David Adrián Negrete Vela

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EDUCATION

Tecnológico de Monterrey, Mexico **August 17 – June 22**

B.S. Mechanical and Electrical Engineering - GPA: 97.58/100
Valedictorian of the 123rd generation of the School of Engineering and Sciences (1/5000+)
MEP Professional Experience program

RESEARCH EXPERIENCE

Tecnológico de Monterrey/John Deere

Tru-Vee Disk Inductive Sensing Project – Monterrey, NL, Mexico
Advisors: Erick Ramírez, Ph.D. and Hiram Uribe, M.S. | Research Student **February 22 – June 22**

- Contributed algorithm for movement detection and measure disks attrition.
- Implemented sensor holder to be paired with seeding row unit.
- Performed 3D analysis to detect physical interferences between sensor and tru-vee disk.
- Tested out proof of concept to measure wear of tru-vee disk.
- Performed data acquisition via LabView using a deteriorated disk and a new one.

Tecnológico de Monterrey

Industrial fan mechanical status– Monterrey, NL, Mexico
Advisors: Segio Uribe, Ph.D. | Research Student **August 21 – December 21**

- Sorting of datasets samples of fan noise
- Implemented MATLAB program that uses Machine learning algorithm to identify fan noise.
- Collaboration in the development of LSTM network.

Tecnológico de Monterrey/ Ternium

Automated Guided Vehicle roller tag registration– Monterrey, NL, Mexico
Advisor: Adriana Vargas, Ph.D., José Gómez Ph.D. | Research Student **February 20 – June 20**

- Implemented Python program that uses machine learning algorithms to identify tag digits used on the frontal face of steel roller.
- Performed algorithm that could read tag's numbers even at any inclined direction.
- Contributed on 3D mechanical design of AVG.
- Conducted vision tests with real identification tags at different light conditions.

Tecnológico de Monterrey

Hearing aid app– Monterrey, NL, Mexico
Advisor: Leyre Azpilicueta, Ph.D. | Research Student **August 19 – November 19**

- Developed app user-interface using MATLAB.
- Performed signal processing program which uses Fourier Transform to differentiate common sounds (rain, barks, clock alarm, doorbell and car alarm)
- Conducted validation of program with real sounds.

WORK EXPERIENCE

John Deere

Enterprise Technology & Engineering Center – San Pedro, NL, Mexico
Manager: Abraham Martínez, M.S. | Electrical Design Engineer **May 22 – Present**

- Performed harness electrical routings for planters and seeding machines in CREO.
- Executed electrical circuits analysis and designed manufacturing prints for electrical harnesses.
- Worked on continuous improvement (CI) programs which solve production issues and bring new enhancements to planters and seeding machines.
- Generated electrical schematics and circuit diagrams.
- Conducted electrical analysis with different machine configurations.

John Deere internship

Enterprise Technology & Engineering Center – San Pedro, NL, Mexico
Manager: Abraham Martínez, M.S. | Intern **October 20 – May 22**

- Carried out 3D modeling of electrical harnesses.
- Performed brackets design.
- Developed parametrization tool that facilitates modeling of coils in electrical harnesses. Tool is utilized across ETEC organization.

PUBLICATIONS

David Negrete 1 and Arturo Covarrubias 2 3. Tru-Vee Disk Inductive Sensing Project. **Aggregate**, 2022, e. unpublished.

CONFERENCES, FORUMS, COURSES, AND COMPETITIONS

John Deere

Harness Innovation Awards 7th edition (Mexico and India) – Monterrey, NL, Mexico
Advisor: Abraham Martínez, M.S. | Participant **June 21**
Harness Model Parametrization. *Third place.*

University of Colorado Boulder

Excel/VBA for Creative Problem Solving – Boulder, CO, USA
Advisors: Charlie Nuttelman, Ph.D. | Certified **January 21**
Excel/VBA course

Tecnológico de Monterrey

Solidworks – Tecnológico de Monterrey
Advisor: Ricardo Beltrán, B.S. | Certified **January 20**
3D model course CSWP, CSWA-E, CSWA-AM, CSWP-API, CSWP-DT, CSWP-S, CSWP-MBD

HONORS & AWARDS

- Valedictorian of the 123rd generation of the School of Engineering from Tecnológico de Monterrey (2022).
- Honorable Mention of Excellence from Tecnológico de Monterrey (2022).
- Scholarship from Tecnológico de Monterrey (2017 - 2022).
- Outstanding Engineering Student Award from Tecnológico de Monterrey (2019, 2020, 2021 and 2022).
- Third place at "Harness Design Innovation Awards" event in JD (2021).
- Conexión tec XV edition award for participating with AGV project (2020).

EXTRACURRICULAR

Excellence Academic Mentors (MAE) | Mentor **February 19 – January 22**
Non-profit team from Tecnológico de Monterrey that seeks to provide tutoring of STEM topics, looking to improve student performance.

Without Fear of the Current (SMALC) Coordinator **January 19 – June 19**
Coordinate activities of non-profit team that mentors local high school students on electronics and programming topics.

Without Fear of the Current (SMALC) | Mentor **August 18 – December 18**
Non-profit team that mentors local high school students on electronics and programming topics.

SOFTWARE AND SKILLS

Programming – C++, C, VBA, MATLAB, and Python.
Finite Element Analysis –SolidWorks, CREO.
Fluid Dynamics –SolidWorks.
Computer Design – SolidWorks, CREO and Fusion 360.
Computer Vision – Python
Fabrication – 3D printing, laser cutting and CNC.
Electronics – PCB (Proteus 8) and sensors instrumentation.
Language – Spanish (Native) and English (C1).