

# LEONARDO TCHEN HAO HANG WEI, Ph.D.

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## Education

<b>Texas Tech University</b> , Lubbock, Texas	<b>Aug 2021 – Dec 2025</b>
Ph.D. in Industrial, Manufacturing, and Systems Engineering ( <b>GPA: 3.97</b> )	
<b>Pontifical Catholic University of Rio de Janeiro</b> , RJ, Brazil	<b>Mar 2015 – Dec 2020</b>
Bachelor of Science in Mechanical Engineering, CFD specialization	

## Experience

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

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

<b>Biomechanics Researcher – Human Performance and Neuro Engineering Lab</b> , Lubbock, TX	<b>Aug 2021 – Aug 2023</b>
<ul style="list-style-type: none"><li>Managed the lab's website and implemented SEO strategies, including XML sitemaps, SSL certificates, mobile optimization, and interactive features, boosting visitor engagement by <b>82%</b> and expanding the lab's digital presence and stakeholder outreach</li><li>Co-wrote a successful <b>\$500K+</b> 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></li><li>Applied image segmentation techniques to create accurate, simulation-ready geometries from brain MRI and CT scans using <b>Mimics</b>, <b>3-matic</b>, and <b>MATLAB</b>.</li></ul>	

<b>Project Engineer Intern – DORIS Group</b> , Rio de Janeiro, Brazil	<b>Jan 2020 – Dec 2020</b>
<ul style="list-style-type: none"><li>Devised a <b>VBA</b> algorithm to automate structural calculations per DNV norms and regulations, cutting computational time by over <b>5 hours</b>.</li><li>Created CAD models of risers and floating production, storage, and offloading (FPSO) for pre-launch testing and validation</li><li>Performed mechanical fatigue analyses using <b>ANSYS</b>, extending platform lifespan by 3 years and avoiding over <b>60%</b> in annual losses</li></ul>	

<b>Intern – Brazilian National Council for Science and Technology</b> , Rio de Janeiro, Brazil	<b>Oct 2018 – Nov 2019</b>
<ul style="list-style-type: none"><li>Cut equipment costs by over <b>\$3000</b> by manufacturing cost-effective airflow tubes to control flame-oxygen supply</li><li>Engineered a torque-efficient well-tractor system, outperforming benchmark mechanisms by <b>34%</b></li></ul>	

<b>Manufacturing Coordinator RioBotz (Robotic Team)</b> , Rio de Janeiro, Brazil	<b>Jul 2016 – Sep 2018</b>
<ul style="list-style-type: none"><li>Led end-to-end manufacturing operations, including production planning, supplier management, and maintenance optimization.</li><li>Built an algorithm to monitor 10+ KPIs, driving a <b>56%</b> improvement in battery efficiency and overall robot performance</li><li>Collaborated with cross-functional teams to optimize robotic system performance across mechanical, electrical, and electronic components</li></ul>	

## Skills

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

Gold medal in the Robogames competition in California	<b>Apr 2018</b>
Fellowship, Brazilian National Council for Scientific and Technological Development	<b>Oct 2018</b>

## 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](#)