

# VERNONIKA MEHKYLE L. CASTANEDA

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*Open to relocation*

## EXECUTIVE SUMMARY

Passionate about earthquake engineering, I am currently seeking internships to enhance my practical skills in seismic-prone regions. Looking forward, I am committed to pursuing a master's program after graduation to deepen my understanding of seismic phenomena and contribute to advancements in earthquake-resistant design and construction practices.

## EDUCATION

### Texas A&M University - Corpus Christi

#### *Bachelor of Science, Civil Engineering*

Current GPA: 3.907/4.0

Relevant coursework: Geotechnical Engineering I, Reinforced Concrete Design, Construction Materials Design, Structural Engineering, Hydraulics and Hydrology, and Project Management

Corpus Christi, TX

*Graduation: Spring 2024*

### Del Mar College

#### *Associate of Science, Mechanical Engineering*

Corpus Christi, TX

*June 2020 - May 2023*

## PROFESSIONAL EXPERIENCE

### National Hazards Engineering Research Infrastructure: Large-Scale Mobile Shakers

Kona, HI and Austin, TX

#### *Undergraduate Research Intern (Publication: <https://doi.org/10.17603/ds2-t4bd-8w49>)*

*June 2023– August 2023*

- Provided field support on post-liquefaction soil investigations on calcareous sediments on three different sites in Kawaihae Harbor.
- Utilized in situ field testing like Spectra-Analysis of Surface Waves (SASW), Cone Penetration Testing (CPT), Down-hole testing (DHT), and Cross-Hole Testing (CHT).
- Analyzed seismic (p- and s-) wave emissions data using MATLAB, analytically identifying wave arrival points following ASTM D4428/D4428M-14 to determine saturation and stiffness in concluding seismic site response.

### Aero-Structural Optimization (ASTRO) Lab at TAMU-CC

Corpus Christi, TX

#### *Research assistant*

*July 2022 – Present*

- Application of earthquake loads into wind-resistant structural design using Finite Element Models (FEM), resulting in an enhanced multi-hazard performance evaluation framework.
- Engineered a 20% performance enhancement in a Python script for Abaqus, facilitating an efficient interface with MATLAB for computational analysis and optimization of sectional properties in simulated bridge designs.

### City of Corpus Christi – Water Utilities Department

Corpus Christi, TX

#### *Engineering Intern*

*October 2022 – June 2023, September 2023 – Current*

- Successfully implemented preventive maintenance by active and inactive manholes and pipes inspection, and GIS data updates.
- Reduced the number of pending work orders by 23% through pipe inspections in WinCan. Rated conditions and recommended appropriate operations and updated the conditions on Maximo.
- Assist Engineers by verifying accuracy and precision of proposed water plans, ensuring submittals comply with the city specifications.

## CERTIFICATION

### CI Research 4 Social Change REU Code-a-thon

*June 2023*

Certified by: Texas Advanced Computing Center and The University of Texas at Austin

## SKILLS

**Software:** MATLAB, Python, Jupyter and Microsoft Office

**Technical and Design:** CHT, CPT, DHT, AutoCAD, Manual Drafting, WinCan, NI Multism, Abaqus, ArcGIS and Autodesk Inventor

**Soft and organization skills:** strong collaboration, communication, and problem-solving skills and show initiative and leadership, detail-oriented, organized, and can effectively handle multiple projects.

**Language:** Tagalog, Bisaya, and English

## COMPETITIONS

### Geowall Competition for the GeoCongress

*2023 – 2024*

- Design and build a model mechanically stabilized earth (MSE) retaining wall using minimal reinforcement, communicate analysis and design processes.

## PROFESSIONAL MEMBERSHIPS

### Society of Advancement of Chicanos and Native Americans in Science (SACNAS)

Corpus Christi, TX

#### *Vice President, TAMU-CC Chapter*

*2022 – Present*

- Promote STEM undergraduate research through verbal and written communication among the student body, creating a professional student and professor/mentor relationships within campus.
- Managing the organization of through Initiating meetings, host workshops, and other student involvement activities to promote active participation.

### Society Of Hispanic Professional Engineers (SHPE)

Corpus Christi, TX

#### *Member, SHPETina(2022), TAMU-CC Chapter*

*2021 – Present*

- Engaged with other members and guests through attending meetings and workshops.
- Promoting female inclusion in STEM programs and communicating with other campus organizations for promoting women in the workforce.

### American Society of Civil Engineers (ASCE)

Corpus Christi, TX

#### *Member, Geo-Institute*

*2023 – Present*

- Engaged in ASCE activities, fostering connections with both student and professional members.