Santiago Calderón

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WORK EXPERIENCE

Software Engineer - ML — Jan 2025 — Present
Linqia (American start-up focused in data analysis for influencer marketing)
(Remote position)
- Focused in leveraging large language models (LLMs) for clustering and topic modeling, enabling deeper insights and more accurate data organization.

Software Engineer — Dec 2022 — Dec 2024
Quorum Software (US-based company creating software products for the Oil and Gas industry)
Bogotá, Colombia, later relocated to London, United Kingdom (Hybrid position)
- Led a text classification project using supervised learning on extensive datasets, with comparative analyses between traditional NLP methods and fine-tuned BERT-like models. **Utilized SHAP for explainability, ensuring transparency and trust in model predictions.**
- Architected and developed a generative AI application integrating Azure AI Search and OpenAI (GPT-4) for Retrieval Augmented Generation (RAG). This application enabled unified large language model (LLM) APIs, impacting global teams in Norway, South Africa, and the U.S.

Junior Software Developer — Mar 2022 — Oct 2022
Kin + Carta (IT consulting company headquartered in the UK, with a significant presence in the USA)
(Remote position)
- Leveraged Google Cloud Platform (GCP) services to deploy Java RESTful APIs, optimizing time for hiring processes.

ACADEMIC EXPERIENCE

Research Assistant (Volunteer) — Sep 2023 — Present
King's College London
London, United Kingdom
- Conducted research in Explainable AI (XAI), contributing to peer-reviewed white papers submitted to leading AI conferences.
- Implemented and optimized XAI algorithms for computer vision tasks, focusing on real-time, causality-based techniques (ReX and IncX), employing PyTorch and ONNX, and automating workflows with GitHub Actions.
- Regularly collaborated on deep-dive sessions to enhance research methodology and align developments with cutting-edge AI trends.

Teaching Assistant — Aug 2020 — Jun 2021
Universidad Militar Nueva Granada
Bogotá, Colombia
- Utilized LaTeX to contribute to the development of a control theory textbook.
- Assisted in the module on models of mechatronic systems (2020-II, 2021-I), providing tutorials and support to small groups of students.

EDUCATION

MSc in Advanced Computing / Computer Science, *King's College London* — Sep 2023 — Jan 2025
London, United Kingdom
- **Thesis:** Real-Time Incremental Explanations and Saliency Maps for Object Detection in Videos (Awarded 94/100), supervised by Prof. Hana Chockler.
- Awarded with Distinction.
- Colfuturo Scholarship: Ranked 4th, placing in the top 0.5% of 779 candidates.
- Relevant Modules: Computer Vision, Neural Networks and Deep Learning, Data Mining, Agents and Multi-Agent Systems.
- **Extracurriculars:** Research Assistant in Explainable AI, Lead in the Google Developers Student Club (GDSC) at King's College London.

Mechatronics Engineering, *Universidad Militar Nueva Granada* — Jan 2017 — Apr 2022
Bogotá, Colombia
- **Thesis:** Design and implementation of nonlinear controllers for a 3D printing system with continuous motors modeled as a Cartesian robot (Awarded 5.0/5.0).
- Full scholarship awarded by the Colombian Ministry of Information Technologies and Communications.
- Cum Laude: Highest GPA (4.54/5.0).
- "Tesis Laureada" - Thesis awarded with the highest honors.
- University Medal for academic merit.
- 5x "Matrícula de Honor" for achieving the highest semester GPA.
- **Extracurriculars:** Member of the Davinci research group, university karate team (multiple medals in university-level championships).

Publications

Real-Time Incremental Explanations for Object Detectors
Calderón-Peña S., Chockler H., Kelly D. A.
arXiv Preprint

Black-Box Explainability for Image Classifiers in a Medical Setting
*Blake N., Kelly D. A., Chockler H., **Calderón-Peña S.** , Chanchal A.*
ResearchGate Preprint

Languages

- **English**: TOEFL Score: 111/120 **(C2)**

- **Spanish**: Native Speaker

- **French**: DELF B2 Certified **(B2)**

- **German**: Proficiency Level **(B1)**

- **Italian**: Proficiency Level **(A2)**

Volunteering

Web Dev Student Lead   **Sep 2023 — Mar 2024**
Google Developer Students Club - King's College London
- Conducted a workshop on MLOps in Google Cloud, focusing on using Vertex AI to automatically train and deploy a neural network for digit recognition using the MNIST dataset.
- Led a workshop on using the Vertex AI APIs for various industry applications, including text-to-speech, speech-to-text, and face recognition.
- Presented a workshop on developing APIs with Flask for natural language processing (NLP) tasks such as lemmatization and named entity recognition using spaCy.

Computer Skills Education Volunteer   **Jul 2022 — Jun 2023**
Fundación Laudes Infantis
- Taught basic robotics to children, instructing dozens of individuals in low-income areas of Bogotá.
- Provided foundational education in JavaScript and HTML to adolescents and adults in Bogotá, enabling young entrepreneurs to create their own business websites.

Technical Skills:

- **Machine Learning & Data Science:** PyTorch, TensorFlow, Keras, Scikit-Learn, NumPy, Pandas, SpaCy

- **Cloud Platforms:**

  - **Azure:** Azure ML, AI Services, Blob Storage, SQL Database, Serverless, Event Grid, Active Directory
  - **AWS:** RDS, Lambda, SNS, SQS
  - **GCP:** Cloud Run, SQL, Spanner, Firestore, Compute Engine

- **DevOps & Containerization:** Docker, Kubernetes

- **Version Control:** Git, GitHub

- **Backend Development:** .NET (C#), Python (FastAPI), Java (Spring)

- **Testing:** JUnit, Mockito, pytest

- **Databases:** SQL Server, MySQL, Azure Cosmos DB

- **Research & Documentation:** LaTeX, Mendeley

Certifications

Microsoft Certified DP-100: Azure Data Scientist Associate, *Microsoft*
Credential id: E0BEA56FD07E8AB7

Microsoft Certified AI-102: Azure AI Engineer Associate, *Microsoft*
Credential id: E5960BE874975467

Google Cloud Certified - Associate Cloud Engineer, *Google Cloud*
Credential id: 63393547