SORS/WomenInBSC: "Prediction is better than cure: how explainable AI can improve healthcare"

Objectives

Abstract:

Machine learning methods have the potential to augment diagnostic capabilities in noninvasive screening techniques like ultrasound and microscopy, which often suffer from noise and lack specificity. This presentation showcases our team's efforts in developing tools for practical clinical applications in areas like sepsis, meningitis, malaria, depression and ageing. Utilizing explainable AI algorithms such as SHAP, LIME, and GradCAM, we prioritize transparency and bias identification in tool development. We provide examples illustrating how deep learning models, when applied to medical images, extend the clinician's vision 'beyond the expert human eye,' complementing doctors' expertise for improved diagnosis. Finally, we explore the transformative impact of foundational models like ChatGPT4 on future healthcare, discussing both limitations and opportunities of these emerging technologies.

Short Bio:
Paula Petrone is the Head of the Biomedical Data Science team at ISGlobal, specializing in machine learning for chronic and infectious disease screening and digital health applications. With a Physics degree from the Balseiro Institute, her background includes a PhD at Stanford, pharmaceutical roles at Roche and Novartis, and a postdoc at the Barcelona Brain Research Center focusing on Alzheimer's prediction through brain image processing. Beyond research, Paula is a digital health startup consultant, mentor, and activist promoting ethics and diversity in STEM. She organizes every year the Women in Data Science Barcelona Biomedicine event. She is a mother of two children and enjoys outdoor sports.

Speakers

Speaker: Paula Petrone. Associate Research Professor. Head of the Biomedical Data Science team at ISGlobal.
Host: Alba Jené, Life Sciences Scientific Coordinator, Life Sciences, BSC.
Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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