

EDUCATION

MSc in Advanced Computing (Computer Science), *King's College London*
London, United Kingdom

Sep 2023 — Jan 2025

- Graduated with **Distinction** (among the top students in the cohort).
- **Master's Thesis**: "Real-Time Incremental Explanations and Saliency Maps for Object Detection in Videos" (**94/100**), supervised by *Prof. Hana Chockler*.
- **Scholarship**: Colfuturo - Foundation for the Future of Colombia (ranked 4th nationwide, top 0.5% of 779 candidates from Colombia).
- **Relevant Coursework**: Computer Vision, Neural Networks and Deep Learning, Data Mining, Multi-Agent Systems.
- **Research Interests**: Explainable AI, Computer Vision.
- **Extracurriculars**: Research Assistant in Explainable AI. Student Lead, Google Developer Student Club (GDSC).

BSc in Mechatronics Engineering, *Universidad Militar Nueva Granada*
Bogotá, Colombia

Jan 2017 — Apr 2022

- Graduated **Cum Laude** with the **highest GPA in cohort (4.54/5.0)**.
- **Bachelor's Thesis**: "Design and Implementation of Nonlinear Controllers for 3D Printing Systems" (**5.0/5.0**), awarded *Tesis Laureada* (highest honors).
- **Honors & Awards**: University Medal for Academic Merit, 5× *Matrícula de Honor* (highest semester GPA).
- **Scholarship**: Full scholarship awarded by the Colombian Ministry of Information Technologies and Communications.
- **Extracurriculars**: Member of the Davinci research group. Competitor on the university karate team (multiple tournament victories).

RESEARCH EXPERIENCE

Research Assistant, *King's College London*
London, United Kingdom

Sep 2023 — Present

- Developed the **IncX algorithm** for real-time explanations of object detectors, achieving an **order-of-magnitude reduction in latency** compared to benchmarks.
- Conducting research in **Explainable AI (XAI)** with peer-reviewed publications and submissions to top-tier AI conferences.
- Contributed to XAI methods for computer vision (**IncX**, **ReX**), leveraging PyTorch and ONNX within reproducible ML workflows.
- **Research Areas**: Explainable AI, Computer Vision

Teaching Assistant, *Universidad Militar Nueva Granada*
Bogotá, Colombia

Aug 2020 — Jun 2021

- Delivered tutorials for the Mechatronic Systems Models module.
- Contributed to the DaVinci research group, focusing on nonlinear control systems and applied mechatronics.

PUBLICATIONS

1. **Explainable AI for the Classification of Brain MRIs**
European Conference on Artificial Intelligence (ECAI) 2025 Workshop on EXPLIMED
Blake N., Kelly D. A., Chockler H., **Calderón-Peña S.**, Chanchal A.
[ResearchSquare Preprint](#)
2. **Real-Time Incremental Explanations for Object Detectors** *[Under Review]*
Submitted
Calderón-Peña S., Chockler H., Kelly D. A.
[arXiv Preprint](#)

INDUSTRY EXPERIENCE

Software Engineer – AI
Linqia, Remote (Core engineering team, San Francisco, USA)

Jan 2025 — Present

- Designed and deployed **AI agents** using Google's ADK and A2A, developing MCP tools that provide real-time data retrieval, computation and system interaction.
- Applied **large language models (LLMs)** for clustering and topic modeling, deriving insights from high-volume text data.
- Optimized large-scale **data processing pipelines**, improving efficiency and scalability in production workflows.

Software Engineer

Dec 2022 — Dec 2024

Quorum Software, Bogotá, Colombia, relocated to London, United Kingdom

- Led a text classification project comparing **traditional NLP** methods with fine-tuned **BERT-based models**, incorporating **SHAP for interpretability**.
- Developed a **Retrieval-Augmented Generation (RAG)** system using Azure AI Search and OpenAI GPT-4, enabling natural-language access to enterprise data.

Junior Software Developer

Mar 2022 — Oct 2022

Kin + Carta, Remote (US, Argentina, Colombia collaboration)

- Built and deployed Java RESTful APIs on GCP, supporting scalable automation and decision-making pipelines.

TECHNICAL SKILLS

- **Machine Learning & Data Science:** PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas, ONNX, SHAP
- **Reproducibility & MLOps:** Docker, Kubernetes, GitHub Actions, CI/CD, Azure Machine Learning
- **Cloud Platforms:** Azure, Google Cloud Platform, AWS
- **Research & Documentation:** \LaTeX , Mendeley
- **Version Control:** Git, GitHub

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](#)

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

- Led a workshop on MLOps in Google Cloud, demonstrating how to use Vertex AI to automatically train and deploy a neural network for digit recognition using the MNIST dataset.
- Conducted a session on applying Vertex AI APIs for industry applications, including text-to-speech, speech-to-text, and face recognition.
- Presented 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 in low-income areas of Bogotá, empowering dozens of individuals with hands-on STEM skills.
- Provided foundational education in JavaScript and HTML to adolescents and adults, helping them build websites to support their entrepreneurial ventures.