes Monteiro.

Academic Positions

Postdoctoral Scholar

Resilient Infrastructure & Disaster Response – RIDER Center, 02 /2026 – Present
Florida State University (FSU), Tallahassee, FL.

- Conducting human subjects research using VR simulations and translating findings into applied safety solutions across emergency response and transportation systems to improve performance, reduce workload, and enhance safety in high-risk operations.
- Enhanced writing and communication skills through grant proposals and scientific papers, and providing oral presentations to diverse audiences.
- Leader of two research projects and mentoring two graduate students on virtual reality scenario development and Human Factors Research, with organizational skills to meet project guidelines.

Researcher and Teaching Assistant

SHARE Lab, Texas Tech University, Texas, United States. 08/2021- 12/2025

- Ability to quickly assess complex situations by demonstrated proficiency in conducting human subjects experiments, reviewing scientific literature, and using advanced virtual reality and simulation technologies to drive innovation in human factors engineering.
- Teaching experience, by participating in course development and assisting with lectures and lab sessions for the courses Advanced Cognitive Engineering, Engineering Design for People, and Applied Industrial Ergonomics.
- Cultivated leadership and interpersonal skills through coordinating team tasks, mentoring 6 undergraduate students, and serving as Web Content Chair of the HFE Women Group and Secretary of the HFES Student Chapter at Texas Tech.

Assistant Professor

Federal Rural University of Semi-Arid – UFERSA, Mossoro, Brazil. 03/2018-02/2020

- Mentored 9 undergraduates in occupational safety research projects, combining expertise in quality engineering systems with effective verbal communication skills to guide publication of 3 conference papers at national venues.
- Developed innovative curricula for safety and quality engineering classes, applying deep knowledge of Safety and Quality Engineering while utilizing strategic planning skills to enhance learning outcomes across 6 student projects.
- Bridged theory and practice by leading ergonomics assessment initiatives in different industries, leveraging specialized safety management systems knowledge alongside project management skills to deliver measurable student research impacts.

Industry Experience

Safety Engineering Consultant - Freelance

Transbet Logistics and Transportation. Mossoro, Brazil. 03/2019-02/2020

- Optimized logistics safety protocols by mapping and redesigning occupational health and safety (OSH) processes, applying specialized knowledge of Business Process Model and Notation (BPMN), and integrating quality and safety management principles to eliminate rework.
- Bridged departmental gaps between management and safety teams through effective stakeholder facilitation, leveraging quality improvement methodologies to enhance organizational safety culture and compliance standards.
- Redesigned critical safety workflows through a collaborative safety approach, implementing knowledge of safety management systems and combining technical expertise in process risk analysis with project coordination skills to meet deadlines.

Awards

- 2024, HFES Student Member with Honors – Human Factors and Ergonomics Society.
- 2023, Graduate Student Research and Presentation Travel Award, Graduate School, Texas Tech.
- 2022, HFES Travel Award, Human Factors and Ergonomics Society.
- 2020, IEA Kingfar Award, for Student Research in Human Factors and Ergonomics Issues in Industrially Developing Countries, International Ergonomics Association.

Publications

Referred Journal Articles

[1] **Dos Santos, V.M**. & Son, C.(2024). Identifying Firefighters' Situation Awareness Requirements for Fire- and Non-Fire Emergencies Using a Goal-Directed Task Analysis. *Applied Ergonomics*. 114, 104136. https://doi.org/10.1016/j.apergo.2023.104136.

[2] **Dos Santos, V**.; Carvalho, R.J.M; Carvalho, P.V.R. (2020). Roadmap for the development of a resilience indicator system for protection and civil defense organizations: A literature review of the evidence. *Work*, v.66, p. 58- 601. https://doi.org/10.3233/WOR-203201.

[3] **Dos Santos, V**.; Carvalho, R. J. M.; Carvalho, P. V. R.; Grecco, C. H. S. A fuzzy model to assess the resilience of Protection and Civil Defense Organizations (2019). *Quality & Quantity*, v.1, p.1 - 25. https://doi.org/10.1007/s11135-019-00953-y.

Manuscripts under review

[1] **Dos Santos, V. M**.; Greenlee, E.; Son, C. Situation Awareness (SA) Oriented Interventions to Improve SA and Performance, and Reduce Workload in a Simulated Firefighting Task. *Applied Ergonomics.*

International Conference Proceedings

[1] **Dos Santos, V. M**., & Son, C. (2023). Modern Firefighters' Three-Level Situation Awareness in Fire and Non-Fire Incidents. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 67(1), 2335-2337. https://doi.org/10.1177/21695067231192647.

[2] **Dos Santos, V. M**. & Son, C. (2022). Virtual Reality Simulation for Emergency Management Teams – A Literature Review. Proceedings of the 66th Human Factors and Ergonomics Society Annual Meeting, 66(1), 1937–1941. https://doi.org/10.1177/1071181322661324.

[3] Monteiro, L. F.; Santos, J. W.; Barreto, J. C. M.; **Santos, V. M**.; Franca, V. V.; Alsina, O. L. S. Biomechanical analysis of manual baggage transport activity at a Brazilian airport. Proceedings International Symposium on Occupational Safety and Hygiene, Guimarães. 2016.

International Conferences Presentations

[1] **Dos Santos**, **V. M**., & Son, C. Investigating the Effects of Information-based Interventions on Firefighters' Situation Awareness, Performance, and Workload. Poster presentation at the 2025 Human Factors and Ergonomics Society Annual Meeting, Chicago, IL.

[2] **Dos Santos**, **V. M**., & Son, C. Modern Firefighters' Three-Level Situation Awareness in Fire and Non-Fire Incidents. Poster presentation at the 2023 Human Factors and Ergonomics Society Annual Meeting, Washington, DC.

[3] **Dos Santos**, **V**. **M**. & Son. Eliciting Firefighters' Situation Awareness Requirements for Fire and Non-fire Emergencies Using a Goal-Directed Task Analysis. Lecturer presentation at the 2023 Houston HFES Symposium, Houston, TX.

[4] **Dos Santos**, **V**. **M**. & Son, C. Virtual Reality Simulation for Emergency Management Teams, a Literature Review. Lecturer presentation at the 2022 Human Factors and Ergonomics Society Annual Meeting, Atlanta, GA.

[5] **Dos Santos**, **V**. **M**., De Carvalho, P. V. R., Burns, C., Vidal, M. C. R., Son, C., & Jatoba, A. (2022, March). A Framework to Assess Resilience in Health Care Patient Prioritization. Poster presentation at the 2022 International Symposium on Human Factors and Ergonomics in Health Care, New Orleans, LA.

Book Chapters

[1] Monteiro, L. F.; Santos, J. W.; Franca, V. V.; **Santos, V. M.**; Alsina, O. L. S. Measurement of physical overload in the lumbar spine of baggage handlers at a Brazilian airport. In: Occupational Safety and Hygiene V.5 ed. London: CRC Press, Taylor & Francis Group, 2017, v.1, p. 87-92.

[2] Monteiro, L; Santos, J; **Santos, V**; Franca, V; Alsina, O. Analysis of overload in the musculoskeletal system of women developing repetitive tasks in fluid filling process in chemical industry In: Occupational Safety and Hygiene IV. 4 ed.: CRC Press, 2016, v. 1, p. 29-33.

Brazilian Conference Proceedings

[1] Queiroz, N. C. S. M.; **Santos, V. M**. Ergonomic diagnosis of ice packaging, transport, and stacking activities in a small business. Proceedings of the XX Brazilian Congress on Ergonomics – 20th ABERGO. 2020.

[2] Silva, R. F. S.; Mota, W. M.; **Santos, V. M**.; Nunes, J.D.C. Ergonomic diagnosis of the activity of transporting bags in a building materials company. Proceedings of National Meeting of Production Engineering - ENEGEP, 2019, Santos, SP. 2019.

[3] Oliveira, R. B.; **Santos, V. M**.; Nunes, J.D.C. Quality evaluation of the service provided by the Production Engineering course of a higher education institution: an application of SERVQUAL. Proceedings of National Meeting of Production Engineering - ENEGEP, 2019, Santos, SP. 2019.

[4] Monteiro, L. F.; Santos, J. W.; **Santos, V. M**.; Alsina, O. L. S.; Barreto, J. C. M. Investigation of Low Back Risk Factors Associated with Manual Baggage Handling at Aracaju Airport. Proceedings of the XVIII Brazilian Congress on Ergonomics – XVIII ABERGO. Belo Horizonte. 2016.

[5] **Santos, V. M**.; Santos, J. W.; Monteiro, L. F.; Alsina, O. L. S. Application of the Nordic musculoskeletal questionnaire to estimate the prevalence of work-related musculoskeletal disorders in female workers under temporal pressure. Proceedings of National Meeting of Production Engineering – ENEGEP. Fortaleza. 2015.

[6] Santos, J. W.; **Santos, V. M**.; Gomes, K. T. S.; Monteiro, L. F.; Alsina, O. L. S. Measurement and analysis of environmental working conditions in a small industry. Proceedings of National Meeting of Production Engineering – ENEGEP. Fortaleza. 2015.

[7] **Santos, V. M**.; Gois, J. V. N.; Melo, F. M.; Barreto, M. N.; Santos, Y. L. Analysis and structuring of a software company's innovative capacity according to the NUGIN methodology. Proceedings of National Meeting of Production Engineering – ENEGEP. Curitiba, 2014.

[8] Santos, J. W.; **Santos, V. M**.; Gomes, K. T. S.; Serafim, S. F. P.; Monteiro, L. F. Valuation of the perception and satisfaction of users of urban public transport, in terms of quality in services provided by a road company: a case study using the SERVQUAL instrument Salvador. Proceedings of National Meeting of Production Engineering – ENEGEP. Salvador, 2013.

Undergraduate Research Supervision

- (2019) Ergonomic diagnosis of ice packaging, loading, and stacking activities in a small company. Undergraduate program in Production Engineering. Federal Rural University of Semi-Arid.

- (2019) Analysis of occupational risks in a basic health unit. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2019) Analysis of occupational risks in the activity of workers in a scrap metal company. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid. UFERSA.
- (2019) Quality assessment of services provided by a university's restaurant using the Servqual method. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2018) Analysis of the relationship between the implementation of safety programs and the number of work accidents: a case study in an oil company. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2018) Quality assessment of services provided by a production engineering course in a public university: An application of the SERVQUAL method. Undergraduate program in Production Engineering. Federal Rural University of Semi-Arid.

Undergraduate Research Committee Member

- (2020) A proposal for automation of the quotation process in an e-commerce company. Undergraduate program in Production Engineering. Federal Rural University of Semi-Arid.
- (2020) Use of MASP (Method of Analysis and Problem Solving) in an electronic service provider of urban delivery. Undergraduate program in Production Engineering. Federal University of Semi-Arid.
- (2020) Use of the costing method—Time-Driven Activity-Based Costing—for pricing services in a mechanical workshop. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2019) Analysis of occupational risks in a construction material store. Undergraduate program in Production Engineering. Federal Rural University of Semi-Arid.
- (2019) Conformity assessment of fire protection and firefighting facilities in a building. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2019) Methods Engineering applied to the cutting and welding stage of the plastic packaging production process. Undergraduate Program in Science and Technology.
- (2019) Importance of product portfolio management and the application of management tools for problem-solving in a small restaurant. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2019) Use of Personal Protective Equipment (PPE): a case study in a civil construction company. Undergraduate Program in Science and Technology. Federal Rural University of Semi-Arid.
- (2018) Assessment of occupational risks and personal protective measures used by workers of a garbage collection company. Undergraduate program in Production Engineering. Federal Rural University of Semi-Arid.

Affiliations & Services

- (2024-Present) Web content chair of the HFE Woman affinity group.
- (2022-Present) Student volunteer at the HFES annual meeting.
- (2022-Present) Reviewer HFES Conference Papers.
- (2024-2025) Secretary of the HFES student Chapter, Texas Tech.
- (2022) Demonstrator, virtual reality (VR) simulator at Lubbock High School Science Fair.
- (2019-2021) Reviewer, Brazilian Journal of Production Engineering.
- (2017-2018) Project Assistant, Engineers Without Borders (EWB), Natal, Brazil.

Media Coverage & features

- (2024) Edward E. Whitacre Jr. College of Engineering. Student Member With Honors. URL: https://www.depts.ttu.edu/coe/wcoenews/posts/2024/09/studenthonors.php