

Milton Osiel Candela Leal

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miltoncandela.github.io

EDUCATION

- Tecnológico de Monterrey** - Monterrey, Mexico 2020 - Dec 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 - 2023
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
Digital Twin of the Workspace
- Boston Children's Hospital** - Cambridge, MA, USA 2023 - 2024
Advisor: Kiho Im, Ph.D.
Project: *Automated Fetal Diffusion MRI Pipeline*
Fetal Subplate Surface & Segmentation
- University of Houston** - Houston, TX, USA Spring 2022
Advisor: Jose L. Contreras-Vidal, Ph.D.
Project: *Brain on Acting*

JOURNAL ARTICLES

(† indicates equal contribution)

- Blanco-Ríos M.A.†, **Candela-Leal M.O.**†, Orozco-Romo C., Remis-Serna P., ... & Ramírez-Moreno M.A. (2024). Real-time EEG-based Emotion Recognition Model using Principal Component Analysis and Tree-based Models for Neurohumanities. *Frontiers in Human Neuroscience* [\[paper\]](#)
- 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 [\[paper\]](#)
- Candela-Leal M.O.**, & Ramírez-Moreno M.A. (*in press*). 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.**, ..., & Ramirez-Mendoza, R.A. (2022). Current and Future Biometrics: Technology and Applications, in *Biometry: Technology, Trends and Applications* (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. In *2023 Future of Educational Innovation-Workshop Series Data in Action* (pp. 142-150). Publisher: IEEE [\[paper\]](#)

- 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. In *6th North American Industrial Engineering and Operations Management* (pp. 2959-2970). Publisher: IEOM (**best undergraduate student paper**) [\[paper\]](#)
- Aguilar-Herrera, A.J.†, Delgado-Jimenez, E.A.†, **Candela-Leal, M.O.**, Olivas-Martínez, G., ..., & Ramírez-Mendoza, R.A. (2021). Advanced Learner Assistance System's (ALAS) recent results. In *2021 Machine Learning-Driven Digital Technologies for Educational Innovation Workshop* (pp. 26-33). Publisher: IEEE [\[paper\]](#)
- 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. In *2021 Machine Learning-Driven Digital Technologies for Educational Innovation Workshop* (pp. 33-40). Publisher: IEEE [\[paper\]](#)
- 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. In *6th North American Industrial Engineering and Operations Management* (pp. 2946-2936). Publisher: IEOM [\[paper\]](#)

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. In *20th IEEE-EMBS International Conference on Body Sensor Networks*, Boston, MA [\[paper\]](#)

INVITED TALKS

- | | |
|--|------|
| Computing Seminar - <i>Universidad Autónoma de Nuevo León</i> | 2023 |
| Conscious Technologies for Smart Communities - <i>IUCRC BRAIN Tec Center</i> | 2021 |

HONORS AND AWARDS

- | | |
|---|-----------|
| 2 nd Place - Research and Improvement Proposals at 22 th Conexión Tec | Fall 2023 |
| Outstanding Student Award (top 1% best engineering trajectories) | 2023 |
| 1 st Place - Research and Improvement Proposals at 18 th Conexión Tec | Fall 2021 |
| 1 st Place - Undergraduate Student Paper Competition at 6 th NA IEOM | 2021 |
| Outstanding IB Extended Essay - 51 th Research and Development Congress | 2021 |
| Scholarship for Academic Talent (40%) | 2020 |

TEACHING

- | | |
|---|-------------|
| German A2 Teacher - <i>Mentoor</i> | 2022-2023 |
| Middle School Math and Spanish Teacher - <i>Aprendamos Juntos</i> | 2021-2022 |
| Independent High School Physics Teacher | Fall 2019 |
| FIRST® LEGO® League Mentor - <i>Little Minds</i> | Spring 2019 |

SKILLS SUMMARY

- | | |
|--------------------|--|
| 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 | Git, Anaconda, CUDA, cuDNN, Tableau, Microsoft Excel, Overleaf, \LaTeX |
| Platforms | Linux, ROS, Windows, Arduino, Raspberry |
| Soft Skills | Leadership, Problem Solving, Teamwork, Self-Learning, Time Management |

COURSERA SPECIALIZATIONS

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