# Alberto González Olmos

## Data Scientist

44161215 Elstedvænge 32, Lystrup
AlbertoGonzalezOlmos | albertoglezol | alberto.gonzalez.olmos@gmail.com

---

**Profile:** Seeking an AI/ Data Science position to leverage my expertise in machine learning, data analysis, and research. By working on diverse and challenging problems, I have gained experience in understanding complex topics and in applying a wide range of AI and machine learning techniques. I thrive in fast-paced, multidisciplinary projects, working with people of different backgrounds, and am committed to ongoing personal and professional development. I am ready to start working immediately.

## Work Experience

**Machine Learning Engineer** **Jan 2024**
*ExSeed Health, Contract* *remote*
Field: Machine Learning & Computer Vision

- Developing segmentation and tracking algorithms in Pytorch and YOLOv8.
- Using DevOps, MLOps methodology.
- Deploying the system in AWS (SageMaker, Lambda, DynamoDB and S3).
- Result: Improved tracking of sperm cells, automatic analysis of sperm quality.

**Data Scientist** **Aug 2023 - Dec 2023**
*Meddoc Flow ApS., Contract* *remote*
Field: Natural Language Processing

- Developed RAG and NLP algorithms to retrieve Medical Device Regualtion (MDR) queries in a vector database.
- Using LlamaIndex and Truera to create a RAG pipeline and implement the triad metrics: context relevance, groundedness and answer relevance; and retrieval algorithms: sentence window retrieval, auto-merging retrieval.
- Result: Proof of Concept retrieval system to query the MDR with NLP.

**PhD student** **Sep 2021 - Jan 2024**
*Department of Clinical Medicine, Aarhus University* *Aarhus, Denmark*
Field: Machine Learning & Hypertension

- New time-series contrast analysis of laser speckle images. Improved optical system.
- Result: 2 publications, patent.

**Machine Learning internship** **Jul 2019 - Sep 2019**
*Telefónica Alpha, Health Moonshot* *Barcelona, Spain*
Field: Machine Learning & Human Computer Interaction

- EDA and time-series analysis of phone sensors, electrodermal activity from empatica's wristband and self reported questionnaires in a phone app.
- Result: Insights into the relation between sensor data, arousal state and self-reported states of happiness.

**Marie Curie Early Stage Researcher** **Mar 2017 - Apr 2020**
*Department of Computing Science, University of Glasgow* *Glasgow, Scotland*
Field: Machine Learning, Human-Computer Interaction & Attachment Theory

- EDA and mapping of electrodermal activity to vibrotactile cues and psychophysics.
- Result: Insight into the use of vibrotactile feedback to represent arousal in emotionally shut down people.

**Biomedical Engineer** **Mar 2015 - Apr 2017**
*Max-Plank Institute for Metabolism Research* *Cologne, Germany*
Field: MRI & fMRI analysis

- Designed Experiment. Segmented brainstem in MRI images, analyzed fMRI data. Used time-series analysis to debug the processing pipeline.
- Result: Successful completion of an ambitious project.

**Machine Learning Research Fellowship** **Mar 2013 - Apr 2014**
*Department of Mathematics, University of Barcelona* *Barcelona, Spain*
Field: Machine Learning & Atherosclerosis

- Implemented new metrics and alignment algorithms on Intravascular Ultrasound images.
- Result: Faster and more reliable alignment of IVUS sequences from coronary arteries.

## Skills

| | |
|---|---|
| **Programming** | Python, SQL, JavaScript, Docker, C++, Matlab, Git, LaTeX, R, Bash |
| **Data Science** | *ML:* PyTorch, Tensorflow, scikit-learn, scipy, OpenCV.<br>*NLP:* sentence-transformers, LangChain(python and JS), LlamaIndex, NLTK, Truera, openAI.<br>*Data Visualization:* matplotlib, plotly-dash, folium.<br>*Front-end:* React.<br>*Deployment:* AWS, Azure |
| **Languages** | Spanish (native), English (TOEFL:108/120),<br>Danish (module 3, learning), German(A2) |
| **Soft skills** | I am good at working in teams and communicating across stakeholders with diverse backgrounds and educational levels. |

## Education

**PhD. Clinical Medicine**, *Aarhus University* pending defense
Thesis: Characterizing hypertension in the microcirculation using laser speckle contrast imaging
Awards:

- Patent co-author: González Olmos A, Postnov DD. High-speed laser speckle contrast imaging. Patent pending, application number EP 22173808. 2022

**MSc. Biomedical Engineering**, *University of Barcelona* Sep 2014
Thesis: Bias-Variance analysis in the detection of emotions using electroencephalogram
**BE. Electronics Engineering**, *Politecnic University of Cartagena* Oct 2010
Thesis: Artificial muscle control system
Awards:

- Winner of national thesis award in Electronics Engineering. Top 1% in Spain. *Spanish School of Engineering*
- Finalist of national bachelor thesis award. *Universia-Vodafone Foundation*
- Outstanding bachelor thesis. Top 1% in the university. *Politecnic University of Cartagena*

## Courses

**Applied DevOps Engineering** in progress
*IBM - Coursera, professional certificate*
**Azure Developer Associate (AZ-204)** in progress
*Microsoft - Coursera, professional certificate*
**Build LLM Apps with LangChain.js** 2024
*LangChain - deeplearning, short course*
**Build and Evaluate advanced RAG applications** 2023
*LlamaIndex & truera - deeplearning, short course*
**Vector Databases: from Embeddings to Applications** 2023
*Weaviate - deeplearning, short course*
**Advanced React** 2023
*Meta - Coursera, course*
**AI Engineering** 2023
*IBM - Coursera, professional certificate*
**Data Science** 2023
*IBM - Coursera, professional certificate*
**Machine Learning and Computer Vision**, *grade: 12* 2020
*Aarhus University, master course*
**Innovation in Engineering**, *grade: 10* 2020
*Aarhus University, master course*
**Computational Interaction** 2018
*University of Cambridge, summer school*
**fMRI analysis** 2016
*Max Plank Institute for Human Cognitive and Brain Science, course*
**Machine Learning** 2014
*Standford - Coursera, specialization*

## Publications

**Lossless temporal contrast analysis of laser speckle images from periodic signals** *Alberto González Olmos, Zaka Humlesen, Vladimir Matchkov, and Dmitry D. Postnov* Biomedical Optics Express. 2023
Topic: Improved time-series analysis of LSCI.
**Optimizing precision of laser speckle contrast imaging** *Alberto González Olmos, Sharvari Zipelwar, Smrithi Sunil, David A. Boas, Dmitry D. Postnov* Scientific Reports. 2023
Topic: Analysis of the optical system's parameters by analyzing contrast statistics.
**Augmenting the perception of other's anxiety with subliminal interfaces** *Alberto González Olmos, Stephen Brewster* 3rd Symposium on Computing and Mental Health. CHI conference, Montreal. 2018
Topic: Exploration of mapping electrodermal activity to vibrotactile cues to represent states of arousal.

## Hobbies

I love creating with my two children and my wife and socializing with co-workers. We recently bought a house in Lystrup and we are settling in Denmark. I also enjoy running and team sports, especially badminton, football and board games with my friends and family.