

Leonel Villafranca

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EDUCATION

University of Texas Rio Grande Valley

Edinburg, TX

MS, Mechanical Engineering

3.5/4.0 GPA **May, 2022**

- Thesis: Algorithm optimization to use low-power electronics for onboard train-bearing condition monitoring device

BS, Mechanical Engineering – *Summa Cum Laude*

3.9/4.0 GPA **May, 2020**

- Vice President and Programs Director for the Society of Hispanic Professional Engineers (SHPE)
- Coordinated a donation drive and delivered 30 items for victims of the September 2017 earthquake in Mexico City
- Collected 150 signatures from the local community to have a bike and hike trail built on an abandoned rail trail
- Senior Design Project: Designed and manufactured heat exchangers for a demonstration heat pump unit.

WORK EXPERIENCE

University Transportation Center for Railway Safety

September 2019 – Present

Research Assistant

Edinburg, TX

- Collaborated with two team members to obtain a correlation between bearing and adapter temperature for engineers on the field to obtain train bearing temperatures during operation and determine their integrity
- Correlation predicted bearing temperatures with less than 3.2 °C difference from actual measured values
- Gathered data from 70 experiments using LabVIEW and MATLAB software

Cummins Inc

June – August 2019

Manufacturing Intern

Rocky Mount, NC

- Compiled data from engineering drawings and current processes to create a quality compliance document for engine blocks
- Determined the target depth of the cuts in the machining process for 34 features on engine blocks
- Conducted a screening process to assess the quality of engine blocks subject to a modified heat treatment

University of Texas Rio Grande Valley

January 2018 – May 2019

Academic Tutor

Edinburg, TX

- Academic tutor for the Engineering Materials course in the Mechanical Engineering program
- Prepared small “lectures” to present to student currently enrolled in the course
- Held sessions twice a week to review lecture material with an average of 15 students per session
- Received 5 “thank you” from students who benefited from sessions

CEDRO de Mexico

June – August 2018

Lean Manufacturing Intern

Matamoros, MX

- Conducted daily checks in different assembly lines to identify opportunities for “5S” implementation and improvements in safety, production and work space organization
- Materialized three ideas for tools by CAD modeling and 3-D printing them
- Implemented one corrective action regarding safety, two regarding production and five for organization, ultimately increasing production levels in one assembly line by 40%
- Implemented a priorities system in the Final Inspection line resulting in a more efficient work flow

ATD Mexico

June – August 2017

Production Assistant Intern

Matamoros, MX

- Performed studies of times and motions on workstations by simultaneously tracking down-time of different machines, ultimately reducing down-time by 12 minutes per shift in one assembly line
- Created Pareto diagrams to identify leading factors of down-time and implemented 3 corrective actions accordingly
- Contacted machine providers for instructions on how to assemble nonfunctional mechanical equipment in order to maintain high levels of production

SKILLS & INTERESTS

- Skills:** Matlab, SolidWorks, Finite Element Analysis, Heat Transfer, Native Spanish, Proficient French
- Interests:** traveling, language learning, CFD, Mindhunter (Netflix), hiking, basketball, volunteering, HVAC