Carlos Garrido

Phd Student

Deep Learning | Computer Vision | Document Analysis | Vision-Language Models

Webpage | LinkedIn | Mail: carlos.garrido@ua.es | Google Scholar | GitHub

EDUCATION

Computer Science bachelor
University of Alicante (2017 - 2021)

Master in Data Science & Artificial Intelligence
University of Alicante (2021 - 2022)

PhD in Artificial Intelligence (2023 - present)
University of Alicante + Research stays

TECHNICAL SKILLS

Neural Networks	Document Analysis
Vision-Language Models	Python
Transformers	PyTorch
Sequence Modelling	Docker

SUMMARY

Last year PhD student specializing in Deep Learning, with a focus on Domain Generalization and its applications in Document Analysis and Handwritten Text Recognition (HTR). My research explores techniques to enhance model robustness in out-of-distribution scenarios, analyzing key factors that influence generalization. I am particularly interested in the role of data-efficient architectures, synthetic data, self-supervised learning, and generative models in improving adaptability across diverse domains.

RECENT PUBLICATIONS

“On the Generalization of Handwritten Text Recognition Models”. Accepted @ CVPR 2025. Two authors.

- Analyzed generalization of HTR models, evaluating 8 architectures with multiple datasets and languages.
- Identified key factors affecting out-of-distribution (OOD) performance.
- Showed that OOD errors can be reliably estimated, offering insights for improving HTR robustness.

“Handwritten Text Recognition: A Survey”. Under Revision at IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2025. Three-author paper.

- Conducted a comprehensive review of HTR, covering key methods, benchmarks, and challenges
- Provided insights into advancements and future directions.

“Spatial context-based self-supervised learning for Handwritten Text Recognition”. Accepted @ Pattern Recognition Letters (PRL), 2024.

- Developed spatial-based SSL methods for Handwritten Text Recognition.

"Efficient Approaches for Notation Assembly in OMR” @ ISMIR 2023.

- Neural network approaches to improve the reconstruction of musical notation by optimizing the retrieval of syntactic relationships between symbols.

“Continual learning for document image binarization” @ 26th ICPR, 2022.

- Implemented Hypernetworks for binarization of documents in a sequential-learning scenario.
- Presented as my final degree/thesis project (10/10 w. honours).

WORK EXPERIENCE

- **Software Engineer @ Mosaiqo Software Development (2018 - 2019):**
  - Implemented server-side logic and ensure seamless integration with front-end services.
- **Student intern at PRAIG @ University of Alicante (2021 -2022)**
  - Conducted research on continual learning for document image binarization, resulting in a publication at the 26th ICPR, 2022.
  - Developed methods for region-based layout analysis of music scores, leading to a publication in Expert Systems with Applications.