Benjamin Gutierrez Serafin

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Education

University of Glasgow — Glasgow, UK
PhD Computing Science and Psychology — *Sep. 2023 – present*

- **Thesis:** Designing Mindful Intervention with Therapeutic Music on Earables to Manage Occupational Fatigue
- **Advisor:** Prof. Fahim Kawsar, Dr. Tanaya Guha

University of Bristol — Bristol, UK
Master of Science in Robotics — *Sep. 2019 – Sep. 2020*

- **Dissertation:** Actions and Reactions in Board Games
- **Advisor:** Prof. Dima Damen
- **Classification:** with Distinction

Instituto Tecnológico de Tepic — Nayarit, MX
Bachelor's Degree in Mechatronics Engineering. — *Aug. 2012 – June 2017*

- **Project:** Commissioning of Robotic Deburring Cell
- **Advisor:** Prof. Antonio Navarrete-Guzman
- **GPA:** 94.8/100

Experience

Lead Data Scientist — Dec 2021 – May 2023
99minutos - Logistics startup company for e-commerce vendors across Latin America. — *CDMX, MX*

- Develop a forecasting system based on machine learning algorithms to predict future demand with multiple levels of hierarchical aggregation and different forecasting horizons.
- Lead a team of 5 people to fulfil data analysis requests for multiple departments of the company.
- Plan the data governance strategy to ensure high quality data throughout the organization's data lifecycle.
- Interview and identify potential candidates to join the Data team.

Software Developer — Apr 2021 – Dec 2021
Centre for Scientific Research and Higher Education at Ensenada (CICESE UT3) — *Nayarit, MX*

- Conduct experimentation to develop a clear method to detect depression through speech by implementing interpretable AI techniques.
- Designed and implemented a REST API to allow communication between devices to send and query multi-modal data.
- Developed a web-based annotation interface of video an image data, as well as programming algorithms for data labelling quality control.

Artificial Intelligence Research Assistant — Dec. 2017 – Aug. 2019
Centre for Scientific Research and Higher Education at Ensenada (CICESE UT3) — *Nayarit, MX*

- Trained a Spanish sentiment analysis classifier based on deep neural networks with an F1-score of 79% to include a new feature to a mobile application.

- Provided maintenance, proposed and developed improvements to mobile application focused on monitoring people with suicidal behaviour.
- Contributed to perform experiments and the search of relevant literature for the writing of research articles.

- Developed an automatic estimation system of energy expenditure derived from physical activity in children with a coefficient of determination of 85%.
- Collaborated to design and create a technique to recognise the personality of children from emotional speech, which reports an accuracy rate of 75%.
- Cooperated in the ideation and elaboration of a method to classify the context of dog barking with an accuracy rate of 71%.
- Automated the intelligent audio analysis process to segment, extract acoustic features and classify audio more quickly and effectively.

Mechanical/Robotics Engineering Intern March 2017 – Aug. 2017

Centre for Engineering and Industrial Development (CIDESI). *Nuevo Leon, MX*

- Analysed the state of the art of the robotic deburring process to assist in the commissioning of a robotic deburring cell.
- Collaborated with a 3-person team in the mechanical design of diverse projects.
- Introduced the development of a post processor to expand the offline programming capabilities to avoid the expenses of a new software acquisition.
- Selected, based on my performance, to receive training in 2 disciplines, mechanical design (GD&T) and robotics (ROS).
- Instructed 4 new interns with a practical self-created teaching material to use Delmia's offline programming tools.

Research Publications

Journal Articles

- **Gutiérrez-Serafín, B.**, Andreu-Perez, J., Pérez-Espinosa, H., Paulmann, S., and Ding, W. Toward assessment of human voice biomarkers of brain lesions through explainable deep learning. Biomedical Signal Processing and Control, 87, 105457

- Pérez-Espinosa, H., **Gutiérrez-Serafín, B.**, Martínez-Miranda, J., & Espinosa-Curiel, I. E. (2022). Automatic children's personality assessment from emotional speech. Expert Systems with Applications, 187, 115885.

Conference Proceedings

- Hernández-Luquin, F., **Gutiérrez-Serafín, B.**, Escalante, HJ., Pérez-Espinosa, H., Villaseñor-Pineda, L., Reyes-Meza, V. (2022, December). Dog emotion recognition from images in the wild: DEBIw dataset and first results. In Ninth International Conference on Animal-Computer Interaction. (accepted and in process)

- **Gutiérrez-Serafın, B.**, Pérez-Espinosa, H., Espinosa-Curiel, I. E., Figueroa-Garcıa, P. N., Pozas-Bogarın, E. E., & Martınez-Miranda, J. (2019). Estimación automática del gasto energético de la actividad fısica de niños en videojuegos de ejercicio con el sensor Kinect. Research in Computing Science, 148(8), 263-277.

- **Gutiérrez-Serafín, B**., Pérez-Espinosa, H., Martínez-Miranda, J., & Espinosa-Curiel, I. (2019). Classification of Barking Context of Domestic Dog using High-Level Descriptors. Research in Computing Science, 148, 23-35.

Honours & Awards

Becas Santander Tech - Emerging Technologies Feb. 2021 – Apr. 2021
Santander
Recipient of scholarship aimed to study the online programme Machine Learning: Leveraging Data Insights by MIT Professional Education.

Graduate International Scholarship Sep. 2019 – Sep. 2020
CONACYT-COCYTEN
Awarded a fully funded scholarship by the Mexican Council of Science and Technology (CONACYT) to study the taught programme MSc Robotics at the University of Bristol.

Estudiantes Embajadores Inventioneering - Emerging Technologies June 2016 – Aug. 2016
SEP-TecNM-BANAMEX-CANIETI
Granted a fully funded scholarship to participate in a summer course at Florida Institute of Technology (FIT), which provided English training (ELS Melbourne) and guidance to study a graduate programme abroad related to emerging technologies.

Courses and Certificates.

Machine Learning DevOps Engineer Apr. 2023
Udacity Nano Degree Programme - confirm.udacity.com/e/39027c5c-7c85-11ed-9679-07549b7af99d

Machine Learning: Leveraging Data Insights Apr. 2021
MIT Professional Education - credential.net/25c9a5c1-0999-45b1-a317-f0c16d9a908f

Deep Learning Specialization. Nov. 2020
DeepLearning.AI, Coursera - coursera.org/verify/specialization/E67XBHVNH882

Artifcial Intelligence Winter School Feb. 2019
Centre for Research in Mathematics (CIMAT)
Participation in the first edition of the introductory workshop on practical AI tools given by researchers from the Mexican Council of Science and Technology (CONACYT).

Artificial Intelligence and Affective Computing Workshop May 2018
Centre for Scientific Research and Higher Education at Ensenada (CICESE UT3)
Attendance at the workshop on the fundamentals of machine learning with applications in emotional speech and affective computing used in virtual agents.

Skills & Qualifications

Languages: Spanish (native), English (fluent), German (basic), French (basic).
Programming Languages: Python, SQL, JavaScript, C#.
Markup Languages: HTML/CSS, LaTeX.
Developer Tools: VS Code, Jupyter Notebook, Unity, Git, PostgreSQL. Docker
Cloud services: Amazon (EC2, Mturk), GCP (Bigquery, Run, Storage, Scheduler, Logger).
Libraries: TensorFlow, scikit-learn, sktime, Flask, OpenCV, librosa, pandas, NumPy, Matplotlib, NLTK, spaCy.