



ALMA MATER STUDIORUM | RESEARCH
UNIVERSITÀ DI BOLOGNA | DIVISION

To ManagiDiTH – Advanced Digital Skills

Subject: ManagiDiTH Master's programme post-graduation professional experience of Matias Ignacio de la Calle

To whom it may concern,

I hereby declare that Matias Ignacio de la Calle started his current full-time permanent position as Research Development Manager at University of Bologna - Life Sciences & Bioeconomy Unit - Research Services Division (ARIC) on the 14th January 2019.

Matias tasks at Life Sciences & Bioeconomy Unit as Project Senior Advisor and Grant Research Development Manager, in the Health and Digital Health within the H2020, Horizon Europe and other EU programs are:

- High level support to academic staff towards competitive funding sources
- Intra-university networking -> integrated research teams
- International networking with the most important EU Universities, Technopoles and Health services
- Connecting with SMEs and large multinational companies and TT / KT transfer
- Support fundamental research in health and digital health
- Qualified and pro-active technical and administrative support to researchers
- Presence and networking @EC Bruxelles, Italian and European platforms
- Support to partnership matching
- Support to proposal drafting, accounting and financial reporting - Networking with companies

EU funded projects related to Digital Health, being University of Bologna being partner/coordinator with the support from Life Sciences & Bioeconomy Unit:

GenoMed4All - Genomics and Personalized Medicine for all through Artificial Intelligence in Haematological Diseases

Supports the pooling of genomic, clinical data and other “-omics” health data (data EHR, PET, MRI and CT, Next Generation Sequencing, Microarray, Genome Wide Association, Copy Number Variations, DNA sequencing, RNA sequencing, including single cell, etc.) through a secure and privacy respectful data sharing platform based on the novel Federated Learning scheme, to advance research in personalised medicine in haematological diseases thanks to advanced novel AI models and standardized sharing of cross-border data. GENOMED4ALL demonstrates the potential and benefits of trustable and explainable AI technologies, with a novel approach to AI models and algorithms using AI advanced deep learning,

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variational autoencoders, generative models, besides combining with advanced statistical and Machine learning processes approaches to exploit the powerful set of “-omics” data which will be at researchers’ disposal.

HARMONY and HARMONY PLUS - Healthcare Alliance for Resourceful Medicines Offensive against Neoplasms in Hematology (PLUS)

The goal is to collect, store and analyse the current HM information to speed up and support the decision-making process for patients’ access to new therapies. The project uses the capabilities of the HARMONY Big Data platform to match the unmet needs by expanding the scope to incorporate myeloproliferative neoplasms including chronic myeloid leukaemia, polycythaemia vera, essential thrombocythaemia and myelofibrosis as well as lymphoproliferative disorders including Hodgkin’s lymphoma, Waldenström macroglobulinaemia and all rare HMs not covered by the previous HARMONY project.

ONCORELIEF - A digital guardian angel enhancing cancer patient’s wellbeing and health status improvement following treatment

The EU-funded ONCORELIEF project is bringing together the latest technological advances and occupational psychology/health sciences. It is developing a user-centred artificial intelligence (AI) system to create an intuitive smart digital assistant called Guardian Angel.

PRIMAGE - Predictive In-silico Multiscale Analytics to support cancer personalized diagnosis and prognosis, Empowered by imaging biomarkers

PRIMAGE proposes a cloud-based platform to support decision making in the clinical management of malignant solid tumours, offering predictive tools to assist diagnosis, prognosis, therapies choice and treatment follow up, based on the use of novel imaging biomarkers, in-silico tumour growth simulation, advanced visualisation of predictions with weighted confidence scores and machine-learning based translation of this knowledge into predictors for the most relevant, disease-specific, Clinical End Points.

PRIMAGE implements a hybrid cloud model, comprising the use of open public cloud (based on EOSC services) and private clouds, enabling use by the scientific community (facilitating reuse of de-identified clinical curated data in Open Science) and also suitable for future commercial exploitation.

BIOTOOL-CHF - BIOMarker based diagnostic TOOLkit to personalize pharmacological approaches in congestive heart failure

In the field of Heart failure, the project 1) validates a set of qualified biomarkers estimating congestion, 2) defines a multiparametric artificial intelligence-based score predicting congestion and prognosis, 3) develops a decision-making tool to manage congestion by diuretics, 4) develops a Point of Care companion diagnostic (CD) to assess biomarkers concentrations 5) sets up a Strategy plan for industrial development and market access of the CD.



METASTRA - CoMputer-aided EffecTive frActure risk STRAtification of patients with vertebral metastases for personalised treatment through robust computational models validated in clinical settings

In the field of vertebral cancer metastasis, This interdisciplinary project will develop Artificial Intelligence (AI)- and Physiology-based (VPH) biomechanical computational models to stratify patients with spine metastasis who are at high risk of fracture and to identify the best personalised surgical treatment. Several models will be combined in a decision support system (DSS) enabling clinicians to successfully stratify metastatic patients.

PREMIOCOLLAB - Personalised response monitoring in oncology: co-creating clinical trials in advanced breast cancer

Project vision is to prolong overall survival and improve the quality of life for patients with metastatic breast cancer (MBC) by providing refined guidance for managing response monitoring. PREMIO COLLAB strives to facilitate improved patient care and streamlined clinical workflows addressing the needs of patients, healthcare professionals, and society. AI-based solutions in imaging and liquid biopsies constitute perspectives with a broader horizon.

PSYCH-STRATA - Stratified Treatment Algorithm in Psychiatry: A program on stratified pharmacogenomics in severe mental illness

Patients suffering from major mental disorders showing early signs of treatment resistance (TR). PSYCHSTRATA dissects the biological basis of TR and establish criteria to enable early detection of individuals at risk for TR based on the integrated analysis of an unprecedented collection of genetic, biological, digital mental health, and clinical data; enables the translation of these findings into clinical practice by prototyping the integration of personalized treatment decision support and patient-oriented decision-making mental health boards.

SMASH – HCM - Stratification, Management, and Guidance of Hypertrophic Cardiomyopathy Patients using Hybrid Digital Twin Solutions

In the field of Hypertrophic cardiomyopathy (HCM), the project develops a digital-twin platform to dramatically improve HCM stratification and disease management, both for clinicians and patients. Multilevel and multiorgan dynamic biophysical and data-driven models are integrated in a three-level deep phenotyping approach designed for fast uptake into the clinical workflow.

SYNTHEMA - Synthetic generation of hematological data over federated computing frameworks

In the ambit of Haematological diseases (HDs), the project aims to establish a cross-border data hub where to develop and validate innovative AI-based techniques for clinical data anonymisation and synthetic data generation (SDG), to tackle the scarcity and fragmentation of data and widen the basis for GDPRcompliant research in RHDs. SYNTHEMA develops a federated learning (FL) infrastructure, equipped with secure



<p>multiparty computation (SMPC) and differential privacy (DF) protocols, connecting clinical centres bringing standardised, interoperable multimodal datasets and computing centres from academia and SME.</p>
<p>ORCHESTRA - Connecting European Cohorts to Increase Common and Effective Response to SARS-CoV-2 Pandemic</p> <p>It Provides an innovative approach to learn from the SARS-CoV-2 health crisis and derive recommendations for increasing preparedness for future outbreaks. Ccreation of a new pan-European cohort built on existing and new large-scale population cohorts in European and non-European countries. Data analysis through a federated learning technique supported by advanced modelling capabilities will allow the integration of epidemiological, clinical, microbiological and genotypic aspects of population-based cohorts with environment and socioeconomic features.</p>
<p>ENLIGHTENme - Innovative policies for improving citizens' health and wellbeing addressing indoor and outdoor lighting</p> <p>Outdoor illumination, artificial sky glow, domestic lighting, light-emitting screens, etc. entrain circadian clock. Despite scientific evidences on the pathogenic role of circadian rhythms disruption in predisposing to NCDs, affecting sleep, metabolism, immune function and many aspects of behavior and mood, EU cities are mostly focusing on improving lighting services' efficiency, reducing costs and emissions, but failing to consider lighting impacts on health and wellbeing. A population-based study on elderly allows to assess lighting-dependent risks on mental and health conditions and surveys involving the overall district population and users will allow assess the impacts of urban lighting on quality of life and wellbeing. The results allow to develop a dedicated Decision Support System and guidelines and recommendation on the impact of lighting on health and wellbeing.</p>
<p>GENOMED4ALL - Genomics and Personalized Medicine for all though Artificial Intelligence in Haematological Diseases</p> <p>The project supports the pooling of genomic, clinical data and other "-omics" health data (data EHR, PET, MRI and CT , Next Generation Sequencing, Microarray, Genome Wide Association, Copy Number Variations, DNA sequencing, RNA sequencing, including single cell, etc.) through a secure and privacy respectful data sharing platform based on the novel Federated Learning scheme, to advance research in personalised medicine in haematological diseases thanks to advanced novel AI models and standardized sharing of cross-border data.</p>
<p>ISW - In Silico World: Lowering barriers to ubiquitous adoption of In Silico Trials</p> <p>The overall aim of the In Silico World project is to accelerate the uptake of modelling and simulation technologies for the development and regulatory assessment of all kind of medical products. This will be achieved by supporting the trajectory of a number of In Silico Trials solutions through development, validation, regulatory approval, optimisation, and commercial exploitation.</p>
<p>MOBILISE – D - Connecting digital mobility assessment to clinical outcomes for regulatory and clinical endorsement</p>



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In the field of impaired mobility, the overarching objectives of MOBILISE-D are threefold: to deliver a valid solution (consisting of sensor, algorithms, data analytics, outcomes) for realworld digital mobility assessment; to validate digital outcomes in predicting clinical outcome in chronic obstructive pulmonary disease, Parkinson's disease, multiple sclerosis and hip fracture recovery; and, to obtain key regulatory and health stakeholder approval for digital mobility assessment.

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The Head of Unit

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