

# Benjamin Gutierrez Serafin

✉ b.gutierrez-serafin.1@research.gla.ac.uk    🌐 gtzben.github.io    ⚡ bgtzse    💬 gtzben

## Research Interests

Ubiquitous Computing, Human–Computer Interaction, Signal Processing, Multimodal Learning, Music and Emotions.

## Education

### University of Glasgow

*PhD in Computing Science and Psychology*

Glasgow, UK

Sep. 2023 – present

- Advisors: Prof. Fahim Kawsar [🔗](#) and Dr. Tanaya Guha [🔗](#)

### University of Bristol

*Master of Science in Robotics*

Bristol, UK

Sep. 2019 – Sep. 2020

- Thesis: Actions and Reactions in Board Games
- Advisor: Prof. Dima Damen [🔗](#) and Dr. Michael Wray [🔗](#)
- Classification: with Distinction

### Instituto Tecnológico de Tepic

*Bachelor's Degree in Mechatronics Engineering*

Nayarit, MX

Aug. 2012 – Jun. 2017

- Project: Commissioning of Robotic Deburring Cell
- Advisor: Dr. Antonio Navarrete-Guzman [🔗](#)
- GPA: 94.8/100

## Research Experience

### Device Research Software Department, Nokia Bell Labs

*Visiting Researcher* — Mentored by Dr. Ashok Samraj Thangarajan [🔗](#)

Cambridge, UK

Jun. 2025

- **Multilateral Data Collection for Benchmarking Study**

- Refined methodology for collecting physiological data from multiple body placements during physical activity and exposure to emotion-eliciting VR stimuli.

### Social AI CDT & Mobile Systems Lab, University of Glasgow

*PhD Candidate* — Advised by Prof. Fahim Kawsar [🔗](#) and Dr. Tanaya Guha [🔗](#)

Glasgow, UK

Sep. 2023 – Present

- **BEATS: Music Dataset with Aligned Physiological Signals in Real-world Contexts**

- Designed a framework integrating wearable sensing and music-streaming technologies for continuous in-the-wild physiological data collection and real-time music tracking.
- Developed a systematic approach to select therapeutic music from streaming platforms based on empirical evidence and playlist metadata.

### Visual Information Laboratory (ViLab), University of Bristol

*Master's Project* — Supervised by Prof. Dima Damen [🔗](#) and Dr. Michael Wray [🔗](#)

Bristol, UK

Jun. 2020 – Sep. 2020

- Proposed a computational framework and benchmark tasks for multi-person action–reaction recognition in social game interactions from egocentric video data.

### Centre for Scientific Research and Higher Education at Ensenada (CICESE-UT3)

*Research Assistant* — Mentored by Dr. Humberto Espinoza-Perez [🔗](#) and Dr. Juan Martinez-Miranda [🔗](#)

Nayarit, MX

Dec. 2017 – Dec. 2021

- Developed an interpretable deep-learning method for detecting discriminatory acoustic biomarkers in speech for brain lesion screening.
- Designed and implemented a REST API for multimodal data exchange and developed a web-based interface for video and image annotation with built-in quality-control algorithms.
- Constructed a large-scale image dataset of dog emotions to enable automatic recognition and analysis of canine affective

states.

- Developed a speech-based machine learning approach for automatic assessment of children's personality traits during interactive play sessions.
- Built a regression-based model for estimating children's energy expenditure using Kinect skeletal tracking and physiological data.
- Created an automatic analysis framework for classifying the behavioural context of dog barks by integrating temporal structure and acoustic features.

## Research Publications

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### Journal Articles

- **Gutiérrez-Serafín, B.**, Andreu-Perez, J., Pérez-Espinosa, H., Paulmann, S., & Ding, W. (2023). 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

- **Gutiérrez-Serafín, B.**, Kawsar, F., & Guha, T. (2025). Towards Capturing the Therapeutic Effects of Music in Everyday Life: Building the Beats Dataset. In *Companion of the 2025 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp Companion '25)*.  Best Paper Award
- Hernández-Luquin, F., **Gutiérrez-Serafín, B.**, Escalante, H. J., 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*.
- **Gutiérrez-Serafín, B.**, Pérez-Espinosa, H., Espinosa-Curiel, I. E., Figueroa-García, P. N., Pozas-Bogarin, E. E., & Martínez-Miranda, J. (2019). Estimación automática del gasto energético de la actividad física 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

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### Best Paper Award, ACM UbiComp/ISWC 2025

Oct. 2025

Received the Best Paper Award on the 8th International Workshop on Computing for Well-Being (WellComp).

### International Doctoral Studentship, EPSRC/UKRI

Sep. 2023

Fully funded PhD international studentship at the University of Glasgow (CDT in Socially Intelligent Artificial Agents).

### Becas Santander Tech – Emerging Technologies, Santander

Feb. 2021

Scholarship for MIT Professional Education's online programme: *Machine Learning: Leveraging Data Insights*.

### Graduate International Scholarship, CONACYT/COCYTEN

Sep. 2019

Fully funded scholarship for MSc Robotics at the University of Bristol.

### Estudiantes Embajadores Inventioneering – Emerging Technologies, SEP/BANAMEX/CANIETI

Jun. 2016

Funded summer programme at Florida Institute of Technology for English training (ELS Melbourne) and graduate study guidance.

## Teaching Experience

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### COMPSCI4073 Data Fundamentals, University of Glasgow

Fall 2025

## Mentoring Experience

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### Camille Raynaud (Summer Intern at University of Glasgow)

May 2025 – Sep. 2025

## Technical Experience

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### Lead Data Scientist

*99minutos – Logistics startup company for e-commerce vendors across Latin America*

*CDMX, MX*

*Dec. 2021 – May 2023*

- Developed machine learning forecasting systems to predict demand at multiple aggregation levels and time horizons.
- Led a data team of five, overseeing analytics projects and ensuring high-quality data governance across departments.
- Designed data strategies to optimize collection, processing, and analysis pipelines.

### Mechanical/Robotics Engineering Intern

*Centre for Engineering and Industrial Development (CIDEI)*

*Nuevo León, MX*

*Mar. 2017 – Aug. 2017*

- Assisted in the commissioning of a robotic deburring cell and contributed to mechanical design projects.
- Expanded post-processing capabilities for offline robotic programming, reducing software acquisition costs.
- Provided training materials and instruction to new interns on Delmia's programming tools.

## Courses and Certificates

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### AIDA AI/ML Cutting Edge Trends Summer School

*Jul. 2025*

*Aristotle University of Thessaloniki* – Attended summer school on cutting-edge trends in artificial intelligence and machine learning.

### Machine Learning DevOps Engineer

*Apr. 2023*

*Udacity Nano Degree Programme* – Focused on ML model deployment and automation workflows. [\[certificate\]](#)

### Machine Learning: Leveraging Data Insights

*Apr. 2021*

*MIT Professional Education* – Online course on data-driven decision making and applied machine learning. [\[certificate\]](#)

### Deep Learning Specialization

*Nov. 2020*

*DeepLearning.AI, Coursera* – Comprehensive specialization on neural network architectures and deep learning. [\[certificate\]](#)

### Artificial Intelligence Winter School

*Feb. 2019*

*Centre for Research in Mathematics (CIMAT)* – Introductory workshop on practical AI tools sponsored by CONACYT.

### Artificial Intelligence and Affective Computing Workshop

*May 2018*

*Centre for Scientific Research and Higher Education at Ensenada (CICESE-UT3)* – Workshop on machine learning for emotional speech and affective computing.

## Skills & Qualifications

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**Languages:** Spanish (native), English (fluent), German (basic), French (basic).

**Programming Languages:** Python, SQL, JavaScript, C#.

**Markup Languages:** HTML/CSS, L<sup>A</sup>T<sub>E</sub>X.

**Developer Tools:** VS Code, Jupyter Notebook, Unity, Git, PostgreSQL, Docker.

**Cloud Services:** Amazon (EC2, Mturk), GCP (BigQuery, Run, Storage, Scheduler, Logger).

**Libraries:** TensorFlow/Keras, PyTorch, scikit-learn, Flask, OpenCV, librosa, pandas, NumPy, Matplotlib, NLTK, spaCy.