Milton Osiel Candela Leal

 $milton_candela@hotmail.com\\ miltonCandela.github.io$

EDUCATION

Tecnológico de Monterrey - Monterrey, Mexico

2020 - 2024

B.S. in Biomedical Engineering (94.5/100 = 3.8/4.0 GPA)

International Baccalaureate - Monterrey, Mexico

2018 - 2020

Math HL, Psychology SL, Physics SL, ...

Thesis: Harry Potter and the Prisoner of Azkaban (2004), a Cultural and Ideological Instructor of the Millennial Viewer

RESEARCH EXPERIENCE

Tecnológico de Monterrey - Monterrey, Mexico

2021 - 2024

Advisor: Mauricio A. Ramírez-Moreno, Ph.D.

Project: Advanced Learner Assistance System (ALAS)

Talent and Passion Detection Through Biometrics

Biomechanics for the Digital Twin NeuroHumanities Laboratory

Boston Children's Hospital - Cambridge, MA, USA

2023 - 2024

Advisor: Kiho Im, Ph.D.

Project: Automated Fetal Diffusion MRI Pipeline

University of Houston - Houston, TX, USA

 S_{2022}

Advisor: Jose L. Contreras-Vidal, Ph.D.

Project: Your Brain on Art: Understanding the Brain in Creative Action

JOURNAL ARTICLES

Candela-Leal, M.O., Gutiérrez-Flores, E.A., Presbítero-Espinosa, G., Sujatha-Ravindran, A., ... & Ramírez-Moreno, M.A. (2022). Multi-Output Sequential Deep Learning Model for Athlete Force Prediction on a Treadmill Using 3D Markers. *Applied Sciences*, 12(11), 5424. [paper]

Ramírez-Moreno, M.A., Carrillo-Tijerina, P., **Candela-Leal, M.O.**, Alanis-Espinosa, M., ... & Lozoya-Santos, J.J. (2021). Evaluation of a Fast Test Based on Biometric Signals to Assess Mental Fatigue at the Workplace—A Pilot Study. *International Journal of Environmental Research and Public Health*, 18(22), 11891 [paper]

Blanco-Ríos M.A.†, **Candela-Leal M.O.**†, Orozco-Romo C., Remis-Serna P., ... & Ramírez-Moreno M.A. (in press). Real-time EEG-based Emotion Recognition Model using Principal Component Analysis and Tree-based Models for Neurohumanities. Frontiers in Human Neuroscience

Candela-Leal M.O., & Ramírez-Moreno M.A. (in prep). Neurocognitive Insights into STEM Learning: An Integrated Analysis of Bandpower and Functional Connectivity among Youth. Thinking Skills and Creativity

BOOK CHAPTERS

Lozoya-Santos, J.J., Ramírez-Moreno, M.A., Diaz-Armas, G.G., **Candela-Leal, M.O.**, ..., & Ramírez-Mendoza, R.A. (2022). Current and Future Biometrics: Technology and Applications, in *Biometry*, pp. 1–30, CRC Press [paper]

Conference Proceedings

Candela-Leal, M.O., Martínez-Díaz, D., Orozco-Romo, C., Aguilar-Herrera, A.J., ..., & Ramírez-Moreno M.A. (2023). Biomechanics Digital Twin: Markerless Joint Acceleration Prediction Using Machine Learning and Computer Vision. 2023 Future of Educational Innovation-Workshop Series Data in Action, IEEE, Monterrey, Mexico [paper]

Candela-Leal, M.O., García-Briones, J.M., Olivas-Martínez, G., Abrego-Ramos, R., ..., & Lozoya-Santos J.J. (2021) Real-time Biofeedback System for Interactive Learning using Wearables and IoT. 6th North American Industrial Engineering and Operations Management (IEOM), IEOM, Monterrey, Mexico [paper]

- Aguilar-Herrera, A.J., Delgado-Jimenez, E.A., Candela-Leal, M.O., Olivas-Martinez, G., ..., & Ramirez-Mendoza, R.A. (2021). Advanced Learner Assistance System's (ALAS) recent results. 2021 Machine Learning-Driven Digital Technologies for Educational Innovation Workshop, IEEE, Monterrey, Mexico [paper]
- Olivas-Martínez, G., Candela-Leal, M.O., Ocampo-Alvarado, J.C., Acosta-Soto, L.F., ..., & Ramírez-Moreno, M.A. (2021). Detecting Change in Engineering Interest in Children through Machine Learning using Biometric Signals. 2021 Machine Learning-Driven Digital Technologies for Educational Innovation Workshop, IEEE, Monterrey, Mexico [paper]
- Olivas-Martínez, G., **Candela-Leal, M.O.**, Ocampo-Alvarado, J.C., Acosta-Soto, L.F., ..., & Ramírez-Moreno, M.A. (2021). Detection of Engineering Interest in Children Through an Intelligent System Using Biometric Signal. 6th North American Industrial Engineering and Operations Management (IEOM), IEOM, Monterrey, Mexico [paper]

Abstracts

Candela-Leal, M.O., Lozoya-Santos J.J., & Ramírez-Moreno M.A. (2023). Real-time Dual-feature Mental Fatigue State SVM Classification using EEG Delta Bandpower. 20th IEEE-EMBS International Conference on Body Sensor Networks (BSN), IEEE, Boston, MA, USA [paper]

INVITED TALKS

INVITED TALKS	
Computing Seminar - Universidad Autónoma de Nuevo León	2023
Conscious Technologies for Smart Communities - IUCRC BRAIN Tec Center	2021
Honors and Awards	
2 nd Place - Research and Improvement Proposals at 22 th Conexión Tec	F 2023
Outstanding Student Award (top 1% best engineering trajectories)	2023
1 st Place - Research and Improvement Proposals at 18 th Conexión Tec	F 2021
1 st Place - Undergraduate Paper Competition at 6 th NA IEOM	2021
Outstanding IB Extended Essay - 51 th Research and Development Congress	2021
Scholarship for Academic Talent	2020
TEACHING	
German A2 Teacher - Mentoor	2022-2023
Middle School Math and Spanish Teacher - Aprendamos Juntos	2021-2022
Independent High School Physics Teacher	F 2019
FIRST® LEGO® League Mentor - Little Minds	S 2019

SKILLS SUMMARY

SKILLS SUMMARI		
Languages	Python (3 years), MATLAB (2 years), R (1 year), SQL (3 months)	
	English (C1), German (B1), Spanish	
Frameworks	Numpy, Scipy, Matplotlib, Pandas, Scikit-learn, TensorFlow, Keras, BrainFlow, Flask	
	Lattice, Dplyr, Tidyr, Caret, Ggplot, Shiny	
	FSL, FreeSurfer, MRtrix3, ANTs, NiBabel, PyDicom	
Tools	GitHub, Anaconda, CUDA, cuDNN, Tableau, Microsoft Excel, Overleaf, IATEX	
Platforms	Linux, ROS, Windows, Arduino, Raspberry	
Soft Skills	Leadership, Problem Solving, Teamwork, Self-Learning, Time Management	

COURSERA SPECIALIZATIONS

Data Science - The Johns Hopkins University (288 h)	2021
Applied Data Science with Python - University of Michigan (145 h)	2021
AI for Medicine - DeepLearning.AI (72 h)	2021
Neuroscience and Neuroimaging - The Johns Hopkins University (42 h)	2020

AUDITED COURSES

AUDITED COURSES	
9.014 Quantitative Methods and Computational Models in Neuroscience - M. Jazayeri	F 2023
9.66 Computational Cognitive Science - J. Tenenbaum	F 2023