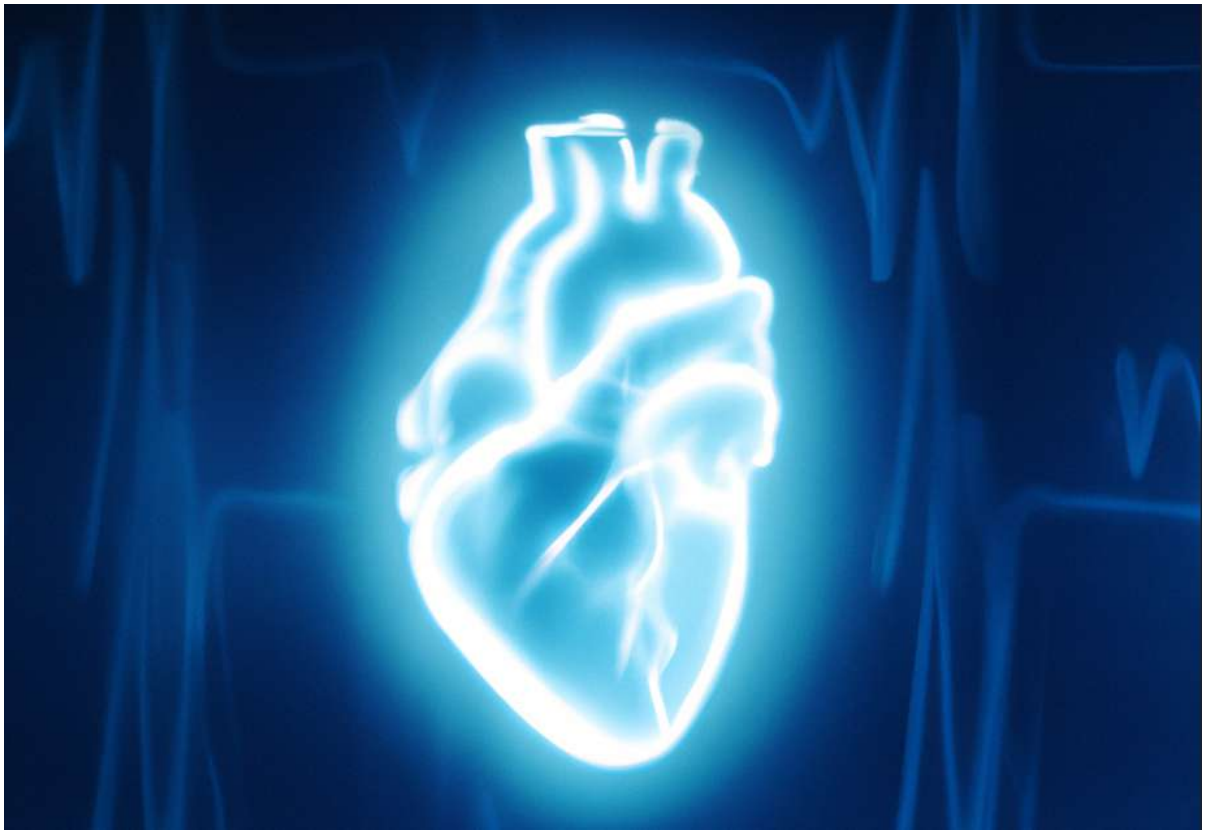
5th Newsletter- March 2023 View online

PersonalizeAF Fifth Newsletter



Welcome to the fifth newsletter of the PersonalizeAF! The objective of this publication is to keep all our public updated with all information and main ongoing activities while our project is under way.

Do not miss it and stay tuned for all the updates of the Early Stage Researchers' work, new conferences, papers, and other news!

And don't forget to suscribe to our social media.

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

3) combine 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 15 ESRs 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: academia, clinics and industry. Each of them is working in his/her 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, some of them are sharing their updates on their projects and where their research is taking them

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

"Since I came back from Boston I have to admit that I've been busier than ever. Several projects are coming to an end but others just started and the findings are really promising! Starting in March and until the end of April, I will be doing my second Secondment in Barcelona and the future is pretty exciting ahead. ."

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

"*Since the last newsletter update, I have finished my secondment in Maastricht University, where we were capable of gathering data about differences between enhanced and non-enhanced tissue defined with MRI. The data is still scarce, but we hope to obtain results with more patients soon. In addition to this, I have also started and finished a secondment in Universitat Politècnica de València, which helped me in finalising the manuscript we have sent for publication. In short, we were capable of predicting recurrence after atrial fibrillation ablation using conduction velocities determined by ECGi. Hopefully, on the next newsletter I can already tell you it is published!*

Last but not least, I could also meet the members of the consortium of the PersonalizeAF in Bologna, where we could discuss the progress in our projects and have a very interesting discussion with atrial fibrillation patients and learn from their experience. I found it encouraging, since this helps us see first- hand that our research has value in the real worlds. "

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

"To evaluate left atrium (LA) wall motion, we have finalized atrial regionalization technique which gives us well define anatomical regions/walls of LA. To assess contraction in different regions of LA, we have defined novel global and regional contraction parameters. Considering the importance of left atrial appendage in atrial fibrillation, we have also defined a methodology to extract centerline of LAA and LAA contraction parameters. Now, we are testing these approaches and evaluating parameters on a larger dataset, so that we can present conclusive results..".

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

"In the past few months, I have been busy with the analysis of some exciting data that I was very much looking forward to acquiring! I cannot say much about it yet, but I hope I will be able to say more in the future. Also, I had the chance to spend a bit of time at a partner institution during my secondment to learn a bit more closely how research in the industry world works compared to academia. Right now I am at the GRC conference in Texas, sitting in the main conference hall of the hotel to write my update for the personalizeAF newsletter. If I had to describe this experience so far? Stimulating and inspiring!"

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

"In the last months, I have been working on improving the implementation of my computational model the DREAM. I went to present my work in Tampere, Finland and Innsbruck, Austria. Additionally, I did a secondment in Barcelona where I started working on a joint project with Hospital Clinic to assess the arrhythmia risk in patients with different patterns of fibrosis. Currently I am working on my first manuscript and supervising a master thesis about calculating conduction velocity in AF patients."

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

"Work on the project has been progressing steadily. As I am finalizing my first paper for submission, after receiving input from my supervisor, I look forward to presenting my results to the scientific community in a more formal manner. While the writing for the paper had been finishing up I already started working on some projects. Here especially exciting for me is further sophisticating my in vitro research model and moving from a 2D approach to a 3D engineered tissue. This 3D model is also going to be part of my secondment in Freiburg, which is about to commence during April. I look forward to experience a new research environment and learning from the expertise at Freiburg regarding many aspects of cardiac research."

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

"In the past few months, my focus has been on assessing the ecgi results with different methods to solve the inverse problem and exploring various techniques for selecting the optimal regularization parameter. We have also delved into studying the impact of segmentation uncertainty on ecgi results. For this purpose, we conducted a study using a single subject and examined inter-operator variation in the segmentation. Overall, I have made significant progress in this area and gained valuable insights into the ecgi results and the underlying factors that can affect its accuracy. We plan to continue my efforts in this direction and explore more innovative solutions to enhance the ecgi analysis process.."

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

"As a quick reminder my PhD thesis is about applying ECGI technology in atrial fibrillation (AF). ECGI is an under-development technology that allows to reconstruct the heart's electrical activity in a non- invasive manner. In this way, the development of this technology may help us better understand the mechanisms of AF in a more personalized way. My task during my PhD is to validate this technology, and develop new algorithms to identify the main AF mechanisms based on ECGI.

In this moment, I am very happy to spend three months in EPSolution, an EP technological company based in Switzerland. There, I am building a theoretical framework to understand what AF mechanisms can be reconstructed with ECGI, which are easier to retrieve and what accuracy may be expected from each. All this work is very theoretical and based on cardiac in-silico simulations. However, it may set the bases for understanding better how to use ECGI when it comes to AF."

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

" Last time we talked about how we have been able to generate virtual P waves using invasive data and compare them with P waves generated using noninvasive data. Now our main focus over the last few months has been on personalizing the electrophysiology of patient-specific models. In particular, we have been collaborating with physicians at the Städisches Klinikum in Kalrsruhe to obtain data on patients effective refractory period (ERP). The refractory period is one of the most important characteristics for the correct functioning of the electrical activation of the heart. In order to understand it better, let us think of the refractory period as the time in which a cardiac cell is not able to generate a new stimulus, even if you stimulate it with the highest possible energy. The effective refractory period is itself a property of the cardiac tissue (set of cells), and is obtained using the extrastimulus technique, which consists of stimulating the patients heart at a certain speed for a certain number of beats and then delivering a second stimulus, called S2 or extrastimulus, with a faster or slower speed than the initial train of impulses. The goal is to modify the time at which the extrastimulus is delivered until the heart is no longer able to react to it, i.e. is no longer able to propagate the electrical activity. The ERP is precisely the time interval of the last extrastimulus that was able to activate the heart. We will be presenting our results about ERP personalization and its influence on arrhtyhmia vulnerability during the next European Heart Rhythm Association (EHRA) conference in Barcelona on the 16th of April 2023 during the Young Investigator Award Session."

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

"In the last months I have been investigating the importance of non-Newtonian effects in different atrial morphologies. I have simulated atrial blood flows by using a cohort of 10 patient-specific geometries, applying plausible boundary conditions in patients with atrial fibrillation. Also, I have chosen a Carreau-Yasuda non-Newtonian model to link shear rates (blood velocity gradient dependent) with blood viscosity which contained blood property values corresponding to 37% of hematocrit level (volumetric percent of red blood cells in blood). My main assumption was to consider the walls as rigid which may be an acceptable approximation in patients with persistent atrial fibrillation stage.

Qualitatively, my results reflect that non-Newtonian effects are important at low velocity magnitudes but negligible at high velocity magnitudes. Quantitatively, hemodynamic indices computed on the atrial wall may be predicted in the left atrium body (left atrium excluding the appendage) by using a linear regression but not in the appendage.."

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

"My PhD project is in a stage where we're making a lot of progress. Since the last newsletter, I have done my secondment at Adas 3D, participated in Computing in Cardiology, and finally came back to Maastricht to work within our group and enjoy the city.

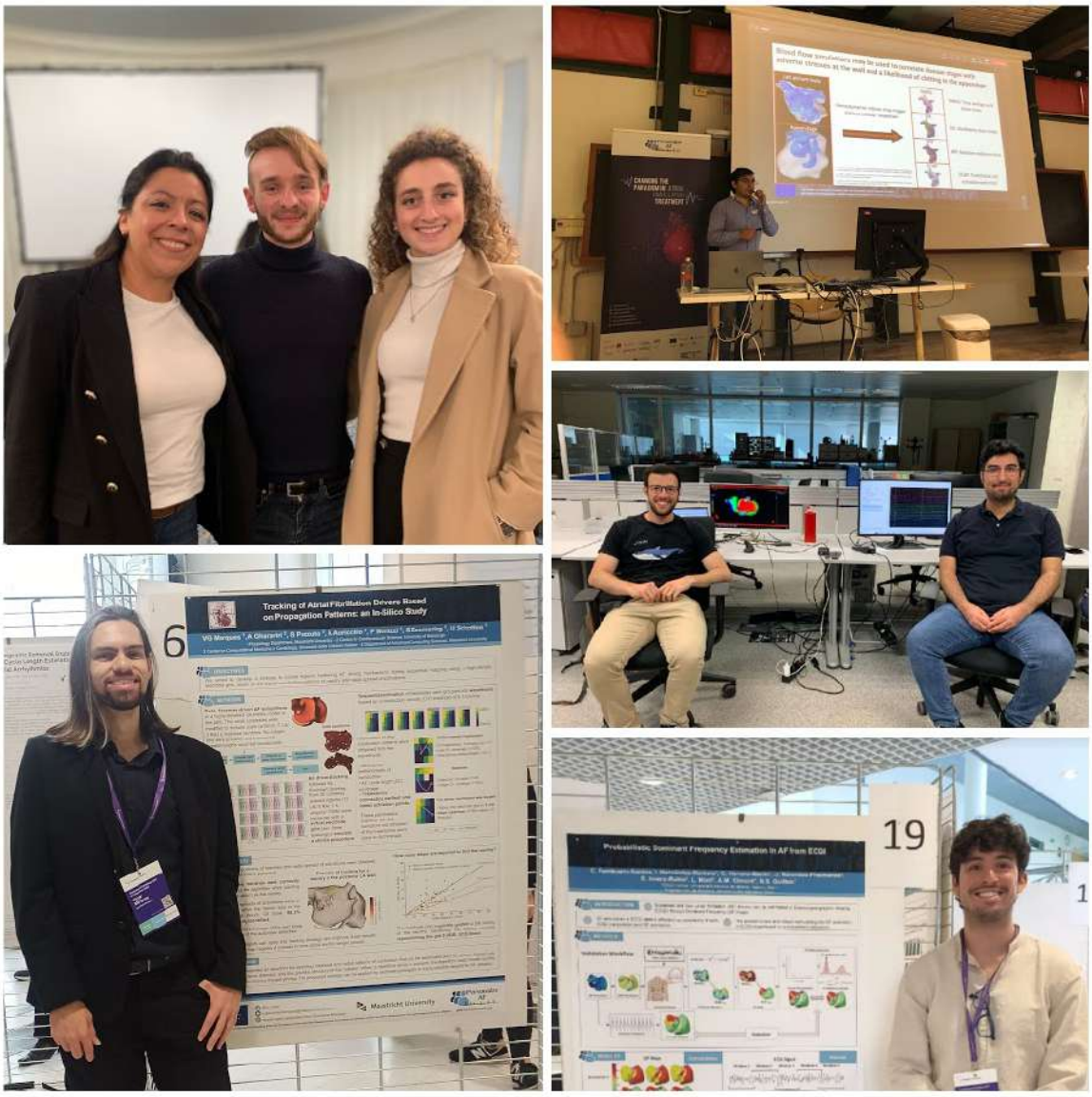
The secondment at Adas was useful to kick-off a stage of model development where we are achieving more variability and personalization to our AF simulations. In this model, we are testing what kind of ablation therapies work better for AF, and how to guide electrophysiologists towards optimal ablation sites. I have also been working a lot with Ozan (ESR 5), using the models to enhance the applicability of algorithms he has developed. All of this will hopefully be available as publications soon."

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

" My work aims to identify different subgroups or phenotypes of patients with atrial fibrillation (AF), a common type of heart arrhythmia that affects millions of people worldwide. The project seeks to address the heterogeneity of the AF population, which makes it challenging to develop targeted therapies and interventions. To achieve this goal, we developed novel clustering algorithms to identify distinct subgroups of AF patients based on various clinical and demographic characteristics. We have made significant progress in developing and validating these clustering algorithms.

We collected and analyzed data from a large cohort of AF patients and have identified several distinct phenotypes that differ in terms of their clinical features, comorbidities, and response to treatment. Currently we are finalizing our findings and preparing to publish the results. The identification of AF phenotypes has the potential to revolutionize the way we approach the diagnosis, treatment, and management of this condition, ultimately leading to better."

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



Some Photos of our ESRs during last months

Conferences and journal papers

We are sharing here some of the participation in conferences the ESRs will participate or will be participating. The information of all the publications made by the ESRs will be available in PersonalizeAF website.

ESR2, Carmen, attended to Computing in Cardiology (CinC) 2022 Conference in Tampere.

ESR3, Eric Invers will be attending to EHRA 2023 in Barcelona, and HRS 2023 in New Orleans

In September 2022, **ESR4** Sachal Hussain attended CinC 2022 in Tampere, Finland and presented his research on atrial regional segmentation. Then in October 2022, he gave a poster presentation in iHeart MCF Italy

Our **ESR6**, Teresa Schiatti, she had the great opportunity to attend the Gordon Research Conference on cardiac arrhythmia mechanisms in Galveston Texas next week and presented her project there.

In September, **ESR7** presented his work in two conferences. First, he attended the Computing in Cardiology conference in Tampere Finland. Furthermore, he went go to Innsbruck to present his work at the conference of biomedical engineering BMT.

ESR8: Thomas Hutschalik submitted his research abstract to the ISCCR in June in Boston and the ESC in August in Amsterdam.

ESR10 will attend to FIMH 2023 conference, together with the HRS Conference.

Carlos, **ESR11**, attended the Conference Computing in Cardiology in September 2022, where he was recognized with the Best Poster Award, and to the the Spanish Cardiology Society Conference on October 2022.

ESR12: Patricia results presented her results in Computing in Cardiology 2022 conference in Tampere, Finland, and more recently she attended the Gordon Research Conference (GRC) on Cardiac Arrhythmia in Galveston, texas

ESR13, Sergio Nabil plans to attend the International Congress on Industrial and Applied Mathematics which will take place in Waseda University, Tokyo, Japan during August 20-25, 2023.

ESR14 attended the Computing in Cardiology 2022 in Tampere, and he is planning to attend EHRA Conference in Barcelona, but also CINC 2023 in Atlanta.

ESR15 attended the Computing in Cardiology 2022 in Tampere, and he will be attending the International Conference of Artificial Intelligence in Medicine 2023 in Slovenia.

We are glad to announce that we some of the ESRs and supervisors have also submitted journal papers related to the PersonalizeAF network. and you can find the journal papers submitted in our Open Access repository, ZENODO, as well.

We are presenting the list of the publications here:

-"Local Electrical Impedance Mapping of the Atria: Conclusions on Substrate Properties and Confounding Factors", by Laura Anna Unger; Leonie Schicketanz; Tobias Oesterlein; Carmen Martínez Antón; Kerstin Schmidt; Olaf Doessel; Armin Luik;

-"An evaluation on the clinical outcome prediction of rotor detection in noninvasive phase maps". by "C. Fambuena-Santos; I. Hernández-Romero; R. Molero; A.M. Climent; M.S. Guillem;

-"ECGI Periodicity Unraveled: A Deep Learning Approach for the Visualization of Periodic Spatiotemporal Patterns in Atrial Fibrillation Patients" by Alexander Lacki; Ismael Hernández-Romero; María S Guillem; Andreu M Climent;

- "Spatial Relationship Between Atrial Fibrillation Drivers and the Presence of Repetitive Conduction Patterns Using Recurrence Analysis on In-Silico Models" by Victor G Marques; Ali Gharaviri; Simone Pezzuto; Pietro Bonizzi; Stef Zeemering; Ulrich Schotten;

-"Benchmark of deep learning algorithms for the automatic screening in electrocardiograms transmitted by implantable cardiac devices" by Narimane Gassa; Benjamin Sacristan; Nejib Zemzemi; Maxime Laborde; Juan Garrido Oliver; Clara Matencio Perabla; Guillermo Jimenez-Perez; Oscar Camara; Sylvain Ploux; Marc Strik; Pierre Bordachar; Remi Dubois;

-"High Coverage and High-Resolution Mapping of Repetitive Patterns During Atrial Fibrillation" by Ozan Özgül; Ben Hermans; Arne van Hunnik; Sander Verheule; Ulrich Schotten; Pietro Bonizzi; Stef Zeemering;

-"Clinical and electrophysiological predictors of device-detected new-onset atrial fibrillation during 3 years after cardiac surgery" by: Elham Bidar; Stef Zeemering; Martijn Gilbers; Aaron Isaacs; Sander Verheule; Matthias D. Zink; Bart Maesen; Sander Bramer; Michal Kawczynski; Isabelle C. Van Gelder; Harry J.G.M. Crijns; Jos G. Maessen; Ulrich Schotten;

-"Consecutive-Day Ventricular and Atrial Cardiomyocyte Isolations from the Same Heart: Shifting the Cost–Benefit Balance of Cardiac Primary Cell Research" by Joachim Greiner; Teresa Schiatti; Marica Dente; Alina Semenjakin; Thomas Kok; Dominik J. Fiegle; Thomas Seidel; Ursula Ravens; Peter Kohl; Rémi Peyronnet; Eva A. Rog-Zielinska;

-"Spiral Waves Generation Using an Eikonal-Reaction Cardiac Electrophysiology Model" by Narimane Gassa; Nejib Zemzemi; Cesare Corrado; Yves Coudière;

-"AF driver detection in pulmonary vein area by electropcardiographic imaging: Relation with a favorable outcome of pulmonary vein isolation" by Carlos Fambuena Santos; Ismael Hernández-Romero; Rubén Molero; Felipe Atienza; Andreu M Climent; M S. Guillem

-In-silico drug trials for precision medicine in atrial fibrillation: From ionic mechanisms to electrocardiogram-based predictions in structurally-healthy human atria by Albert Dasi; Aditi Roy; Rafael Sachetto; Julia Camps; Alfonso Bueno-Orovio; Blanca Rodríguez

Events and training courses

Sixth Meeting of the PersonalizeAF Network in Bologna, January 2023

During 16th and 17th of January, the PersonalizeAF consortium celebrated its sixth meeting in Bologna, Italy. Here, the 15 ESRs participating in the network had the opportunity to share their progress during the last months to all their colleagues and supervisors.

After two days of interesting and fruitful discussions, the ESRs had the opportunity of attending the Regulatory Workshop, that lasted until the 25th of January and inlcuded medical regulations, leadership and gender in research. As Patricia Martíenz said: "*Among others, our beloved Principal Investigators Blanca Rodríguez and Ursula Ravens gave great talks about how to be better leaders and advance in the research world as young women*."

Moreover, the PersonalizeAF network was able to enjoy different activities during these two days:

-A keynote lecture given by Luigi P Bardaano, about "Pathophysiological Link between Right Atrial Remodeling and Functional Tricuspid Regurgitation in Patients with Atrial Fibrillation".

-A discussion with AF patients about closing the gap between research and patient's quality of life, in which different perspectives of the pathology were shared among the participants.

-A nice teambuilding activity in which the members were split into different groups for a treasure hunt around the city of Bologna.

-Updates on all Work Packages involved in the project, including Communication updates, ethic and Data management issues.

-An interdisciplinary focus collaborative project about the standardization of atrial regions

-Students committee and Research and Training committee meetings.

-Supervisory Board of the PersonalizeAF Network meeting

Thanks to everyone for attending!


CHANGING THE
PARADIGM IN ATRIAL
FIBRILLATION
TREATMENT


Improve the understanding of basic mechanisms

Sixth PersonalizeAF meeting in Bologna, 16th and 17th of January

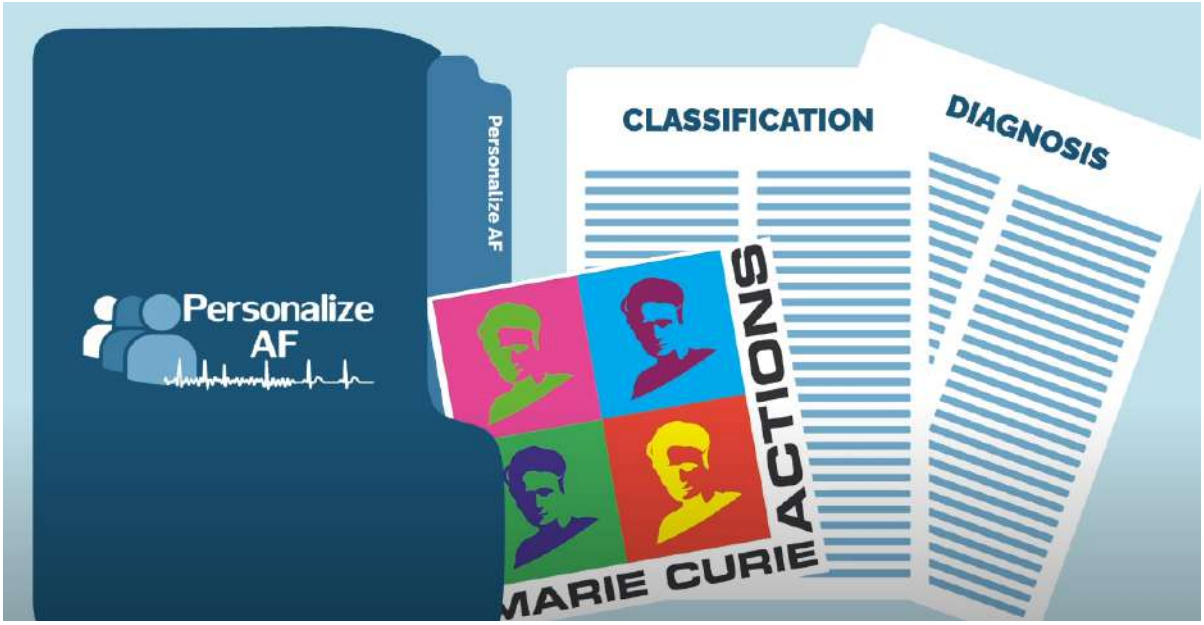
More news!

There was great representation of the PersonalizeAF in the Gordon Research Conference (GRC) on Cardiac Arrhythmia Mechanisms was in Galveston (Texas, USA). The conference was preceded by a two-day seminar (GRS) for early-stage researchers coming from many parts of the world including Europe, North America, and Asia. PersonalizeAF ESRs were awarded during the GRC conference. Patricia Martínez won first prize in the student poster competition during GRS, as well as Albert Dasí(ESR9) and they were selected to give a talk during one of the GRC sessions. Teresa Schiatti ESR6 poster was also awarded during GRC.

Teresa Schiatti presented her project at the International Workshop on Cardiac Mechano-Electric Coupling and Arrhythmias (MEC2022), held from 21-24 September 2022 in Freiburgand also won a poster prize!

Eric Invers is participating in a 3 minute-pitch thesis contest organized by the University of Barcelona and Coimbra. You can check the video here

The PersonalizeAF video shared its promotional video, don't miss it!



Here the new video of the PersonalizeAF project

Next Events

7th Consortium meeting and Careers opportunity workshop in Karlsruhe

Our next meeting will happen in Karlsrhue, Germany, next 4th and 5th of May 2023, organized by Karlsrhuer Institute of Technology.

Beforehand, the Early Stage Researchers will also be attending their last training of the PersonalizeAF project -2nd and 3rd of May- named Industry and career workshop, where they will have the opportunity to follow this transferable skills training courses:

T71_Funding sources and grant writing

T72_Innovation, start-up constitution

T73_Technology Transfer Process

T74_Market Access and Market Research

T75_Career opportunities in industry

T76_Careers opportunities in academia

T77_Career opportunities workshop

EHRA 2023

EHRA Conference will happen between Sunday, 16 April - Tuesday, 18 April 2023 in Barcelona - Spain. Save the dates in your agenda and join us in Barcelona & Online from 16 to 18 April 2023 for the annual meeting of the European Heart Rhythm Association (EHRA) bringing together scientists, healthcare professionals and other players involved in arrhythmia management from all around the world.

You can check the program here

ISCE 2023

2023 ISCE Annual Conference will happen next Wednesday, March 29 - Sunday, April 2, 2023 in California, United States. The Society is devoted to the advancement of electrocardiography through the application of computer methods. Its annual scientific conference, designed in the Gordon format, brings together scientists, clinicians, engineers and policy makers working in the field. For more information, don't hesitate to visit their website

Heart Rhythm Society Conference 2023

Heart Rhythm 2023, the Society's 44th annual meeting, will bring the global EP community together in New Orleans, LA, and online from May 19-21, 2023. If you want to know more about it, visit HeartRhythm.com for all #HRS2023-related information, including registration, housing, programming,...

Computing In Cardiology 2023

CinC 2023 is the 50th CinC conference, which has been held annually since 1974. CinC 2023 will again be a hybrid conference with options for both in-person and remote attendance and will happen in in Atlanta, Georgia, USA on 1st - 4th October 2023.

Computing in Cardiology (CinC) is an international scientific conference for computing in clinical cardiology and cardiovascular physiology. Registrations are open until 1st of May, more information in the Registration site

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!

"Structural and electrophysiological determinants of atrial cardiomyopathy identify remodeling discrepancies between paroxysmal and persistent atrial fibrillation" by Huang, T.

"Non-invasive assessment of pulmonary vein isolation durability using late gadolinium enhancement magnetic resonance imaging " by Padilla-Cueto, D. et al

"Imaging and biophysical modelling of thrombogenic mechanisms in atrial fibrillation and stroke. " by Qureshi A et. al.

"Atrial fibrillation and cardiac fibrosis " by Sohns, C. al.

"Psychological factors and risk of atrial fibrillation: A meta-analysis and systematic review" by Wu, H. et. al.

"Atrial fibrillation: review of current treatment strategies" by Xu, J et. al.

"Sex-specific time trends in incident atrial fibrillation and the contribution of risk factors: the Tromsø Study 1994-2016" by Sharashova, E. et al

"Controlling cardiac chaos" by A Garfinke et al

"Impact of Atrial Fibrillation on Left Atrium Haemodynamics: A Computational Fluid Dynamics Study" by Corti, M.. et.al.

"Management of acute atrial fibrillation in the intensive care unit: An international survey" by Wetterslev, M.. 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, and subscribe to their channel to stay tunned!

Last blog entries and News

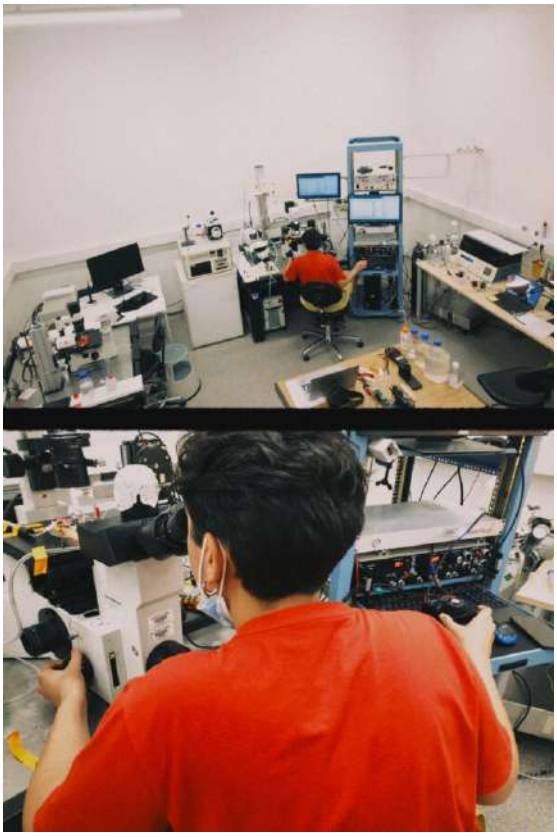
Once a month, our researchers are sharing their latest updates about their research pathway. Do you want to learn more about Atrial Fibrillation? About how researchers life is? Check their articles and follow them on Social media!

March 15, 2023

PersonalizeAF Project Raises Awareness for Atrial Fibrillation and launches a new video

PersonalizeAF Project Raises Awareness for Atrial Fibrillation and launches a new video With the occasion of the European Day for the Prevention of Cardiovascular Risk…

Read more...

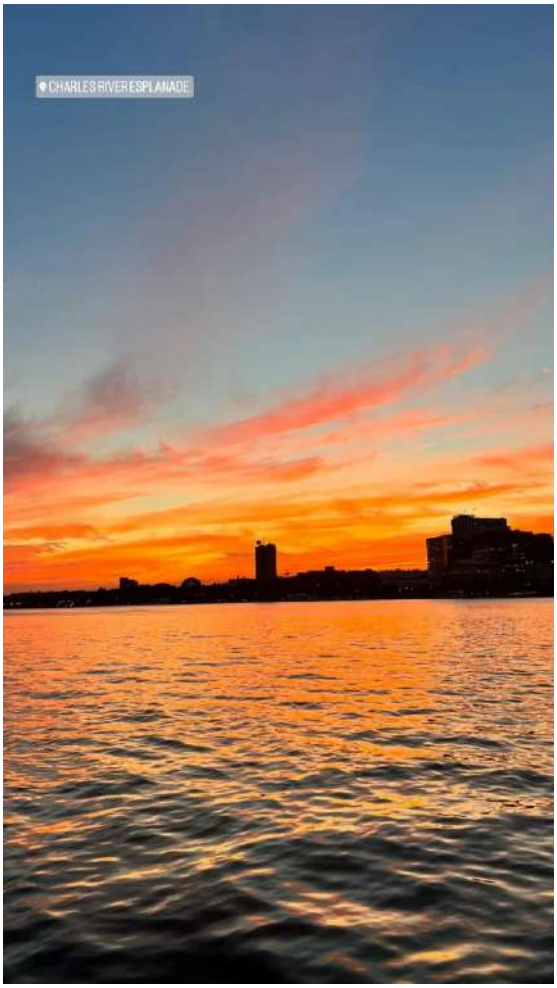


December 9, 2022

My first collaboration published on Science Advances!

My first collaboration is out! My secondment in Freiburg just ended up with an amazing publication Out now on Science Advances! Stem cells are a…

Read more...

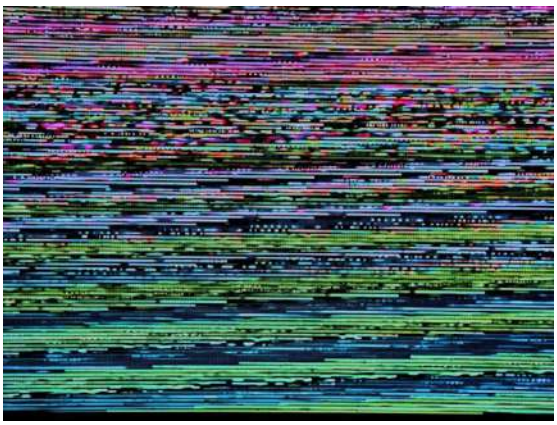


October 3, 2022

The best “non-Summer” of my life

The best “non-Summer” of my life From Karlsruhe all the way to “the most innovative town of the planet” The city of Boston from the…

Read more...



September 5, 2022

Updates from a very busy year

Updates from a very busy year Now that we can safely travel again, there's some catching up due for PersonalizeAF members! Okay, let's take this…

Read more...

June 21, 2022

5th PersonalizeAF meeting in Bordeaux, France

5th PersonalizeAF meeting in Bordeaux, France The University of Bordeaux will host the next PersonalizeAF, during 4th and 5th of July 2022 Next 4 and…

Read more...

March 3, 2022

Research = exchange

Research = exchange From the EP-lab to a basic research lab Hallo! Wie geht's? It's been a while since I last posted. So long, that…

Read more...

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…

Read more...

Co-funded by the Horizon 2020 programme of the European Union

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska- Curie grant agreement No.860974.