Milton O. Candela-Leal

milton_candela@hotmail.com
miltoncandela.github.io

EDUCATION

Tecnológico de Monterrey - Monterrey, Mexico   2020 - Dec 2024
     BSc in Biomedical Engineering (95/100 = 3.8/4.0 GPA)
International Baccalaureate - Monterrey, Mexico   2018 - 2020
     Math HL, Psychology SL, Physics SL, ...

RESEARCH EXPERIENCE

Tecnológico de Monterrey - Monterrey, Mexico   Mar 2021 - Jul 2023, Fall 2024
NSF IUCRC BRAIN Center
     Advisor: Prof. Mauricio A. Ramírez-Moreno, PhD
     Projects: Cognitive state prediction via biometrics (EEG, ECG, Computer Vision)
            and machine learning: Mental fatigue, interest in STEM, emotion.
            - Force prediction employing Computer Vision's keypoints and RNN.
Harvard Medical School - Boston, MA, USA   Aug 2023 - Jul 2024
Boston Children's Hospital
     Advisor: Prof. Kiho Im, PhD
     Projects: Fetal MRI subplate segmentation (attention U-Net), non-linear qMRI for
            congenital heart disease classification, MICCAI FeTA Challenge 2024.
University of Houston - Houston, TX, USA   Spring 2022
NSF IUCRC BRAIN Center
     Advisor: Prof. Jose L. Contreras-Vidal, PhD
     Project: EEG functional connectivity and bisprectrum analysis between actors.

JOURNAL ARTICLES

(† indicates equal contribution)

Mandujano-Granillo, J.A., **Candela-Leal, M.O.**, Ortiz-Vazquez, J.J., ... Lozoya-Santos, J.J. (2024).
     Human-Vehicle Interfaces: A Review for Autonomous Electric Vehicles. <u>IEEE Access</u>, 12,
     121635–121658. doi:10.1109/ACCESS.2024.3450439

Blanco-Ríos, M.A.†, **Candela-Leal, M.O.**†, Orozco-Romo, C., ... Ramírez-Moreno, M.A. (2024). Real-time
     EEG-based Emotion Recognition for Neurohumanities: Perspectives from Principal Component
     Analysis and Tree-based Algorithms. <u>Frontiers in Human Neuroscience</u>, 18, 1319574.
     doi:10.3389/fnhum.2024.1319574. PubMed PMID:[38545515](38545515)

Candela-Leal, M.O., Gutiérrez-Flores, E.A., Presbítero-Espinosa, G., ... Ramírez-Moreno, M.A. (2022).
     Multi-Output Sequential Deep Learning Model for Athlete Force Prediction on a Treadmill Using 3D
     Markers. <u>Applied Sciences</u>, 12(11), 5424. doi:[10.3390/app12115424](10.3390/app12115424)

Ramírez-Moreno, M.A., Carrillo-Tijerina, P., **Candela-Leal, M.O.**, ... Lozoya-Santos, J.J. (2021).
     Evaluation of a Fast Test Based on Biometric Signals to Assess Mental Fatigue at the
     Workplace—A Pilot Study. <u>International Journal of Environmental Research and Public Health</u>,
     18(22), 11891. doi:10.3390/ijerph182211891. PubMed PMID:[34831645](34831645)

BOOK CHAPTERS

Lozoya-Santos, J.J., Ramírez-Moreno, M.A., **Candela-Leal, M.O.**, ... Ramirez-Mendoza, R.A. (2022).
     Current and Future Biometrics: Technology and Applications. In R.A. Ramirez-Mendoza, J.J.
     Lozoya-Santos, R. Zavala-Yoé, ... H.G. Gonzalez-Hernandez (Eds.), <u>Biometry: Technology, Trends</u>
     <u>and Applications</u> (1st ed., pp. 1–30). Boca Raton, FL: CRC Press. doi:[10.1201/9781003145240-1](10.1201/9781003145240-1)
     ISBN: 9781003145240

CONFERENCE PROCEEDINGS

Candela-Leal, M.O., Lozoya-Santos, J.J., Ramírez-Moreno, M.A. (*accepted*). Task Completion Time
     Estimation via EEG Theta Bandpower during Chess-Based Problem-Solving. In <u>IEEE-EMBS BHI</u>.
     Houston, TX: IEEE

Candela-Leal, M.O., Aguilar-Herrera, A.J., Ramírez-Moreno, M.A., ... Lozoya-Santos, J.J. (2024).
     Conscious Technologies Projects as a Hub for Real Life Challenges in Engineering Education. In
     15th <u>EDUCON</u> (pp. 665-675). Kos, Greece: IEEE. doi:10.1109/EDUCON60312.2024.10578738

Candela-Leal, M.O., Martínez-Díaz, D., Orozco-Romo, C., ... Ramírez-Moreno, M.A. (2023).
     Biomechanics Digital Twin: Markerless Joint Acceleration Prediction Using Machine Learning and

Computer Vision. In 3rd FEI-WS (pp. 142-150). Monterrey, Mexico: IEEE.
doi:10.1109/IEEECONF56852.2023.10104757

Candela-Leal, M.O., García-Briones, J.M., Olivas-Martínez, G., ... Lozoya-Santos, J.J. (2021). Real-time
Biofeedback System for Interactive Learning using Wearables and IoT. In 6th North American IEOM
(pp. 2959-2970). Monterrey, Mexico: IEOM **(best undergraduate paper award)**.
doi:10.46254/NA06.20210487

Olivas-Martínez, G., **Candela-Leal, M.O.**, Ocampo-Alvarado, J.C., ... Ramírez-Moreno, M.A. (2021).
Detecting Change in Engineering Interest in Children through Machine Learning using Biometric
Signals. In 1st FEI-WS (pp. 33-40). Monterrey, Mexico: IEEE.
doi:10.1109/IEEECONF53024.2021.9733772

Aguilar-Herrera, A.J., Delgado-Jimenez, E.A., **Candela-Leal, M.O.**, ... Ramirez-Mendoza, R.A. (2021).
Advanced Learner Assistance System's (ALAS) recent results. In 1st FEI-WS (pp. 26-33).
Monterrey, Mexico: IEEE. doi:10.1109/IEEECONF53024.2021.9733770

INVITED TALKS

Decoding Cognitive Performance,	2024
Cognitive Neuroscience minor, Tecnológico de Monterrey - School of Humanities and Education	
Digital Twins in Education,	2024
U21 HSG, Amsterdam UMC - Faculty of Medicine **(student speaker award)**	
Computer Vision and Facial Recognition,	2023
Computing Seminar course, UANL - School of Physics and Mathematics	

CONFERENCE PRESENTATIONS

Oral Presentations

FNNDSC Research Symposium	Boston, MA	2024
Conscious Technologies for Smart Communities Workshop	Virtual	2021
51th Research and Development Congress	Virtual	2021

Poster Presentations

17th - 21st, 24th Expo Ingenierías at Conexión Tec	Monterrey, Mexico	2021-2024
27th International Conference on MICCAI	Marrakesh, Morocco	2024
19th IEEE-EMBS International Conference on BSN	Boston, MA	2023
NSF BRAIN Summer Annual IAB Meeting	Phoenix, AZ	2023
BMEX: Engineering and Health Sciences Symposium	Monterrey, Mexico	2023
NSF BRAIN Summer Annual IAB Meeting	Houston, TX	2022
43rd Annual International Conference of the IEEE-EMBS	Virtual	2021

HONORS AND AWARDS

Diploma of Excellence Award (5% professional development)	Tecnológico de Monterrey	2024
International Diploma (leadership & multilingual proficiency)	Tecnológico de Monterrey	2024
Student Speaker Award ($1600 USD)	U21 Health Sciences Group	2024
Outstanding Student Award (1% engineering trajectories)	Tecnológico de Monterrey	2023, 2024
1st Place - Undergraduate Student Paper Competition	6th North American IEOM	2021
1st Place - R&D Improvement Proposals ($250 USD)	18th Conexión Tec	2021
Academic Talent Scholarship	Tecnológico de Monterrey	2020

TEACHING

German A2 Teacher	Mentoor MX	2022-2024
Middle School Math and Spanish Teacher	Aprendamos Juntos	2021-2022
Independent High School Physics Teacher		Fall 2019
FIRST® LEGO® League Mentor	Little Minds	Spring 2019

SKILLS SUMMARY

Languages	Python (3 years), MATLAB (2 years), R (1 year), Shell (3 months), SQL (3 months)
	English (C1), German (B1), Spanish
Frameworks	Numpy, Scipy, Pandas, Matplotlib, Scikit-learn, OpenCV, TensorFlow, Keras, BrainFlow
	FreeSurfer, FSL, MRtrix3, NiBabel, ANTs, PyDicom, IRTK, NUC, TochIO, OSC
	Lattice, Dplyr, Tidyr, Caret, GA, Ggplot, Shiny
Tools	Git, Anaconda, CUDA, CMake, Tableau, Microsoft Excel, G*Power, Overleaf, LaTeX
Platforms	Linux, Ubuntu, ROS, Windows, Arduino, Raspberry