3rd Newsletter- February 2022 View online

PersonalizeAF Third Newsletter

Welcome to the third newsletter of the PersonalizeAF! The objective of this bianual publication is to keep all our public updated with all information and main ongoing activities while our project is under way. Now that most of the Early Stage Researchers of PersonalizeAF have been working for more than a year, we will give an update of their projects: new secondments, trainings, papers, conferences, events, an more!

Do not miss it and stay tuned for all this information! And don't forget to suscribe to receive all the news!

PersonalizeAF, the project bringing universities, hospitals and companies from all over Europe together to tackle Atrial Fibrillation

What is Atrial Fibrillation?

Atrial fibrillation (AF) is a condition that causes an irregular and often abnormally fast heart rate. With different manifestations in each patient, it causes a worsening quality of life and a drastic reduction in life expectancy. Today, it is the most common cardiac arrhythmia, affecting more than 6 million Europeans and its prevalence is expected to double in the next forty years. Moreover, its cost exceeds 1% of European healthcare budgets (13.5 billion per year).

To reverse these figures - or at least reduce them - experts agree on the need to promote individualised patient management by personalising cardiovascular therapies.

What does PersonalizeAF network do?

PersonalizeAF addresses this challenge by delivering an innovative multinational, multi-sectorial, and multidisciplinary research and training programme in new technologies and novel strategies for individualized characterization of AF substrate to and increase treatments' efficiency.

This initiative involves European universities, hospitals and companies researching atrial fibrillation from different fields. Using artificial intelligence, signal processing and stem cell research, PersonalizeAF brings together engineers, clinicians and biologists to improve treatments, develop new diagnostic methods and optimise patient management.

From the research point of view, PersonalizeAF will integrate data and knowledge from in-vitro, in silico, ex vivo and in vivo animal and human models to:

1) generate an individual description of the state of the atrial muscle identifying the disease mechanisms and characteristics;

2) understanding the potential effect that different therapies have on different atrial substrates; and

3) combining this information to generate a specific profile of the patient and the best therapy for each patient.

With this purpose, PersonalizeAF partnership aggregates relevant scientific staff from the academic and clinical world with highly specialised biomedical companies which will be involved in a high-level personalised training programme that will train a new generation of highly skilled professionals and guarantee ESRs and future PhD students outstanding Career Opportunities in the biomedical engineering, cardiology services and medical devices sectors.

PersonalizeAF project updates

Our ESRs 15 and their research projects

The 15 Early Stage Rresearfcherss are working full-time in their projects around all Europe for more than a year, and they are involved in different sectors: academic, clinical and industry. Each of them is working in their individual PhD, but work also collaboratively with the same purpose, improving the paradigma of Atrial Fibrillation patients in Europe from a translational perspective.

Since they have some experience now as Early Stage Researchers, in #PersonalizeAF project, they will explain how this first 2 years of the project were, and where their projects are taking them to:

- **ESR1**: **Mariú Casini,** Instituto de Investigación Sanitaria la Fe (Spain):

" This year I ended the molecular characterization of my human induced pluripotent stem cell-derived atrial and ventricular cardiomyocytes. I looked at their gene and protein expression, their size and I took some nice images of them. Thanks to all these experiments I finally have an overview of how the cells look like. The next step is to perform a functional characterization of the cells. In order to do that, I will go to the lab in Freiburg, since they are extremely expert in electrophysiology studies. This year I also had the opportunity to test my science communication skills at the European Congress of Gene and Cell Therapy, at the scientific festival of Genova and at the European Researcher's Night in Madrid. It was very cool explaining science to the general public! "

- **ESR2: Carmen Martínez Antón:** Karlsruhe Institute of Technology (Germany)

"During these last months I have been very happy about the progress in my project. I collaborate as a co-author publishing the work, I have been doing with my colleague Laura Unger in the last year. And I'm so happy to see how she's finally obtaining her PhD this February! Besides, I have been more often in the EP-Lab following the procedures and I have to say that there's where the real magic happens. Of course, we can push the limits of research in a lot of different topics, but once you are there is that you finally understand what the physicians need and what they are lack of.

And last, but not least, I am supervising my first Master Student together with my colleague Jorge Sánchez. As always, at the beginning you can think maybe it's too soon to be the supervisor of anybody when it's yourself the one that still needs the supervision. But at the end, everything comes with time and personally I find the experience very fruitful."

- **ESR3**: **Eric Invers Rubio -**Institut d'Investigacions Biomèdiques August Pi I Sunyer(Spain)

" *We are continuously acquiring data for the analysis of conduction velocity within the atria. We are getting more experience in the ECGi analysis and using the expertise ofour group in MRI in order to fully understand these non-invasive techniques to characterise the atrial substrate. We are enhancing our*

collaboration between members of the consortium, including a joint brainstorming meeting with the UPV group and a secondment in Universitäts- Klinikum Freiburg. We are also preparing other secondments in Maastricht and UPV.. "

- **ESR4: Sachal Hussain-** Università di Bologna (Italy):

"During this period of time, I worked on the implementation of dynamic segmentation of left atrium using real time 3D echocardiographic data (RT3D-Echo) and I have received some preliminary results and the next step is to improve the results while testing on different patients. Then I switched to the second section of my project where I implemented a methodology called "regional segmentation of left atrium".

For this algorithm, I did programming in MATLAB and up-to now, I used datasets of 10 different patients and our idea is to test with 40 patients at least. In November, I remotely attended one week long workshop about "Communication in scientific research" held in Oslo, Norway. In January, I attended "4 th PersonalizeAF training workshop- Clinical management of AF and bioengineering" where I attended lectures on ethics in research and public engagement. Also in January, I attended 3 days meeting of PersonalizeAF project where I presented my work and also discussed the opportunity to have collaborative work with other institutes."

- **ESR5: Ozan Ozgul, -** Maastricht University (The Netherlands)

" Repetitive atrial activation patterns are frequently observed during AF and thought to be linked to mechanisms that are responsible for the maintenance of AF. We believe that these repetitive patterns can be detected over all atria in sequential mapping and we can construct the big picture of AF! Since my recruitment in August 2020, I have been involved in multiple projects in the context of repetitive pattern analysis during atrial fibrillation (AF).

To this day, I have implemented algorithmic parts of a 3D mapping software which takes the raw electrogram data as input and estimates local activation times, repetitive patterns, conduction velocities, preferential conduction directions, and many other conventional metrics. These are already embedded in the software and ready to be used. The composite mapping part is also developed for some simpler scenarios. At the moment, I am busy testing the composite mapping algorithm on the simulation data Victor (ESR 14) had generated

Although COVID did not allow many activities, I could attend two conferences- CinC 2021 and EMBC 2021. In both of these, I presented my papers on the methodology of electrogram signal processing. Nowadays, I am in the phase of preparing a new submission to CinC 2022. As the restrictions are less tight now, I am hopeful that I will be able to attend many other conferences in 2022".

- **ESR6**, **Teresa Schiatti** at Universitaets-Klinikum Freiburg (Germany):

"During the first year of my project, I have learned loads of different techniques, which allowed me to get a deeper understanding of my project itself, and where I would like to take it. Out of this experience, I could be the first co-author of the journal article "Consecutive-Day Ventricular and Atrial Cardiomyocyte Isolations from the Same Heart: Shifting the Cost–Benefit Balance of Cardiac Primary Cell Research". Since the

beginning of the second year, I am focusing more on the tissue level, trying to recreate a substrate vulnerable to AF. Despite there is still a lot of work to do, I am determined to try to create an in vitro model of AF at the tissue level."

- **ESR7: Cristian Barrios Espinosa -** Karlsruhe Institute of Technology (Germany):

"I have been working on creating a new model that combines the Eikonal model with the Reaction Diffusion model. This will allow to achieve high computational speed with sufficient accuracy. The goal of this model is to reproduce complex patterns of activation like the ones observed in atrial flutter and atrial fibrillation.

Additional improvements have been applied to the Eikonal model, by considering different factors that affect the conduction velocity. Firstly, there is tissue geometry characteristics such as curvature and thickness. Using a regression model over those factors it was possible to re-parametrize the Eikonal model and by that increase the accuracy of Eikonal model simulations and removing artificial endo-epi dissociation."

- **ESR8**: **Tomas Hutschalik-** NCARDIA, The Netherlands:

"I have extended my work with induced pluripotent stem cells to differing cell lines, not only differentiating cells and performing assays from one donor but several. This is an important step to see if my first findings regarding my cardiac cocultures are not just a singular result but are actually representative of a common pattern being found in differing individuals with differing genetic backgrounds. So far I have also extended my research into various new assays including electrophysiology measurements, supernatant analysis, fluorescence staining and soon even RNA sequencing."

- **ESR9: Albert Dasì i Martìnez-** University of Oxford (United Kingdom):

"It's been almost one year and a half since I started my DPhil at the University of Oxford and I couldn't be happier. During the last few months, we [The Computational Cardiovascular Science Team] have strengthened our collaboration with the John Radcliff Hospital and the Oxford Department of Medicine. With this new synergism, now our computational models of the atria include patient-specific information at both single-cell and organ levels. We are integrating data derived from genetics, cellular properties and different image modalities to develop in-silico models that can bring us closer to the clinical presentation of each patient."

- **ESR10**: **Narimane Gassa-** University of Bordeaux (France)

" We presented an eikonal model able to simulate spiral wave reentries in a clinical time scale. The new eikonal model is coupled with the Mitchell Schaeffer ionic model. Simulations were conducted on a 3D tissue slab and a bi-atrial geometry. An advantage of this approach is the rapid simulations that can be performed. Numerical results show that the proposed method and the monodomain model provide the same patterns of spiral waves.

- *Participation in the machine-learning challenge organized by IHU Liryc in April 2021. This challenge consisted in proposing a machine-learning-based model that is able to tell from implantable cardiac devices*

(ICD) recordings if the recorded signals are relevant for interpretation or are too noisy due to extra-cardiac muscular activity or interference from electrical devices. The aim of this project is to improve the distant monitoring of ICDs, using automated learning, allowing an automated analysis of cardiac arrhythmia signals prior to human assessment. Results were presented at the Computing In Cardiology 2021 conference (paper)

● First secondment at EP-Solutions SA a company that has a mission to help physicians achieve better outcomes for heart failure patients indicated for Cardiac Resynchronisation Therapy. The main objective of this secondment is the numerical study of various methods for discretization of the inverse electrocardiography problem."

- **ESR11: Carlos Fambuena Santos** Universitat Politècnica de València (Spain)

"I have developed a rotor detection algorithm based on phase maps using ECGI recordings obtained from patients with atrial fibrillation (AF). To test it, I have selected a set of validation records and created an application in MATLAB that allows visualizing phase maps and manually labeling those zones in which there are reentries. In addition, I have applied the algorithm in a database with recordings of patients with AF who have been treated by pulmonary vein isolation (PVI). In this way, different metrics obtained from the rotor detection algorithm have been evaluated and compared in patients that remained in sinus rhythm 6 months after PVI therapy, against those who relapse into some arrhythmia. The main result of this study showed how by means of ECGI mapping a higher prevalence of reentries in the PPVV could be distinguished in patients that fully recovered from PVI than in patients that returned to arrhythmia. In this way, this is one of the first evidences showing that ECGI can be used as a complementary technology to distinguish different atrial substrates and stratify patients before invasive tests or interventions. This result was presented in the congress Computing in Cardiology 2021 in the paper ¨An evaluation on the clinical outcome prediction of rotor detection in non-invasive phase maps¨ resulting in one of the finalists of the Rosanna Degani Young Investigator Award, and also as a poster in the congress Atrial Signals 2021. A journal paper has been drafted and is now pending to be submitted for revision.

In parallel, I have also been working on the development and extension of the CORGPU platform for carrying out cardiac simulations. The main objective of this task is to provide a set of realistic cardiac electrophysiological simulations to validate future algorithms. Specifically, the main actions have been to expand the repository of geometries, develop a graphical interface and contribute to the development of a methodology for customizing simulations based on patient electrophysiological data. This last objective is being carried out by supervising a final master's thesis. At this moment, he is using these simulations to develop a robust dominant frequency estimation procedure in ECGI. This would be an important milestone in the project because of two main reasons: 1) Areas with high dominant frequency have been linked to local drivers for AF, however, the direct relationship between DF mapping and frequency of activation has not been well stablished yet. Identifying those scenarios in which DFs are a reliable electrophysiological parameter for understanding a particular AF episode is an open research question. 2) The estimation of DF using ECGI is challenging due to technical limitations, further research should be carried out in order to distinguish artificial high DF areas due to ECGI reconstruction from those coming from real AF drivers."

- **ESR12**: **Patricia Martínez Díaz-** Karlsruhe Institute of Technology (Germany):

" One of the most important elements of my doctoral thesis is the generation of a digital model to study the patient's arrhythmia.

A digital cardiac twin is a computerized version of the patient's heart. It starts by acquiring the geometry of the heart using imaging techniques such as magnetic resonance imaging or electroanatomical mapping systems. Once the shape of the heart has been obtained, it is possible to select different regions and label them to adjust their electrical parameters according to histological observations or in vivo data. The result is a customized model that aims to reproduce the patient's electrophysiology. Likewise, this model must be able to reproduce the specific mechanisms causing the chaotic rhythm, which is a rather complex task as the characteristics of this arrhythmogenic substrate are often unknown. To get a better notion of the substrate, it is possible to use clinically derived information, such as the surface electrocardiogram (ECG), which is a noninvasive measurement in which several electrodes are placed on the patient's chest and extremities to obtain information about the electrical activity of the heart. In addition, it is also possible to use invasive data, such as electrical activation maps obtained during electrophysiological study, in which different catheters are introduced into the heart and placed there to directly record the electrical activity of the heart.

In recent months, during my secondment at the Universidad Politécnica de Valencia, I have been working with electrocardiographic imaging (ECGI) data to customize digital cardiac twins. In this modality, about 64 electrodes are placed on the patient's chest to obtain an activation pattern on the surface of the torso, then the inverse problem of electrocardiography is solved to identify the electrical propagation in the epicardium. That is, with the help of ECGI it is possible to calculate the activation times on the heart surface and use these data as a direct indicator of conduction velocity (CV). CV is one of the most important electrophysiological parameters since it indicates how fast or slow the electrical wave propagates in the heart and it has been observed that this parameter is modified when the heart is sick. Thus, once the conduction velocity is obtained, it is possible to use this parameter to customize the digital model of the patient's heart. However, the conduction velocity as such is not a parameter that we can introduce directly in our model, we must first calculate the conductivities and then, try to modify these conductivities to obtain the desired conduction velocity. So the final goal is to have a digital twin where the conduction velocity is set accordingly to the information obtained from the ECGI data. The results of this personalization approach will be submitted to the Computing in Cardiology 2022."

- **ESR13**: **Sergio Nabil Gadur-** SIMULA (Norway)

" I have performed a spatial and temporal sensitivity analysis of atrial blood flows on realistic geometries, involving meshes of several million elements. Many authors have reported that their results were converged when they varied the number of elements of the different meshes by a factor of 2 or 5 which is not enough to demonstrate that the results are converged. We have varied the number of elements by a factor of 10 or 100.

For the spatial and temporal sensitivity analysis, I used four geometries of the left atrium from atrial fibrillation patients and computed the flow by using a rigid wall assumption. The model is based on the

mass conservation equation in a control volume that encloses the left atrium, the left ventricle, and the aorta. I imposed that the total flow rate through the pulmonary veins was 5 l/min which is the mean flow rate at the aorta. Regarding the boundary conditions, I have considered zero pressure at the mitral valve, a no-slip condition at the walls, and a constant parabolic velocity profile at the pulmonary veins.

Then I was able to post-process my results and compute three hemodynamic indices: Time-Averaged Wall Shear Stress (TAWSS), Relative Residence Time (RRT), and Oscillatory Shear Index (OSI). These are important metrics that reflect the tangential forces exerted on a piece of tissue when blood is flowing, the oscillation between the lowest and highest value of these forces, and the relative time that particles spend in the domain. "

- **ESR14: Victor Gonzalves Marqués** - Maastricht University (Netherlands):

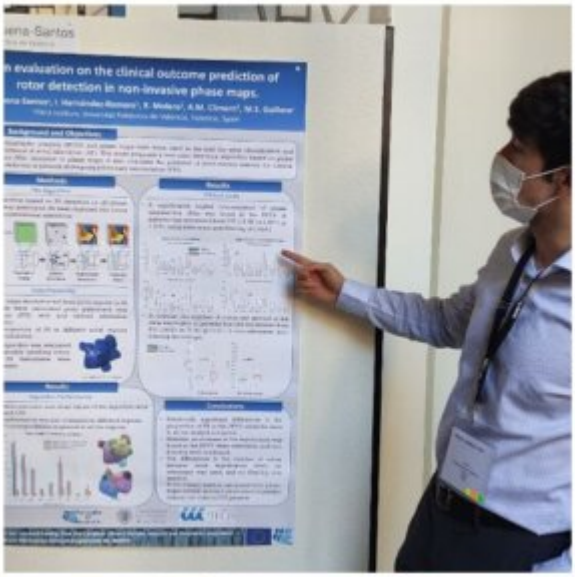
"In my project, I have been using the highly detailed 3D computer model of atrial fibrillation to explore the sources of this arrhythmia in a controlled environment and to track them more efficiently. Over the last year, I implemented several signal processing techniques to highlight important aspects of AF sources. In particular, the use of recurrence analysis, a technique developed to detect repetitiveness in dynamical systems, was relevant to associate repetitive conduction patterns to the neighborhood of AF sources, but not directly on them.

These results were presented at the Computing in Cardiology conference in 2021. After the conference, I started to put together recurrence analysis and other source tracking techniques into a single framework, an interactive platform that can be used to track sources in an in-silico environment and may lead to a better understanding of AF dynamics and optimal mapping strategies.."

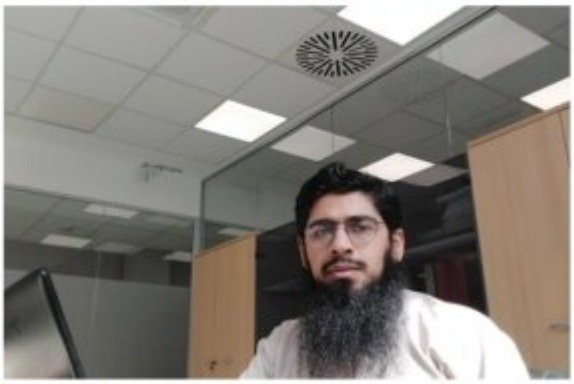
- **ESR15: Alexander Lacki** - Universitat Politècnica de València (Spain)

" My recent secondment at Veratech for Health has been very fruitful. With the help of my co-supervisor, Diego Bosca, I learned about the importance of semantic interoperability of components in clinical decision support systems, and how to extract relevant information from electronic health records. You could say that, for the first time since working in PersonalizeAF, I have the confidence that my project goal can actually be achieved, which is quite the relief. "

If you want to get to know the Early Stage Researchers way better and their pathway, stories and experiences, click here


evaluation on the clinical outcome prediction of
rotor detection in non-invasive phase maps.


KIT
Analysing the Effect of Catheter-Sheath Overlapping
Status in Local Impedance Simulations

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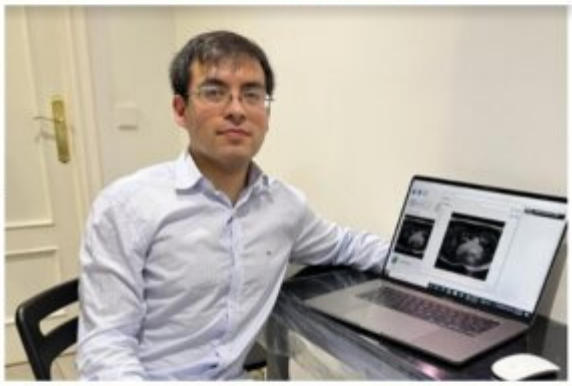



High-Coverage and High-Resolution Mapping of
Repetitive Patterns During Atrial Fibrillation
Maastricht University

Some Photos of our ESRs during 2021 and 2022

Atrial Signals Conference at Karlsrhue

Atrial Signals Conference was hosted by Karlsrhue Institute fur Technology, beneficiary of the PersonalizeAF project, the days 23-25th of September. This conference was composed of more than 60 talks by experts, comprising sessions such as The Arrhythmogenic Substrate, Atrial Signals – Novel Technologies, or Depolarization Patterns of AFlut and AFib.

PersonalizeAF network had a great presence there, starting from the presentation given by the project coordinator, Maria Guillem. She had the opportunity to present the network and the work that has been achieved so far tackling #AtrialFibrillation from a transnational and international perspective.

Carmen Martínez, ESR2, told us *"Afterwards, we host in Karlsruhe this year's Atrial Signals Conference. Of course, it was slightly different: we were part of the organizing team waking up very early every day, trying o be the perfect hosts during the evenings, and even presenting our research in the poster session. I really hope it worked! Personally, I found it very fruitful as I could improve mynetworking skills and meet in person a lot of "famous people from the papers" I was really interested in linking with real faces.*"

Moreover, some of the ESRs presented their work there:

-Cristian Barrios, ESR7 in PersonalizeAF network form KIT presented successfully also his work "Influence of Wave-Front and Atrial Tissue properties on Eikonal Model Simulations"

-ESR12, Patricia Martínez, from KIT, presented her poster of the work done so far in #PersonalizeAF project: " Influence of the Right Atrium for Arrhythmia Vulnerability: Geometry Inference Using a Statistical Shape Model" #MSCA

-Carmen Martínez, ESR2 presented ted her poster "Analyzing the effect of Catheter-Sheath Overlapping status in Local Impedance Simulations".

-Carlos Fambuena, ESR11, presented the poster "An evaluation on the clinical outcome prediction of rotor detection in non-invasive phase maps"

-Ursula Ravens from UKLFR presented "Ion channels in cardiac non-myocytes – implications for atrial fibrillation".

-Andreu M. Climent, presented to present their ECGI cardiac mapping #Acorys

-Ulrich Schotten from Maastricht University, who is the supervisor of ESR5 and ESR14, presented "Remodeling of atrial tissue", 3D structure of the fibrotic substrate

-Blanca Rodríguez presented "Computer modeling of the arrhythmogenic substrate", including Albert Dasi's work, ESR9 in PersonalizeAF project biatrial population of models.

Congratulations to all our excellent researchers!

PersonalizeAF Consortium at Atrial Signals Conference 2021

Conferences and journal papers

We are sharing here some of the participation in conferences or journal papers the ESRs had submitted in the last months. Also, they are sharing their plans on the near future. The information of all the publications made by the ESRs will be available in PersonalizeAF website

ESR1, Marilu Casini had the opportunity to submit her first abstract in a scientific congress, you will find how she generated atrial cardiomyocytes from stem cells and some nice pictures of them. She attended the European Congress of Gene and Cell Therapy. Unfortunately, it was online, but she got the opportunity to present her first abstract ever.

ESR2 could attend the CinC Conference: “That gave me the opportunity to learn a lot about how science is done in different research groups. It’s true that I could not find any topic really related to mine, but what other people were doing gave me also ideas to apply them to my own.”

In the I Premis d’Innovació Clínic, the IDBAPS team, including Eric Invers (ESR3), explained how their project is related to innovation within the medical field and presented a candidacy as the Arrhythmia department.

ESR5 could attend two conferences- CinC 2021 and EMBC 2021. In both of these, he presented his papers on the methodology of electrogram signal processing

Our ESR6, Teresa Schiatti, submitted her journal paper "Consecutive-Day Ventricular and Atrial Cardiomyocyte Isolations from the Same Heart: Shifting the Cost–Benefit Balance of Cardiac Primary Cell Research" She also has been accepted for presenting her papers at Deutsche Gesellschaft für Kardiologie (DGK) 2022 Conference and HRS) 2022 Conference

ESR7 had the opportunity to attend both Atrial Signals Karlsruhe Conference Oct-2021 and Computing in Cardiology Conference at Brno in September 2021

ESR8: Thomas Hutschalik submitted his first abstract to a conference, the 'Frontiers in Cardiovascular Biomedicine of the European Society of Cardiology in Budapest this April.

ESR9: Albert Dasí, aims to attend the European Society of Cardiology Congress and the 46th Working Group on Cardiac Cellular Electrophysiology Meeting

ESR10: Narimane attended CinC 2021, and had a Poster presented in the International scientific workshop 2021: Exploring Liryc's research work.

ESR11: Carlos presented the paper ¨An evaluation on the clinical outcome prediction of rotor detection in non-invasive phase maps¨ in the congress Computing in Cardiology 2021, a paper that resulted in one of the finalists of the Rosanna Degani Young Investigator Award, and also as a poster in the congress Atrial Signals 2021

ESR12: Patricia aims to attend the BMT 2022, Joint Annual Conference of the Austrian, German and Swiss Societies for Biomedical Engineering will be held at Congress Innsbruck in Innsbruck (Austria) from 28 Sep 2022 to 30 Sep 2022.

ESR13, Sergio Nabil is writing his first paper about non-Newtonian effects of blood in the left atrium which essentially accounts for changes in blood viscosity depending on the velocity gradient.

ESR14 attended Computing in Cardiology 2021 (and presented his work) and hope to attend Heart Rhythm 2022

ESR15 presented at Computing in Cardiology 2021 his paper "ECGI Periodicity Unraveled: A Deep Learning Approach for the Visualization of Periodic Spatiotemporal Patterns in Atrial Fibrillation Patients,"

Events and training courses

Fourth Meeting of the PersonalizeAF Network

Last 19-21th of January, the consortium celebrated its 4th network meeting, organised by Hospital La Fe, again in a fully online format. This meeting was a because it was a joint meeting with the MyAtria Consortium, another MSCA actions funded project, with Atrial Fibrillation as their main topic of research. This project has the objective of training a new figure of modern professional researchers in Atrial Fibrillation field with multidisciplinary competencies, able to transfer advances in basic science to market and clinics.

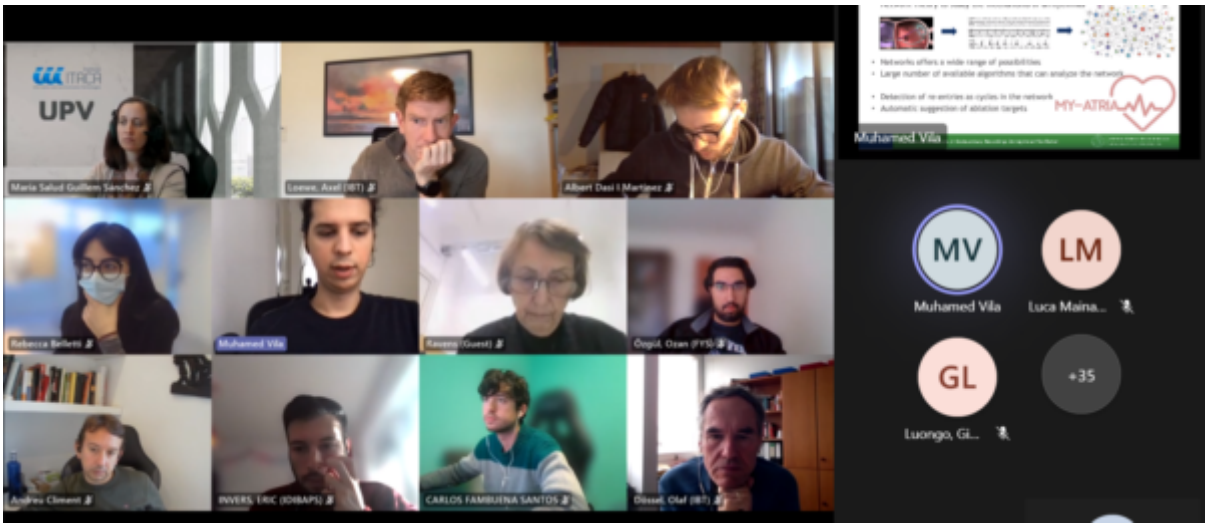
It was a great experience where the 15 ESRs from PersonalizeAF project and the 12 ESRs of MyAtria consortium were able to share their progress and their knowledge and expectations, but also sharing their experiences in international and translational research. Also, having a joint meeting was the opportunity to hear the feedback from highly experience researchers and clinicians.

In this meeting, both consortiums had the opportunity to attend two great events:

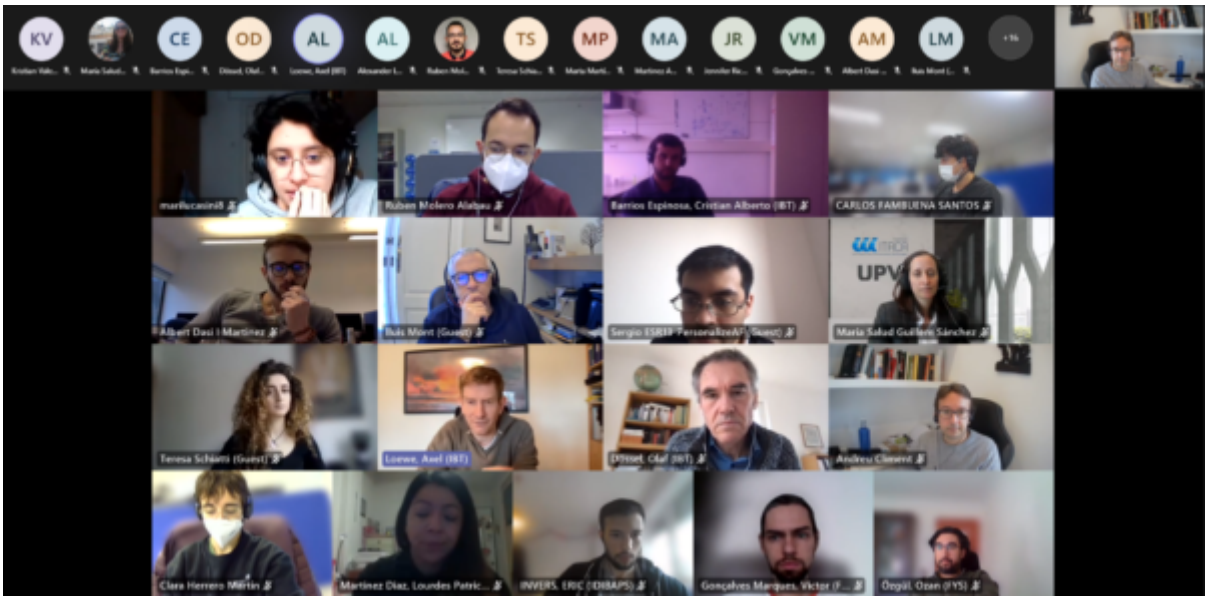
-Roundtable about Future perspectives in AF diagnostic & treatment roundtable, composed by Rob S. Macleod, Luca Mainardi, Lluis Mont and Trudie Lobban.

-Invited talk by Ravi Ranjan, a cardiologist specializing in cardiac electrophysiology, who has been a faculty member at the Univ of Utah since 2010.

Thanks to everyone for attending!



Some of the participants in the third meeting



PersonalizeAF members and invited people to the Modelling Focus Collaborative projects

Communication skills training course organized by SIMULA

On November 1-5th 2021, the first part of T51_Communication skills training course was taught to the ESRs, fully online. The second part will be taught on May 9-13th 2022 in Oslo.

"*The next step is to communicate them to other researchers and the general public. In the last months all the ESRs like me attended the courses scientific writing and science communication. Thanks to these workshops organized by the PersonalizeAF network, I learnt how to share my ideas and results depending on the audience I have*." – Marilu Casini, ESR1

Clinical management training course, organised by Hospital Universitario La Fe held online in January 2022.

The 4th PersonalizeAF training started successfully online, organized by Hospital La Fe, including the following courses:

• Cell culturing and stem cells differentiation

• Ethics in research

• Public engagement

ESRs shared some of their opinions about this course:

“I*n the public engagement course, we learned about different skills to explain our research and make it more understandable to the public. We could practice our presentations and get feedback. I hope to apply this knowledge to workshops I hope to give to high-school children*” – Eric Invers, ESR3

"*I really enjoyed the public engagement workshop. It made me internalize something that everyone, including me, thinks as obvious, but that most of the time is left aside: when engaging with the public you need to explain without lecturing, communicate while listening, and give details without overwhelming with redundancy. Definitely, an important take-home message both in science and out, but easier said than done!*” Teresa Schiatti, ESR6

Clinical management training was postponed, and it will happen in Spring 2022, including an ablation case live and some lectures given by clinicians from Hospital Clinic de Barcelona.

Transcriptomic and proteomic analysis and Next Generation Sequencing Technologies trainings will be taught in the near future in Leiden.

Next Events

5th Consortium meeting and Cardiac Electrophisiology training course

Next July, and if the sanitary situation allows it, the PersonalizeAF consortium will be meeting in person in Bordeaux, France.

The occasion will be the fourth meeting of the network and will be organized by Universitè de Bordeaux on, 4th and 5th of July.

Before the start of this 5th meeting, the ESRs will attend their Cardiac electrophysiology training course, hosted bu Universitè de Bordeaux as well, and will include the following courses:

• S31_Heart modeling and numerical simulation

• S32_Forward and inverse calculations

• S33_Cardiac mapping laboratory

• T31_Scientific writing

• T32_Intellectual property protection

European Hearth Rhythm Association (EHRA) 2022

The annual meeting of the European Heart Rhythm Association (EHRA) brings together scientists, healthcare professionals and other players involved in arrhythmia management from all around the world. This year this will happen on-site at Copenathen (but also online), from 3 to 5th of April. You can check the agenda here.

Frontiers in CardioVascular Biomedicine 2022

The FCVB congress will happen in Budapest, Hungary, 29th April - 1st May.

FCVB 2022 will focus on the translational aspects of cardiovascular research and showcase the best, the latest, and the most exciting findings and ideas wrapped in a unique and attractive program covering the entire spectrum of cutting-edge basic and translational cardiovascular research. It is hosted by ESC Council on Basic Cardiovascular Science and in collaboration with 14 ESC Working Groups and European Sister Societies.

The scientific program is available here

Computing in Cardiology 2022

Computing in Cardiology 2022 will happen next 4-7th September at Tampere, Finland. Computing in Cardiology is an international scientific conference that has been held annually since 1974. CinC provides a forum for scientists and professionals from the fields of medicine, physics, engineering, and computer science to discuss their current research in topics pertaining to computing in clinical cardiology and cardiovascular physiology.

Submission and registrations are open here

We recommend: Papers addressing Atrial Fibrillation

In this section, the consortium wants to share some of the Papers addressing Atrial Fibrillation and other arrythmias with were considered of interest and inspiring for our work. Check them out in order to learn more about Atrial Fibrillation, stem cells, image processing, cardiac modelling, etc!

"Dominant frequency increase rate predicts transition from paroxysmal to long-term persistent atrial fibrillation" by Raphael P Martins et al.

"Proximity to the descending aorta predicts regional fibrosis in the adjacent left atrial wall: aetiopathogenic and prognostic implications" by Gala Caixal et al

"Comprehensive surgical approach to treat atrial fibrillation in patients with variant pulmonary venous anatomy" by William Wang M. et al

"Spatial and temporal variability of rotational, focal, and irregular activity: Practical implications for mapping of atrial fibrillation" by Michael Pope et al

"Artificial intelligence for the detection, prediction, and management of atrial fibrillation" by Jonas L. Isaksen et al

"Cells of the adult human heart" by Monika Litviňuková et al.

"Computational models of atrial fibrillation: achievements, challenges, and perspectives for improving clinical care " by Jordi Heijman et al

"Predicting Atrial Fibrillation Recurrence by Combining Population Data and Virtual Cohorts of Patient-Specific Left Atrial Models" by Caroline H. Roney et al

PersonalizeAF Youtube Channel

Videoblogs in YouTube

In PersonalizeAF project we are committed to bring closer science to society, which is related to the H2020 objective of contributing to Open Science and research.

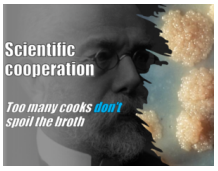
That's why the 15 Early Stage Researchers part of this multidisciplinar and international network are contributing to this challenge staring their own videoblogs' project.

Sharing a common YouTube channel and social networks, they have started a project of Videoblogs, in which we will be able to know periodically the results of their research in #Afib, their activities, but we will also learn about clinical perspective, stem cells, artificial intelligence, signal processing, echocardiography, etc.

Don't miss their videos, that will be launched every 6 months, and subscribe to their channel to stay tunned!

Last blog entries and News

Once a month, our researchers are sharing their latest updates about their research pathway. Do you want to learn more about Atrial Fibrillation? About how researchers life is? Check their articles and follow them on Social media!



February 2, 2022

Scientific Cooperation: Too many cooks don't spoil the broth

Scientific Cooperation: Too many cooks don't spoil the broth

close up shot of M. tuberculosis, arranged in colonies (CDC/Dr. George Kubica, Public Health Image Library 1976) This time we are…

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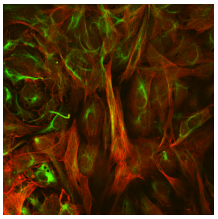

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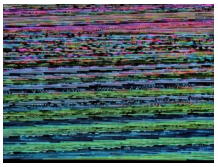

November 17, 2021

Success and Failure

Success and Failure Failure is all around the academic career, be that during experiments or grant applications. But is this always a bad thing? How to deal with it? A…

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Personalize AF

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