

LEONARDO TCHEN HAO HANG WEI, Ph.D.

e-mail: leonardowei@hotmail.com | Google Scholar: [leonardowei](#) | LinkedIn: linkedin.com/in/leonardowei |
Webpage: <https://leonardowei.github.io/> | Phone: (806) 451-0587

Education

Texas Tech University , Lubbock, Texas	Aug 2021 – Dec 2025
Ph.D. in Industrial, Manufacturing, and Systems Engineering (GPA: 3.97)	
Pontifical Catholic University of Rio de Janeiro , RJ, Brazil	Mar 2015 – Dec 2020

Experience

Researcher – TTU IMSE, Lubbock, TX

Project: National Institute for Occupational Safe and Health – Exoskeleton Systems	Jul 2022 – Aug 2025
<ul style="list-style-type: none">Coordinated an exoskeleton project by managing equipment scheduling, liaising with agency representatives, and conducting data collection, ensuring timely project delivery and high-quality experimental outcomesReduced data extraction and processing time by over 10 hours by leveraging expertise in Cortex motion capture systems and signal processing techniques to streamline large-scale data analysisDeveloped construction workstation platforms with Autodesk Inventor and performed finite element analyses to ensure structural compliance and accelerate project approval	

Project: Department of Homeland Security – Firefighter Helmets

	Aug 2021 – Dec 2024
<ul style="list-style-type: none">Prepared comprehensive technical reports outlining project milestones, deliverables, risks, and weekly progress, while developing structured roadmaps to guide planning and cross-team coordinationConducted mechanical testing and design of firefighter and advanced combat helmet components, using SolidWorks, Geomagic, 3D printing, and material characterization to improve helmet performance and durabilityApplied unsupervised learning techniques (k-means and k-medoids), optimization algorithms, and 3D scanner for shape extraction, clustering, and prediction using scikit-learn and SciPySpearheaded a nationwide firefighter survey on helmet use and traumatic brain injury, gathering over 1,800 responses and employing sentiment analysis to extract insights from open-ended feedback	

Biomechanics Researcher – Human Performance and Neuro Engineering Lab, Lubbock, TX

Aug 2021 – Aug 2023

<ul style="list-style-type: none">Managed the lab's website and implemented SEO strategies, including XML sitemaps, SSL certificates, mobile optimization, and interactive features, boosting visitor engagement by 82% and expanding the lab's digital presence and stakeholder outreachCo-wrote a successful \$500K+ research proposal, creating the project timeline, budget, risk assessment, and deliverables. Project title: <i>"Unifying Neuroscience and Biomechanics Paradigms for Modeling Brain and Muscle Responses to Mechanical Impacts"</i>Applied image segmentation techniques to create accurate, simulation-ready geometries from brain MRI and CT scans using Mimics, 3-matic, and MATLAB.	
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Project Engineer Intern – DORIS Group, Rio de Janeiro, Brazil

Jan 2020 – Dec 2020

<ul style="list-style-type: none">Devised a VBA algorithm to automate structural calculations per DNV norms and regulations, cutting computational time by over 5 hours.Created CAD models of risers and floating production, storage, and offloading (FPSO) for pre-launch testing and validationPerformed mechanical fatigue analyses using ANSYS, extending platform lifespan by 3 years and avoiding over 60% in annual losses	
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Intern – Brazilian National Council for Science and Technology, Rio de Janeiro, Brazil

Oct 2018 – Nov 2019

<ul style="list-style-type: none">Cut equipment costs by over \$3000 by manufacturing cost-effective airflow tubes to control flame-oxygen supplyEngineered a torque-efficient well-tractor system, outperforming benchmark mechanisms by 34%	
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Manufacturing Coordinator RioBotz (Robotic Team), Rio de Janeiro, Brazil

Jul 2016 – Sep 2018

<ul style="list-style-type: none">Led end-to-end manufacturing operations, including production planning, supplier management, and maintenance optimization.Built an algorithm to monitor 10+ KPIs, driving a 56% improvement in battery efficiency and overall robot performanceCollaborated with cross-functional teams to optimize robotic system performance across mechanical, electrical, and electronic components	
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Skills

<ul style="list-style-type: none">Software and Instrumentation: SolidWorks, Geomagic, Rhino, ANSYS, ANSA (Beta CAE), LS-DYNA, Autodesk Inventor, Mimics, 3-matic, Excel, motion capture system, 3D scanning (Shining 3D), electromyography (Delsys)Programming Languages: Python, R, MATLAB/Simulink, Visual Basic, HTMLLanguages: English – Fluent / Portuguese – Native / Spanish – Basic	
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Awards

<ul style="list-style-type: none">Gold medal in the Robogames competition in CaliforniaFellowship, Brazilian National Council for Scientific and Technological Development	Apr 2018 Oct 2018
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Main Publications

[1] [An electromyography-based multi-muscle fatigue model to investigate operational task performance](#)
[2] [A Comprehensive Methodological Framework for Anthropometric Head Shape Modeling Using Small Dataset](#)