Maider Abad

Ph.D. in Network and Information Technologies

Location: Barcelona, Spain

LinkedIn: linkedin.com/in/maider-abad/

E-mail: maider.abad97@gmail.com

Website: maiderabad.github.io/

Professional Summary

Specializing in computer vision and the development of meta-AI models for medical imaging, combining predictive and generative approaches for the generation of desion support systems. Experienced in transitioning from academic research to practical applications, with strong analytical problem-solving skills and innovative project management abilities. Proficient in advanced data analysis, critical thinking, and collaborative research, with a proven track record as a lecturer, delivering complex concepts in an engaging and accessible manner.

Skills

Strategic Thinking

Active Listening

Complex Problem Solving

Self-starter

Project Management

Scientific Writing

Teaching Experience

Programming Skills (Python, R, C++, MatLab)

Shell Scripting

Deep Learning (TensorFlow, Keras, PyTorch)

Computer Vision

Software Development Tools (Git, Docker)

Work History

Postdoctoral Researcher, 11/2024 - Current

ESADE - Sant Cugat del Vallès, Barcelona, Spain

- Development of differential replication techniques to improve the transferability of AI models.
- Lead a case study applying differential replication techniques, demonstrating their practical effectiveness in real-world scenarios.

Lecturer, 09/2024 - Current

ESADE - Sant Cugat del Vallès, Barcelona, Spain

- Created the Software Development for Business course from scratch for the BBA & BAIB program, teaching it in the third year. The course covers best programming practices, terminal usage, and methodologies such as Git and Docker.
- Responsible for teaching and delivering Software Development for Bussiness course.
- Collaborated in the second-year Computer Problem Solving course, developing and teaching practical class content focused on essential programming skills and problem-solving techniques.

Teaching Assistant, 10/2021 - 07/2024

Universitat Oberta de Catalunya (UOC) - Barcelona, Spain

- Teaching Assistant in the Master's program in Data Science for the Deep Learning course.
- Tutored four Master's theses (TFMs), all with outstanding results:

  - "Automating Data Cleaning for X-ray Image Diagnosis using Open-Set Recognition Models and Transfer Learning." Grade: Outstanding.
  - "Enhancing Detection and Interpretability of Chest X-ray Image Classification: Focus on COVID-19, Viral Pneumonia, and Lung Opacity." Grade: Outstanding, with Honors.
  - "Utilizing Counterfactual Methods to Interpret Convolutional Neural Network Results in COVID-19 Detection through X-ray Images." Grade: Outstanding, with Honors.
  - "Improving COVID-19 Detection: A Comparative Analysis of Generative Adversarial Network-Generated Synthetic X-Ray Images." Grade: Outstanding.

Researcher, 09/2023 - 03/2024

icometrix – Leuven, Belgium

- Researcher in a project on Longitudinal Self-Supervised Learning applied to brain MRI images for estimating brain atrophy.
- Applied self-supervised learning techniques to enhance medical image analysis in the industry.
- Achieved improved detection accuracy of early-stage brain atrophy, surpassing traditional methods.

R&D Software Engineer, 09/2020 - 09/2021

iLine Microsystems – Donosti-San Sebastián, Spain

- Lead development of an image recognition software system for quality control in blood coagulation measurement devices.
- Developed and implemented machine learning methods to improve the accuracy and functionality of medical devices in development for market release.

Quality Assurance Engineer, 09/2019 - 07/2020

microLIQUID – Mondragon, Spain

- Coordinated the development and management of incident management, process improvement, control plans, and quality plans to ensure compliance in medical device manufacturing.
- Successfully obtained ISO 13485 certification for medical devices.

Researcher, 10/2018 - 07/2019

Great Ormond Street Hospital for Children and University College London (UCL) – London, UK

- Developed patient-specific models using Finite Element Analysis (FEA) for cardiac surgical planning.
- Validated the effectiveness of prospective models in real surgeries, improving patient outcomes.

EDUCATION

Ph.D. Fellow in Network and Information Technologies (Cum Laude): 10/2021 – 12/2024

Universitat Oberta de Catalunya - Barcelona, Spain

- Gathering AI Solutions for Building a Meta-AI Tool for Chest X-Ray COVID-19 Diagnosis.

Master of Science in Biomedical Technologies: 09/2019 – 03/2021

Mondragon University - Mondragon, Spain

Bachelor of Science in Biomedical Engineering: 09/2015 – 06/2019

Mondragon University - Mondragon, Spain

PUBLICATIONS AND CONFERENCES

Calvo, M., Abad, M. and Díaz, O. (2017). Influence of induced respiratory rate on HRV values. In: XXXV Annual Congress of the Spanish Society Biomedical Engineering CASEIB. [online] pp.367-370. Available in: http://seib.org.es/publicaciones-cientificas-caseib/

Abad, M. Casas-Roma, J. and Prados, F. (2022). Reducing the Learning Domain by Using Image Processing to Diagnose COVID-19 from X-Ray Images. In: 24th International Conference of the Catalan Association for Artificial Intelligence (CCIA 2022). [online] pp.229-238. Available in: https://ebooks.iospress.nl/volumearticle/61249

Reducing the Learning Domain by Using Image Processing to Diagnose COVID-19 from X-Ray Images. Deep Learning Barcelona Symposium, December 2022.

Abad, M., Casas-Roma, J. and Prados, F. (2024)Generalizable disease detection using model ensemble on chest X-ray images. Sci Rep 14, 5890. Available in: https://doi.org/10.1038/s41598-024-56171-6

Abad, M., García, E., Prados, F., and Casas-Roma, J. (2024) Employing Counterfactual Methods to Interpret Convolutional Network Findings in X-Ray Image Detection. International Journal of Image, Graphics and Signal Processing(IJIGSP) [under review]

Abad, M., Salas, R., Casas-Roma, J. and Prados, F. (2024) Efficient X-ray Image Data Cleaning Using Open-Set Recognition Models and Transfer Learning Automation. IET Image Processing. [under review]

Abad, M., Boher-Massaguer, M., Lara-Simon, E., Casas-Roma, J. and Prados, F. (2024) Clinical application of dynamic ensemble model for adaptive disease detection using chest X-rays. Image and Vision Computing. [under review]

LANGUAGES

Spanish

Bilingual or native proficiency

Basque

Bilingual or native proficiency

English

Full Professional Proficiency

Catalan

Basic Knowledge

VOLUNTEERING

Volunteer at Young IT Girls (YITG), 03/2022 - Present

iLine Microsystems – San Sebastian, Spain

- Creating and developing activities to bring technology to primary, secondary, and high school students.
- Inspiring vocation and promoting female professional references in the technology sector.
- Teaching the real-world applications of technology and innovation in daily life.