Carlos Simón Amador Izaguirre

AI Engineer · GenAI · Pharma · Healthcare & Life Sciences
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Skills

AI & ML: LLM APIs, RAG pipelines, agentic systems, prompt engineering, vector DBs, PyTorch, TensorFlow, scikit-learn, CNNs, generative models
Engineering: Python, SQL (Oracle), Flask, Docker, REST APIs, CI/CD, A/B testing, evaluation frameworks
Cloud & Data: AWS, Azure AI, SAP integration, Power BI, advanced analytics & clustering
Biomedical: EHR Data, MRI preprocessing, fetal neuroimaging, OCT, EEG signal processing
Languages: Spanish (native), English (IELTS 8), German (A2)

Experience

Lead AI Engineer **Jul. 2024 – Present**
Laboratorios Bagó del Perú | *Information and Communication Technology Management (ICT)* *Lima, Peru*

GenAI Products

- Built a GenAI sales copilot for medical reps integrating CRM, ERP, and unstructured data into a conversational interface – 120+ users, scaled from 500 to 4,000+ monthly queries.
- Shipped a clinical RAG assistant for physicians combining 10,000+ curated PubMed studies with proprietary product data; proactively surfaces product recommendations on relevant queries – targeting 1,000+ users at launch (May 2025), with roadmap to 10,000 enrolled physicians.
- Designed A/B testing and prompt-optimization workflows, reducing hallucinations and lifting user satisfaction to 80%+.

MLOps & Analytics

- Managed vendor development of an 18-month demand-forecasting MLOps pipeline and coordinated SAP replenishment module implementation – estimated $1.5M annual value through overstock reduction.
- Developed advanced HR clustering analytics and dashboards enabling targeted employee development strategies.

Strategy & Cross-functional

- Advised Commercial team on customer-experience redesign: time-efficiency focus, digital-channel adoption, and technology integration into the medical sales process.
- Drove AI tool adoption and change management across Marketing, Promotions, BI, Logistics, and Finance.

Research Intern **Mar. 2024 – Jun. 2024**
Conceivable Life Sciences | *Dr. Adolfo Flores-Saiffe* | *Guadalajara, Mexico*
Research & Computational Biology

- Led a 4-person team developing AI-assisted pipelines for gamete detection and segmentation in high-resolution microscopy images for IVF clinical workflows.
- Annotated and quality-controlled >450 microscopy images, establishing a standardized dataset for downstream modeling.
- Trained and benchmarked 9 transfer-learning architectures, quantifying performance across segmentation and detection tasks for embryo-quality assessment.
- Built a Python inference platform used internally for rapid prototyping of embryologist decision-support tools.

Research Intern **Jul. 2023 – Jan. 2024**
Boston Children's Hospital | *Dr. Kiho Im* | *FNNDSC* *Boston, MA, USA*

- Curated and preprocessed ∼50 fetal brain MRI volumes from four multicenter datasets, improving QC throughput and enabling downstream anomaly-detection experiments.
- Developed two deep-learning architectures (PyTorch) for fetal MRI anomaly detection; designed model components later used in multiple conference presentations and integrated into the baseline for the NeuroImage publication.
- Implemented an MRI hyper-resolution and semantic segmentation prototype to explore enhancement of small anatomical structures.
- Optimized preprocessing pipelines (bias-field correction, normalization, orientation harmonization), reducing variability across datasets used in a 4-month neuroimaging study.

Undergraduate Research Assistant **Aug. 2022 – Jun. 2023**
ITESM | *Dr. Rita Q. Fuentes-Aguilar* | *Advanced Cyberphysical Systems Lab* *Guadalajara, Mexico*

- Processed 1,526 biosignal recordings in Python for a brain–computer interface study.
- Designed and compared 6 ML models (TensorFlow/Scikit-learn) for muscle-signal analysis.
- Evaluated 4 preprocessing pipelines, producing recommendations adopted for a PhD dissertation.
- Led a 3-member research team, coordinating experiments and documentation.

Projects

Optical Coherence Tomography for Pathological Classification | *Technical Volunteer* **Spring 2024**

- Standardized acquisition protocols and contributed to high-throughput QC for a 1,000-subject OCT dataset for pathological classification research.

Design of Grit-Related Biomarkers Experiment | *Research Project* **Spring 2024**

- Designed and executed an EEG study using an auditory stimulation paradigm; extracted neural biomarkers (frontal theta–beta ratio, parietal beta energy, etc.) using Python/MNE.

Evaluation of Channel Selection Methods for EEG MI Classification | *Research Project* **Spring 2023**

- Evaluated PCA-based and sequential channel-selection methods using the PhysioNet Motor Imagery dataset; trained MLP and CNN classifiers for reduced-electrode systems.

Image Processing Algorithm for Visible-Light CT | *Course Project* **Spring 2023**

- Implemented SNR and spatial-resolution estimation and regression-based reconstruction methods for a visible-light CT prototype.

Leadership

Lead Organizer | **Bagó Desafio IA 2026** **Nov. 2025 – Present**

- Organizing a national healthtech event (60+ attendees, 2 tracks) focused on GenAI for chronic-patients and physicians' health workflows; managing 6-person committee and 5 institutional partnerships

Project Lead | **Corporate Innovation Incubator** **May 2025 – Jun. 2025**

- Led cross-functional initiative (IT, BI, Commercial, Marketing, HR) to design and validate a GenAI system for medical reps through 4 user interviews, 4 prototypes, 2 major iterations. Transitioned to production

Education

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM) **Aug. 2020 – Jun. 2024**
B.S. in Biomedical Engineering Guadalajara, Jalisco, México
GPA: 92.4/100

Selected Publications and Presentations

[1] S. You, A. Gondova, **C. S. Amador Izaguirre**, et al. *Conditional deep generative normative modeling for fetal brain anomaly detection.* **NeuroImage**, 2025. | Journal

[2] You S, **Amador Izaguirre CS**, Tafoya-Milo G, Jeong S, Yun HJ, Grant PE, Im K. *Conditional Deep Generative Normative Modeling For Structural And Developmental Anomaly Detection In The Fetal Brain.* **ISMRM**, 2025. | Abstract

[3] You S, **Amador Izaguirre CS**, Jeong S, Yun HJ, Grant PE, Im K. *Deep generative anomaly detection for structural anomalies in fetal brain with ventriculomegaly.* **OHBM**, 2024. | Poster

Certifications & Awards

2025	***Duke University***	AI Product Management Specialization
2024	***University of Michigan***	Applied Data Science with Python Specialization
2024 Summer	***HULT Prize***	Selected 2nd Place
2023 Spring	***Harvard Medical School Intern***	Selected research intern from 100+ applicants