



December 2019

NEWSLETTER

**SAVE
THE DATE**
**MCAA GENERAL
ASSEMBLY
AND ANNUAL
CONFERENCE**



**ZAGREB
MARCH
28-29,
2020**

#MCAAAGA2020

**RESEARCH &
DEMOCRACY**

The Marie Curie Alumni Association will open its doors to host the 2020 General Assembly and Annual Conference in Zagreb, Croatia on 28-29 March 2020. MCAA Chair, Matthew DiFranco, answers questions about this not-to-be-missed event!

The Argentinian and Brazil Chapters co-organised the MCAA's first ever Latin America conference in Buenos Aires, Argentina from 21 to 22 October. Both chairs, Pablo Emiliano Tomatis and Elizabeth Schmidt, share their impressions.

Mentoring is an effective and simple way to engage and support people and professionals to unleash their full potential. But the task isn't easy, and it is increasingly being confused with supervision. Read what happened at the recent MCAA webinar about mentoring.

page 07

page 15

CONTENTS ■

Message from the Board page 02	MCAA General Assembly page 03	News from the Benelux Chapter page 05	Latin America Research Conference page 07	News from the Romanian Chapter page 10
News from the Swiss Chapter page 12	Training mentors and supervisors page 15	The Fall of a Colonial Legacy page 17	Designing digital health solutions for chronic conditions page 19	History comes to the aid of human mobility rights policymaking page 21
Discovering an ongoing ITN Project: MANNA page 23	MANNA: Omega-6/-3 effect on piglet microbiome page 25	Improving data interpretation of exoplanet images page 27	Delivery models for the provision of genomic applications page 30	

MESSAGE FROM THE BOARD

MCAA GENERAL ASSEMBLY

ON THE MARCH TO ZAGREB

The Marie Curie Alumni Association will open its doors to host the 2020 General Assembly and Annual Conference in Zagreb, Croatia, on 28-29 March 2020. MCAA Chair, Matthew DiFranco, answers questions about this not-to-be-missed event.

Research and Democracy and all the theoretical and practical relevancies related to this timely topic will be explored at the 7th General Assembly and Conference, which is expected to go down as the most successful to date.

Below, some excerpts from an interview with Matthew DiFranco.

The General Assembly will take place this year from 28 to 29 March in Zagreb, Croatia. Could you tell us about the preparation and how is it going?

Following on the success of Vienna in February 2019, we are excited about the planning and preparations for the 7th Annual MCAA General Assembly and Annual Conference in Zagreb, Croatia.

Our goal for the Annual Conference is to provide a forum to promote the main pillars of MCAA: promote networking and career development for our members and engage in science policy issues for the benefit of researchers and society. To make this happen, we

are making some changes from last year to ensure that, while the programme provides high-quality and engaging content, attendees have more opportunities for training and networking before, during and after the event.

The organisation and planning for the event are managed by the “GA Task Force”, which is headed by Maja Mise from the Croatia Chapter and composed of MCAA board members, Croatia Chapter members, the MCAA Partnership group tasked with securing sponsors and partners for the event, and representatives of the contractors tasked with carrying out the work. Croatia Chapter members have been working since before Vienna 2019 to secure a venue, develop local and national support for the event, raise awareness in Croatia, and mobilise the volunteers working both before and during the event.

Why was Zagreb selected as the venue?

When the call for venues was open for the 2020 Annual Conference,

the Croatia Chapter, which had only recently been established, expressed an interest in hosting the event in part because Croatia will hold the European Presidency in the first half of 2020. The MCAA Board received bids for Split and Zagreb in Croatia, as well as for Warsaw. Although all bids were of a high quality, we felt that the Zagreb bid represented the best opportunity for the MCAA Annual Conference in 2020.

In addition to the European Presidency coinciding with the MCAA Annual Conference, we also wanted to highlight the Widening Participation initiative of the European Commission, which aims to broaden participation in European research projects in certain EU Member States and Associated Countries.

The theme is ‘Research and Democracy’. Could you explain why?

Our theme this year, “Research and Democracy”, is aimed at global trends in politics, science and society. The programme will

MCAA GENERAL ASSEMBLY



highlight issues including the rise of artificial intelligence, climate change, equality, science diplomacy, sustainable research careers, and many more.

Scientists and researchers have always played a crucial role in defending knowledge, and the right to pursue it, in democratic societies. Our goal is to highlight the past, present and future role of research in democratic societies and extract lessons to help shape how our community responds to the challenges we face today. Those challenges include not only the global rise of political threats to democratic values, but also the broader societal challenges best described by the UN Development Agency's Sustainable Development Goals (SDGs). We hope that a wider recognition of SDGs amongst the research community, and the public at large, can be a catalyst for a stronger role of research and scientific knowledge in policy and politics.

What would you say to people who are considering joining this event?

We know from the feedback received from the past events that the strength of our Annual Conference lies in the people who attend as much as in the content of the programme. Unlike any other scientific conference, we bring together researchers who are ambitious, curious, diverse and mobile, and there is an energy and enthusiasm about our event which you truly have to experience for yourself to understand.

Most researchers are passionate about their work, eager to share ideas with others, and ambitious about the impact their work could have on society. However, their working environments don't often support such passion and ambition. MCAA offers a community where researchers can take pride in their ideas, encourage ambition, and help build a personal, scientific and professional network.

Is there anything else you wish to add?

We encourage all MCAA members to consider attending the Annual Conference. For those still being funded under an MSCA programme, the MSCA Unit of the European Commission has formally approved the use of a project training budget for attendance at the MCAA Annual Conference.

In addition, there will be Board elections at the 2020 General Assembly, and we encourage any member interested in finding out more about the MCAA Board to get in touch with an MCAA Chapter, Working Group, or the Board itself to find out more about what we do, and where you could contribute. Nominations will be open until 31 January 2020, and more details can be found on the [MCAA portal](#).

EVENT

BENELUX CHAPTER MEETS POLICY WORKING GROUP



Members of the [Benelux Chapter](#) and the [Policy Working Group](#) gathered in Brussels on 23 September. We caught up with [Esther Volz](#), Chair of the Benelux Chapter and [Mattias Björnholm](#), one of the speakers and Vice-Chair of the Policy Working Group, to discuss the meeting.

Organised jointly by MCAA's Policy Working Group and the Benelux Chapter, the meeting was held as a warm-up in view of the European Research & Innovation days in Brussels. Welcoming 25 participants, it was successful in its aim to discuss the role of science in policy-making. "We even attracted scientists from Groningen (the Netherlands) and Luxembourg," added Esther.

SCIENCE ADVICE FOR POLICY

Esther highlighted the session dealing with [Science Advice for Policy by European Academies](#) (SAPEA), which is part of the European Commission's Scientific Advice Mechanism. Its role is to provide independent scientific advice to European Commissioners to support their decision-making.

"[Tony Wardam](#) explained how SAPEA is providing independent, highest-quality policy advice to the European Commission within a short period of time," she said. "A lively discussion followed on how SAPEA is assessing the impact of their advice, how to avoid conflicts of interests and how the current system could be improved."

In turn, [Mattias Björnholm](#) presented a session dealing mainly with his personal history, going from research to research policy to encourage the participants to take action. Mattias is an advisor for Research & Innovation at [CESAER](#): he is also Vice Chair of Policy for the Marie Curie Alumni Association, and editor for the science & policy journal [Angle](#).

"Research policy is the engagement between science and research, on one side, and decision-makers, on

the other," he explained. "The idea is to encourage people to get more involved in policy and to show examples of how this can be achieved."

To encourage participants to become more involved in policy, Mattias stressed the following:

- Decisions are made by those who show up
- Policy is not solely for the elusive policymaker
- To get involved, follow the discussion, take initiative



EVENT



"The conversation is continuously ongoing. And then, I encourage anyone who is interested to take initiative," explained Mattias.

WHY LOCAL IS KEY

For Mattias, the best level to initiate engagement in policy as a

researcher is the local level. "It is more fun when you can meet people on a regular basis and then from there you can build more up to national or European level. A good thing with the Marie Curie Alumni Association is that we have of course chapters in many regions and countries across Europe."

AN EXPERIENCE TO BE REPEATED

For Esther, the event was a success. "We received a very positive feedback from our participants," she said. "We will strive to organise similar joint events in the future."

INTERESTED?

Contact the Benelux Chapter:
benelux.chapter@mariecuriealumni.eu
Visit the page of the Policy Working Group

EVENT

LATIN AMERICA RESEARCH CONFERENCE

The Argentinian and Brazil Chapters co-organised the MCAA's first ever Latin America conference in Buenos Aires, Argentina, from 21 to 22 October. Both chairs, Pablo Emiliano Tomatis and Elizabeth Schmidt, share their impressions.

Elizabeth Schmidt

I was born in Brazil and have two nationalities – Brazilian and German. I am a veterinarian and since 2009 have been working as an assistant professor at São Paulo State University (UNESP), Botucatu campus, at the Department of Veterinary Clinical Sciences. Currently, I am developing a research project with parasitic diseases and the inflammatory response in domestic animals.

Pablo Emiliano Tomatis

I was born in Rosario, Argentina. I also have an Italian passport. I have a master's degree in Biotechnology (2000) and have earned a PhD in Biological Science from the University of Rosario (2008). I held a postdoc at the University of Zürich, Switzerland, thanks to an Individual Fellowship Marie Skłodowska-Curie Actions (2012–2016). I returned to Argentina to work as a researcher at the Institute of Molecular and Cell Biology of Rosario and as professor of biophysics at the University of Rosario.

ABOUT THE CHAPTERS

The aim of the Argentinian and Brazil Chapters is to facilitate research and networking between the two countries and Europe. Their goal is also to increase visibility and showcase MSCAs in both countries. They also devote many of their activities to promoting science and research communication,



EVENT



as well as highlighting the advantages of being active members in both Chapters.

"We aim to establish several cooperations with important institutions that will benefit our members today and in the near future," explain Pablo and Elizabeth.

Several activities are already planned, such as workshops on how to apply for an MSCA grant, and about participation in national conferences where members can promote the MSCAs with posters, talks or stands. Both chapters also boast an active presence on social networks.

To secure external financial support, both Chapters have established

partnerships with local governments and EURAXESS Latin America and the Caribbean. "This is extremely important in order to obtain additional support for the Chapter activities," say Pablo and Elizabeth.

GROWING MEMBERSHIP

The Brazil Chapter currently counts 74 members. According to Elizabeth, the aim is to reach or surpass 100 members by the end of 2020.

The Argentinian Chapter's membership totals 63. Half of these members work in the EU. According to the MCAA database, there are 142 members with Argentinian nationality.

UNITING LATIN AMERICA'S RESEARCHERS

The first MCAA Latin America Research Conference was held in Buenos Aires, Argentina, in October.

Most of the Argentinian members of the Chapter working in Argentina were able to attend, together with the Chair, Vice Chair and other members from the Brazil Chapter. Also, a member from Chile was invited to support the creation of the Chilean Chapter. In total, 38 MCAA members attended. An open scientific meeting was also organised, where 18 other scientists attended.

EVENT



Various activities were organised during the conference, such as discussing MSCA Alumni scientific activities in Argentina and Brazil. Members of both Chapters also presented their research. As a special guest, Mostafa Shawrav took the floor to discuss academic

positions in Europe, career paths for researchers and MCAA Science Policy initiatives. "MCAA members got inspired from these talks and now are more enthusiastic to actively contribute to MCAA," say Elizabeth and Pablo.

External speakers were also invited to present Open Science and Scientific cooperation between Brazil and Argentina.

An informative session about MSCA was held at the Spanish embassy on the second day of the conference. This session provided a unique opportunity for participants to learn about EURAXESS.

The closing session of the meeting was dedicated to MCAA members only, where a training on grant-writing proposals was held.

"It was an important opportunity to exchange information, ideas and experiences," say Elizabeth and Pablo. "We hope to collaborate and to join efforts, looking forward to rethinking and rebuilding the challenges of daily life and the future of our countries," they added.

The next Latin America event will be held in Rio de Janeiro in 2020.

WANT TO ATTEND THE NEXT LATIN AMERICA CONFERENCE? CONTACT THE ARGENTINIAN AND BRAZIL CHAPTERS:

argentina.Chapter@mariecuriealumni.eu
brazil.Chapter@mariecuriealumni.eu

NEWS FROM THE CHAPTERS

THE ROMANIAN CHAPTER TO TAP INTO MCAA'S HUMAN POTENTIAL



Andrada Lazea-Stoyanova is the Chair of the Romanian Chapter. She tells us about her goals and expectations.

Andrada Lazea-Stoyanova, in her own words

I am Romanian. I have a PhD in Physics. I am a researcher by profession. I was an early-stage researcher in 2006–2009 within the Marie Curie project titled Diamond Research on Interfaces for Versatile Electronics (DRIVE). Currently, I work as a researcher in plasma physics at a national institute based in Magurele, Romania.



POTENTIAL

The main reason Andrada applied as the Chair of the Romanian Chapter was to boost membership engagement levels. For Andrada, it is important to offer a safe space, somewhere members can discuss a variety of topics important for research.

"I set as a second goal the creation of an environment where we can openly discuss our meeting and main points that are not addressed openly nowadays, such as ethics, mobbing and corruption in research and other sensitive subjects identified by the Chapter members, and to find ways to tackle these together as a group rather than as individuals," she explains.

MEMBERS

The Romanian Chapter counts 50 members. This number is expected to grow. For instance, Andrada aims to have 10% more participants in 2020. "Even though most of them are based outside Romania, we can find ways to meet, like via online video calls," adds Andrada.

MEETING

Members had the opportunity to meet on 26 September. "This meeting was the first of its kind since the formation of the Romanian Chapter in 2016," explains Andrada. The members elected Andrea Matei as the Vice Chair of the Chapter, and voted the Chapter's rules, such as:

NEWS FROM THE CHAPTERS



- Allowing non-members to participate in meetings as invited experts/public
- Budget reallocation towards career development courses/ trainings

"Overall it was a quite fruitful meeting," adds Andrada.

JOIN!

Andrada says she wants to increase membership to the Chapter. "The Romanian Chapter provides a platform to discuss openly and take action upon the main points which researchers are facing, starting from research-funding policies and up to non-compliant practices.

"Please join our Chapter and let's contribute together to leverage our diverse skills and experiences to a more effective national research environment," she concludes.

INTERESTED?

Contact the Romanian Chapter romania.chapter@mariecuriealumni.eu

NEWS FROM THE CHAPTERS

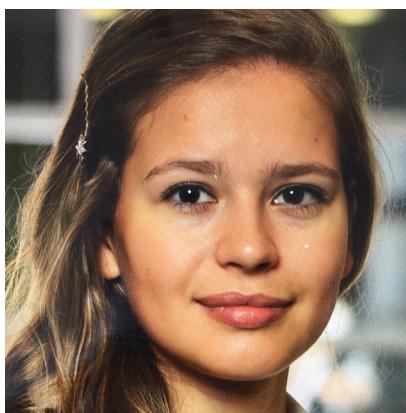
LOOK WHO'S CHAIRING THE SWISS CHAPTER



Veronika Stolbova was voted Chair of the Swiss Chapter for one year. She told us about the Failed & Bored Conference organised in September and the objectives of the Chapter.

Veronika Stolbova

I am from Kamchatka peninsula in the Russian Far East – a place where volcanos, snow and the Pacific Ocean meet. I conduct research in the fields of climate finance, sustainable finance, macroeconomics, financial networks, systemic risk and early warning indicators. I was awarded my master's in Physics (Moscow), researching the impact of antiarrhythmic drugs on the heart cells. I then earned a PhD in Physics with the Learning about Interacting Networks in Climate (LINC), a Marie-Curie Innovative Training Network (ITN) project focused on climate networks and forecasting of the timing of the Indian monsoon (Berlin). Working on the forecasting of the Indian monsoon under climate change encouraged my interest in the assessment of the economic and financial impacts of climate change. It brought me to Zurich, Switzerland, where I currently conduct research and teach master's and PhD students about financial impacts of climate change at ETH Zurich. Find out more information about me.



ON BECOMING A CHAIR

Veronika joined the MCAA after she conducted research for her Marie Curie project. "It gave me so many opportunities, extended my professional and personal horizons, and brought me to six countries within three years," she said. "As a result, I wanted to stay a part of this inspiring community."

When she met a former Swiss Chapter Chair, Renaud Jolivet, at one of the meetings organised by the Chapter, she decided to become more involved in the organisation of events for the attention of MCAA members and representatives from funding agencies and foundations, universities, industrial companies, and start-ups. This was the turning point. It is the moment Veronika decided to run for the position of Swiss Chapter Chair.

NEWS FROM THE CHAPTERS

MAIN GOALS

The Swiss Chapter's activities aim to disseminate information about MCAA activities within Chapters and Working groups. The goal is also to attract MCAA alumni to join the Chapter and provide an incentive to participate in the Chapter's activities. As such, efforts are made to provide members information about funding possibilities in Switzerland and neighbouring countries.

Just as important is to provide members with soft-skills training to guide them through their career in research. Expanding the knowledge of members on alternative career paths in industry is also a top priority. Emphasis is also put on building a spirit of innovation

and entrepreneurship in members interested in bringing their research ideas and results to market.

"Overall, we encourage researchers to become a part of an interesting community, to share their knowledge and expertise, and to find peers and like-minded friends in a new country," added Veronika.

GROWING MEMBERSHIP

The Chapter currently counts 78. "The majority of our members (73 %) reside in Switzerland, but we also have members who were associated with Switzerland at some point of their research career," explained Veronika.

FROM FAILURE TO SUCCESS, FROM BOREDOM TO INNOVATION

Together with Mohammad Rezaei, who chairs the Austrian Chapter, Veronika co-organised the "Failed & Bored" conference that was held in Austria on 28 September 2019.

Some 30 participants from around Europe (Switzerland, Austria, Monaco, Italy, Spain and the UK) attended.

Melanie Stefan – author of the famous Nature article *A CV of failures* – delivered the keynote speech. This was followed by an inspiring talk by Brunella Balzano on "Hunting the errors." Other speakers



NEWS FROM THE CHAPTERS



included Celia Arroyo, who authored "Coming out of the closet of bullying", and "Developing Mental Toughness" by Matt Lanfear.

"A number of students, early-stage researchers and postdocs, as well as start-up founders joined the event as well," said Veronika.

According to Veronika, one major take-away from the event is the fact that mobility, funding, career prospects, mental health and resilience are all elements that should be considered as part of research, and not only the daily work itself. "In order to have good research it is important for the researchers to feel good," she explained.

What's more, the format of the conference (30 people) created a special atmosphere and led to an

interactive and engaging discussion. "This event exceeded my expectations!" she said.

TIPS TO ORGANISE YOUR OWN EVENT

Based on her experience, Veronika shared a few tips for members willing to organise their own events within the framework of the MCAA:

- Start working on it at least six months in advance – to ensure all plans and logistics issues are resolved in time;
- Identify your target audience & location – the success of the event depends on it;
- Discuss your plans with the Board of MCAA – you can receive a lot of help and support;
- Be bold and don't be afraid to ask for help!

"Special thanks to the member of the Austrian Chapter – Patrick Quoika – who volunteered and took a large part of local organisation for the Failed & Bored Conference on himself! Additional thanks to Magdalini Theodoridou and Carolina Reyes for their support in the organisation of the conference!" concluded Veronika.

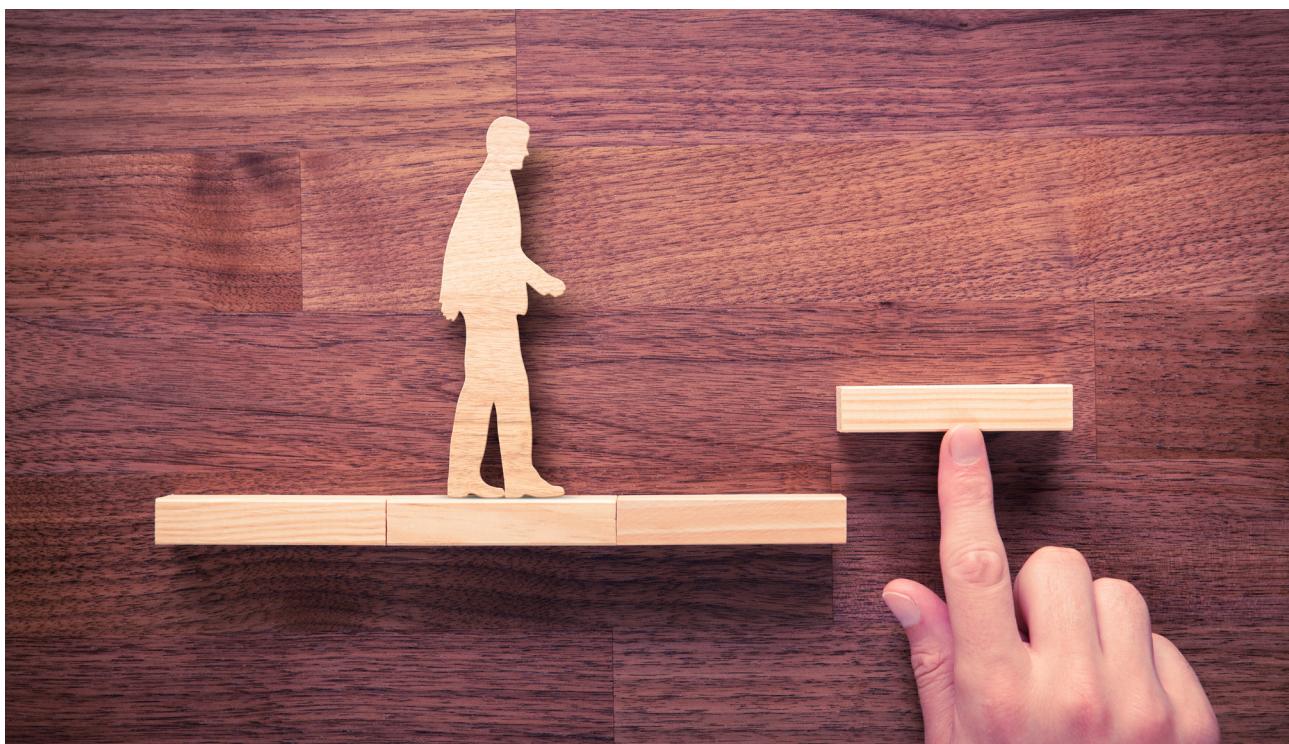
INSPIRED?

Join the Swiss Chapter, send a message to
swiss.Chapter@mariecuriealumni.eu

EVENT

TRAINING MENTORS AND SUPERVISORS

Mentoring is an effective and simple way to engage and support people and professionals to unleash their full potential. But the task isn't easy, and it is increasingly being confused with supervision.



Mentoring can help people envision where they want to go and what they want to accomplish, as well as help them think through the strategies and tactics that can lead them there. But while the potential to thrive in these roles is vast, the opportunities to obtain this training and experience are limited – at times, linked to privilege.

What's more, mastering the art of mentoring isn't easy and it is increasingly being confused with supervision.

A recent webinar, backed by the Marie Curie Alumni Association and held in June, helped explore the realities of being a mentor and how to do it best.

IDENTIFYING THE MENTOR IS CRUCIAL

"Someone managed to see in me what I could not see and then had the generosity, to give me the time and interest in my work and goal," said Matthew Collins, a professor of biomolecular archaeology at the

University of Copenhagen. "It's really about time and empathy... that motivates others."

Collins led the webinar with Alan J. Grodzinsky, a professor of biological, electrical, and mechanical engineering at the Massachusetts Institute of Technology, who quickly warned of the need to distinguish between mentoring and supervision.

"Supervisors," he said, "help you think about your next move and what you have been doing [for example] in the lab and what it means,

EVENT



whereas a mentor is a mentor not just within the field of science and engineering, for example, which you may be focused on, but in life."

A mentor, Grodzinsky explained, "can recognise when you are thinking about other things, providing a broader and more personal guidance to what you are doing."

And that, experts say, ultimately helps empower mentees to unleash their full potential, achieving their goals.

"It's an issue, almost, of personal connection," said Grodzinsky. "Yes, we're always thinking about what's

next, what's next in the lab, what's the next exciting thing you may do in terms of an experiment, but at the same time it is very important, as a mentor, to establish an environment where a person can come in and think about how they can take the next step for themselves."

"It's really important to empower the person to believe that they can take the next step and think for themselves and not to have to rely directly on the supervisor."

"And at the end of the day, it's good to be able to sit down and have a beer with the student or any kind of mentee because that enables

you to get past the particulars of an experiment and to think also about what may be going on in the orchestra across the street and what's playing at the movies," he concluded.

RESEARCH

THE FALL OF A COLONIAL LEGACY: A MODERN HISTORY OF SYRIAN BORDERS (1920–2015)



The Marie Skłodowska-Curie project SYRIANBORDERS worked towards filling in the research gaps on the borders and boundaries of contemporary Syria. Fellow Matthieu Cimino, tells us more about his project.

A historian and political scientist and the author of "Syria: Borders, boundaries, and the state", Matthieu Cimino has devoted his research to the contemporary history of the Near and Middle East. Following his time as a postdoctoral researcher at Tel Aviv University, he took up the post of Marie Skłodowska-Curie researcher at Oxford University in 2016–2018. It was there he led the SYRIAN-

BORDERS project: The Fall of a Colonial Legacy: A Modern History of Syrian Borders (1920–2015).

THE SYRIANBORDERS JOURNEY

Introducing the project, Cimino noted: "While working on borders, in particular the borders of Lebanon, Syria, Palestine and Israel, I real-

ised there was one topic I needed to investigate regarding Syria." He further explained: "Wars and revolutions in Syria have triggered multiple reconfigurations, restructuring the nature of the state, the territory and its borders. While in other countries like Lebanon research has been carried out to study and document changes in its borders, this has not been the case with Syria."

RESEARCH

Cimino aimed to change this through the SYRIANBORDERS project. The researcher worked towards two goals. The first was to contribute to the history of contemporary Syria by analysing the country through the prism of its borders. The second goal was to produce a monograph that would include post-2011 dynamics.

As a result of the project, researchers, political actors, civil servants and the public have a greater understanding of post-2011 reconfigurations of the Middle East. "We have learnt how different non-state actors perceive the boundaries of Syria, how relevant they are now, and how have they been configured over time," confirmed Cimino. He further emphasises that this research is very important as "borders and boundaries are the envelope of the state – charged with important symbolic values."

Following this project, the researcher will continue to focus on understanding nationalistic ideology and non-state actors by examining Syrian textbooks. This will help ascertain how history and geography are taught to students.

MARIE SKŁODOWSKA-CURIE SUPPORT

"Being a Marie Skłodowska-Curie researcher gave me the opportunity to work on this project," confirmed Cimino. The researcher noted that through the programme he received both personal and professional support. "When you are a researcher it is quite difficult to find a position that is financially rewarding, which I

found with the Marie Skłodowska-Curie programme." He added: "You are also able to, through the programme, do field work and organise conferences. For example, I helped organise an international conference where we brought many researchers from different backgrounds and places to Oxford." Cimino concluded: "In terms of grants and fellowships, the Marie Skłodowska-Curie programme is one of the best, if not the best."



RESEARCH

DESIGNING DIGITAL HEALTH SOLUTIONS FOR CHRONIC CONDITIONS

The world is currently seeing a surge of digital health start-ups whose solutions usually fall into the general wellness, exercise and diet category, neglecting specific health conditions.

The delivery of health-related services through the use of mobile technologies is called mHealth. The use of mHealth apps has grown exponentially in recent years, with over 100 000 apps available online for download.

These numbers tell of a significant market size and of the ongoing demand for new tools to help people manage their health. Unfortunately, only a fraction of these apps and services take into consideration the perspectives of relevant stakeholders like healthcare professionals, and sometimes even patients themselves.

In order to be effective, technology needs to be designed in a way that is meaningful to those who would use it. My doctoral thesis focused on this problem.

Worldwide, there has been a great change as countries developed and the overall population aged. Gone are the days where predators and nasty infections were the main source of concern; a new kind of ailment now plagues our world and it is known as a chronic condition.

Over 60 % of all deaths are caused by chronic conditions like cancer or

heart disease, taking precedence over "traditional" acute illnesses. In fact, thanks to improved living conditions and advances in healthcare, severe and disabling diseases that were considered lethal or used to require hospitalization are now controllable if not curable, letting people live on with them for many years. However, this presents a challenge for continued and prolonged self-management.

The way that technologies have entrenched themselves so deeply into our day-to-day lives has also created rapid changes in our society. We are now seeing patients who



RESEARCH

actively seek, gather, and make decisions based on online information. In this sense, mobile technologies hold promise for chronic conditions because of their ubiquity, low cost, less invasive nature, and their ability to provide immediate feedback.

There are many behavioural change theories that attempt to explain why we do things, and propose frameworks to be followed in order to create new behaviours. The use of behavioural change models has proven important in developing successful health interventions for chronic disease management. However, understanding human behaviour is a complex task as many elements influence and shape the way we act without us realising it. Some elements are internal while others are external, and the interplay between each of them can determine our perceptions, our beliefs and our willingness to do certain things.

Further, finding ways to engage patients and encourage them to continue with an intervention is a difficult task, leaving designers of mHealth solutions for chronic conditions with no clear way of deciding what factors are relevant to consider.

The doctoral thesis I presented at the University of Oulu, Finland, is the result of an industrial PhD experience that took place in Salu-

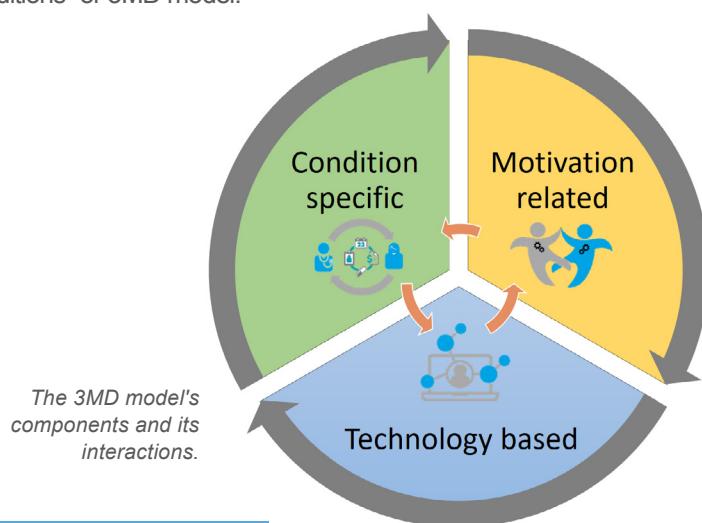
media Tecnologias, a digital health company in Spain, over the span of my Marie Skłodowska-Curie fellowship in the CHESS ITN programme (MSCA ITN No. 676201). During this time, I was involved in several digital health projects that I used to ground my research.

As part of the company's ongoing product development, I followed a user-centred design approach to create different mHealth solutions for conditions like breast cancer and multiple sclerosis. In doing so, I explored the negotiations between existing medical knowledge, behavioural change theories and gamification.

As a result of an embedded case study methodology and thematic analysis, certain design factors emerged from the data. They were grouped in the form of three main components to create the "Model for Motivational Mobile-health Design for Chronic conditions" or 3MD model.

The 3MD model is aimed at designers of mHealth solutions and it proposes a series of illustrative questions to assist in the process of creating a digital health solution. The doctoral thesis has recently been awarded the "Best Doctoral Dissertation" distinction by the national Finnish Association of Information and Communication Professionals in consideration to its interdisciplinary value, importance of the topic and excellence of the research.

As technologies continue to emerge and adapt, healthcare will transform into something very different from what we have now. It is up to us, whether we are researchers, designers, healthcare professionals or patients, to decide the shape of things to come. There is so much left to be done, so we should get working.



The 3MD model was published in [JMIR Serious Games](#)

The full [doctoral thesis](#) is available online in the University of Oulu's repository Guido Giunti

GUIDO GIUNTI

RESEARCH

HISTORY COMES TO THE AID OF HUMAN MOBILITY RIGHTS POLICYMAKING

Rediscovering the empowering legacies of the EU's Free Movement of Persons.



The value of **historical inquiry** to address contemporary **migration** and **asylum** policies has been neglected for too long. This has resulted in a harmful disregard of the empowering rediscovery of our common human mobility rights' legacies, so full of potential to unlock ground-breaking approaches to present-day obstacles.

This is the case of past European integration initiatives and proposals, which are generally ignored when undertaking the current challeng-

es to the **European Union's Free Movement of Persons (FMP)**. However, such a legacy could even be considered a fundamental intangible heritage, as well as a solid, retroactively innovative and paradigmatically transnational foothold.

LOOKING BACK TO SEE BEYOND

The MSCA-IF Global Fellowship **NAVSCHEN** ('Navigating Schengen. Historical Challenges and Potentialities of the EU Free Movement

of Persons, 1985-2015') project aims to **look back** in order to **see beyond** by unveiling overlooked historical archives, players and actions in this realm. Indeed, structurally conditioning elements and aborted proposals (**roads not taken**) can be powerful sources of inspiration for the essential policy area of human mobility rights, linked to a most basic 'right to have rights'⁽¹⁾.

Critical historical analysis sheds light on:

- Actors' motivations, strategies and discourses
- Meaning and insights of a given context
- Implications of causal links
- Interdependencies between memories and present directions
- Possibility of comparing distant, yet conceptually related, case studies

POLICYMAKING USES OF HISTORICAL ANALYSIS

From this perspective, the main policymaking uses of critical historical analysis on the EU's FMP are dedicated to the following:

¹ S. DeGooyer, A. Hunt, L. Maxwell, S. Moyn, *The Right to Have Rights* (Verso Books, New York, 2018).

RESEARCH

- The fact that changing attitudes towards human mobility rights illustrate more profound societal changes to be taken into account from an **evidence-based policy-making** perspective
- The provision of timely and essential tools to interpret new conceptions of **inclusiveness** in a globally interconnected society
- Bridging research outputs and global governance objectives by clarifying the links between particular turning points and resulting contexts
- The improvement of our understanding of the intertwined factors conditioning **EU borders, membership and belonging**
- The building of well-researched countermeasures to the increasing poverty and discrimination of mobile populations, as well as ways of globally fostering a **sustainable social solidarity**
- The improvement of the modalities of the progressive Europeanisation of **immigrants' integration**.

Given the primacy of economic integration over its more socio-political dimensions, the EU's FMP has been denominated the 'fourth freedom' due to its relegation to the other three Schengen Area freedoms of movement: of capital, goods and services. Plus, as the integration of migrant and refugee populations is a crucial issue of global concern, more critical attention could be paid

to understanding how the EU's FMP as a 'fourth freedom' is crashing under the weight of ever-growing social inequalities.

In this respect, a promising shift of focus could be centred on promoting sustainable models of upward social mobility. In short, critical historical analysis would decisively aid to reconfigure policy-making debates on profoundly unsettled human mobility rights.

GATEWAY HISTORICAL ARCHIVES

A paradigmatic observatory for such undertakings can be found at the European Parliament (EP)'s archival records on the changing modes of implementation of the EU's FMP. Indeed, EP decision-makers distinctly searched for a balance between Single Market priorities and the pre-eminence of the FMP as an end in itself within the European integration process. For instance, EP representatives denounced how the aims of the internal market intended to overshadow the defence of democratic rights and freedoms per se. Accordingly, the EP's influence was reflected in the June 1986 Solemn Declaration by the three Institutions, centred on combating all forms of discrimination, racism or xenopho-

bia. Furthermore, EP discussions on the nascent concept of a 'Citizens' Europe' stressed 'the value of the contribution made by immigrants to the building of a multinational and multicultural European society'(2).

A MOVEMENT IN THE OPPOSITE DIRECTION

The EU's FMP is considered one of the most meaningful, and also the most popular accomplishments ever of European integration(3). This socially recognised achievement could be mirrored by an EU that acts, primarily, as an ethically committed political player constantly bringing up the human rights, solidarity and social cohesion dimensions of the European integration process. As we witness a reverse of such developments, critical historical analysis could reignite a commitment to re-establish a decisive dialogue between citizens and institutions, determined to supersede growingly toxic socio-political cleavages. Indeed, this pivotal viewpoint could trace back key EU principles to rekindle the transformative power of policy innovation and lead to positive societal impact: 'A movement in the opposite direction, free of inconsiderate ambitions'(4).

² Motion for a Resolution of the EP on the 'Citizen's Europe', OJC 497/88262, 13/09/1988, pp. 40-41.

³ C. Offe, *Europe Entrapped* (Polity Press, Cambridge, 2015), p. 137.

⁴ H. Martinson, *Antología Poética* (Barcelona, Plaza & Janés, 1974).

Marie Skłodowska-Curie Global Fellow, University of Pittsburgh / Ca' Foscari University of Venice

DR. CRISTINA
BLANCO SÍO-LÓPEZ

RESEARCH

DISCOVERING AN ONGOING ITN PROJECT: MANNA



The European Joint Doctorate in Molecular Animal Nutrition, MANNA, is one of the biggest Marie Skłodowska-Curie ITN funded projects. It has 18 leading groups and 11 Early Stage Researchers working together for a common objective.

The **European Joint Doctorate in Molecular Animal Nutrition (MANNA)** is a **Marie Skłodowska-Curie Innovative Training Network** funded under the European Union's Horizon 2020 research and innovation programme (grant agreement n. 765423).

MANNA started on 1 October 2018 and is designed to establish an EU network whose mission is to provide a double doctorate-level training programme, valid throughout all Europe, on innovative technologies applied to animal science

and nutrition. MANNA will provide future research leaders with the capability to address the needs to improve livestock health, welfare and efficiency.

PROJECT STRUCTURE

The network connects 18 leading groups from universities, companies and research institutions from 8 different European countries that will closely collaborate to achieve the project's objectives. More specific, MANNA is formed by 6 universi-

ties (respectively based in Milan, Glasgow, Bonn, Zagreb, Barcelona, and Košice), 9 private companies (AbAgri, Acuvet Biotech, BASF, Evinik, Life Diagnostic, RAFT, Nutrition Science, SPRIM, and MetLabs), and 3 public research institutes (INRA, Leibnitz Institute, and Porto Conte Ricerche). This strong connection between different groups is fundamental in order to develop an **Elite EU school** to train **11 Early Stage Researchers (ESR)** in OMIC technologies applied to animal science and nutrition. OMIC technologies are tools for the detection of

RESEARCH

genes (genomics), messenger RNA (transcriptomics), proteins (proteomics), and metabolites (metabolomics) in a specific biological sample (i.e. milk, blood, urine, faeces etc.).



MANNA

European Joint Doctorate in Molecular Animal Nutrition

OBJECTIVES

The aims of MANNA are to evaluate the influence of innovative feed additives on animal production and to deliver double doctoral degrees to the 11 ESRs. Moreover, the strong connection and interaction of academia, industry, and public institutions in one consortium will allow the ESRs to be trained in an international context that will enhance their possibility of becoming well-equipped scientists ready for the global workplace.

In order to achieve these goals, each PhD student is guided by two supervisors from academia and one from a company. Each ESR will work on an integrated innovative research project, designed to investigate the effects of various solution: from anti-oxidants, microRNA, exosomes, amino acids, and lipids to plant-derived anti-inflammatory agents in livestock diets that have effects on growth, intestinal health, and systemic metabolism. This innovative research will be assessed also by integrating OMIC technologies in both in vivo and in vitro models. The results will be then processed using informatics platforms to build analytic systems based on the IBM-Watson Cognitive Computing platform.

STRENGTH OF THE PROJECT

One of the strengths of this project is the offer of a rich secondment programme involving industry and non-academic research institutes, whose specialised fields of activity include animal nutrition, veterinary diagnostic, and clinical research, bioinformatics and professional communication in the agro-food sector. ESRs will be able to receive a complete training which will cover both aspects of animal nutrition and advanced OMIC techniques. All academic and non-academic partners will contribute to this training and will reinforce the graduate programmes of each university also by taking part in lectures and sessions during summer schools and workshops that will take place over the three-year PhD programme.

EARLY STAGE RESEARCHERS

The 11 ESRs selected to join the project come from Italy, Spain, Iran, India, Costa Rica, Philippines, Vietnam, and Brazil. Their previous expertise spans from animal sciences to biotechnology, from veterinary

medicine to biostatistics. Such a diversified background is fundamental in order to have a multidisciplinary and international team be able to tackle various scientific questions under the guidance of the supervisory teams. Collaboration is the key, and in the MANNA network it is one of the pillars of the whole project.

COLLABORATION WITH MCAA

MANNA is one of the largest EU projects currently funded via the Marie Skłodowska-Curie ITN programme. We are honoured to be a part of the MCAA community and wish to share with you further insights into the project, through the direct words of the eleven ESRs. Under the coordination of Ruben Riosa, MANNA has created a specific team that will release at least one article in each of the future issues of the MCAA Newsletter.

So, get ready to know more about the MANNA network, and keep reading the MCAA Newsletter!

RUBEN RIOSA, EARLY STAGE RESEARCHER (ESR), SCIENTIFIC COPYWRITER AND ESRS COORDINATOR OF THE COMMUNICATION WITHIN THE MANNA NETWORK.

RESEARCH

MANNA: OMEGA-6/OMEGA-3 FATTY ACID (FA) RATIO EFFECT ON PIGLET MICROBIOME AND IMMUNITY

Discover the Project number 1 of the MANNA network. You will find out that sow's nutrition is more important than you think.

The European Joint Doctorate in Molecular Animal Nutrition⁵ is an EU network whose mission is to provide a double doctorate training programme on innovative technologies applied to animal science and nutrition. Funded by the European Commission within the Marie Skłodowska-Curie Innovative Training Network programme, MANNA is currently training Early Stage Researchers (ESRs).

WHO AM I?

My name is Nguyễn Thị Xuân and I was born in Vietnam, a beautiful and friendly country in Southeast Asia. I graduated from Hanoi University of Agriculture with a bachelor's degree in Animal Sciences and Veterinary Medicine. I obtained my MSc in Animal Sciences from Wageningen University in the Netherlands. I am the ESR of the Project number 1 of the MANNA network, and I am working under the supervision of Prof. Giovanni Savoini (University of Milan), Dr. Richard Burchmore (University of Glasgow) and Dr. Matilde Pinerio (Acuvet - Spain) in the project entitled omega-6/omega-3 Fatty acid ratio effect on piglet microbiome and immunity.

PROJECT OVERVIEW

The omega-6 polyunsaturated fatty acids (PUFAs) are precursors of multiple pro-inflammatory molecules, while omega-3 PUFAs are anti-inflammatory and immuno-modulatory compounds, thus, they are beneficial for the reproductive system of the sows. However, the actual requirements and optimal ratio between omega-6 and omega-3

PUFAs in the diet of gestating and lactating sows is still argued by the scientific world. Moreover, previous studies did not take into account OMIC techniques (study field in biology ending in -omics such as genomics, proteomics, metabolomics, which respectively study the genome, the proteins and the metabolites) which are fundamental to better understand the effects of these compounds on the systems biology of animal metabolism.

Brown seaweed (*Ascophyllum nodosum*) contains a high content in bioactive compounds (polysaccharides, phlorotannin, etc.) that could act as prebiotics to enhance gastro-intestinal microflora health status and other health-promoting bioactivities such as antioxidant, antitumor, anti-inflammatory, antiviral, and antibacterial. Consequently, it can be substituted for antibiotics to improve animal performance and reduce pathogenic bacteria. However, in recent years,

⁵ <http://www.phd4manna.eu/>

RESEARCH

very little data has been published on the effect of this feed supplementation on post-weaning piglets and none of them examined prior dietary treatments on sows during gestation and lactation. Therefore, the aims of my study are two-fold. Firstly, to assess the effects of different ratios of omega-6:omega-3 PUFAs in sows' diet on sows and their litter performances. Secondly, to study the combined effect of sow diet and seaweed administration to respective post-weaning piglets on their growth response, immunity, proteome, and microbiome⁶.

MY PROJECT SO FAR

During my first year at the University of Milan, I finished the in vivo trial on the sows and their piglets, obtaining data on sows' reproductive performance and piglets' growth performance. I collected various biological samples (e.g. colostrum, milk, faeces), not only for my project but also for other three ESRs who are performing other related studies, to better understand sows and piglets' metabolic responses to different type of diets. I already did some analyses on fatty acid composition of colostrum and milk samples, and got some results on intestinal morphology, to understand if there are some effects of the feed on the digestive system. Next year, my study



will focus on immune response at the University of Bonn, where we want to understand the effects of the feed on immune system of piglets, and I will also focus on proteomics analyses at the University of Glasgow to better understand the protein expression when feeding different diets.

HOW CAN BEING PART OF AN MSCA ITN IMPACT ME?

Having a chance to participate in a MSCA ITN such as MANNA will forever be a remarkable milestone in my career to deepen the knowledge in animal science and nutrition at the molecular level. Therefore, I will be prepared to address the needs to improve livestock health, welfare, and efficiency for the global workplace.

This MSCA ITN has provided me a great opportunity to develop myself

in a unique professional environment. I am currently involved in the PhD programmes of both University of Milan and University of Glasgow. Through this collaboration network, I can interact and communicate not only with other ESRs, but also with many other scientific experts in their fields. The in vivo trial on an industrial farm in Italy helped me to understand the needs and operations of that station in terms of nutrition and management. Besides that, I acquired several skills regarding the writing of experimental protocol, handling of sows and piglets, sampling, and much more. Moreover, the PhD program of MANNA offers many interesting courses and training on animal sciences, veterinary medicine, and OMIC technologies which help me to gradually link animal sciences to the multiple possibilities of OMICs technologies.

⁶ Proteome is the entire set of expressed proteins in a cell, tissue or organism at a certain time and under specific conditions, while the microbiome is the genome of all micro-organisms living together in a particular habitat, including bacteria, archaea, fungi, and viruses.

NGUYỄN THI XUÂN, EARLY STAGE RESEARCHER OF THE MANNA PROJECT 1

RESEARCH

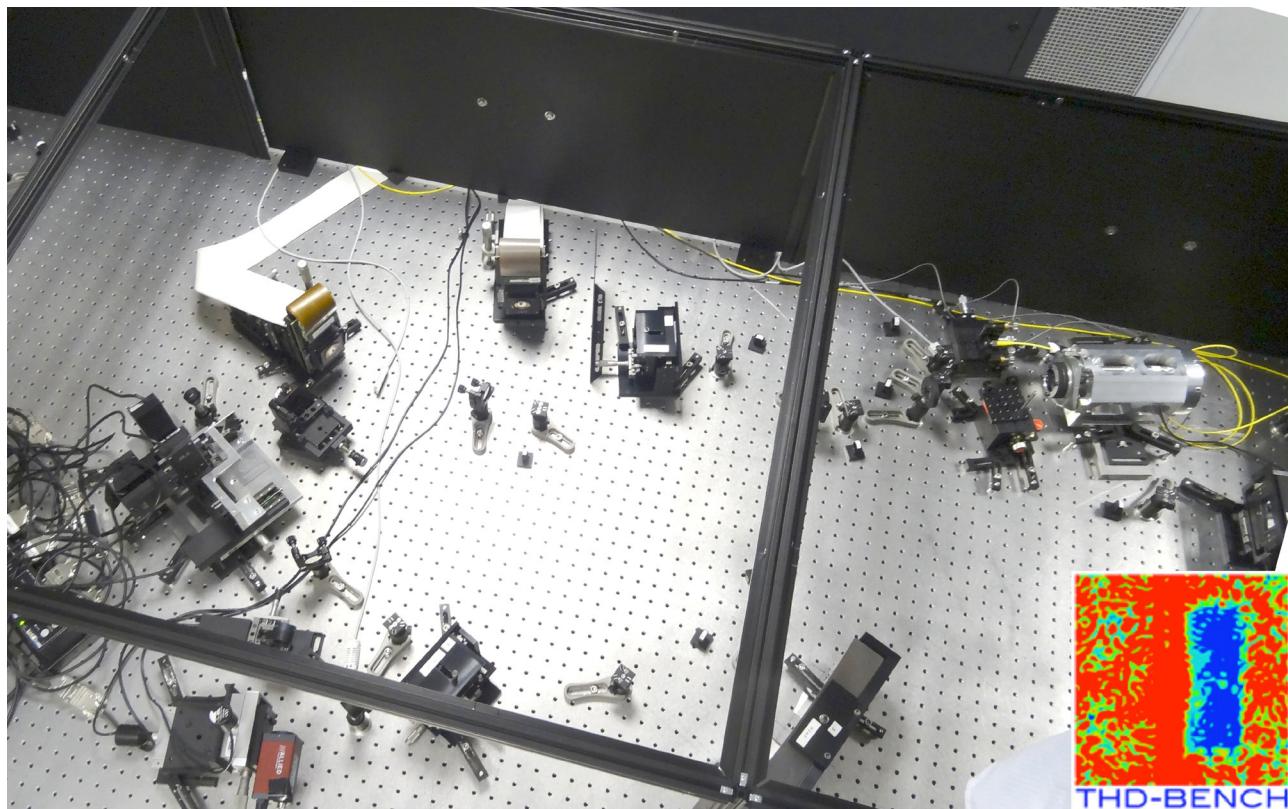
IMPROVING DATA INTERPRETATION OF EXOPLANET IMAGES

While taking images of exoplanets, astronomers encounter instrumental biases and bright spots in the data. This is due to imperfections in the optomechanical components of the instrument and the telescope. These long-lasting, however evolving patterns either mimic the signal of planets or hide them in the background noise. Garima Singh, the MSCA individual fellow affiliated with Pierre Baudoz at the Observatory of Paris, sheds light on the technology involved in tackling such systematic patterns to improve the image quality of images containing exoplanet signals.

Exoplanets are planets in orbit around stars other than our Sun. These alien worlds come in all flavours: Super-Earths, hot Jupiters and mini-Neptunes to name a

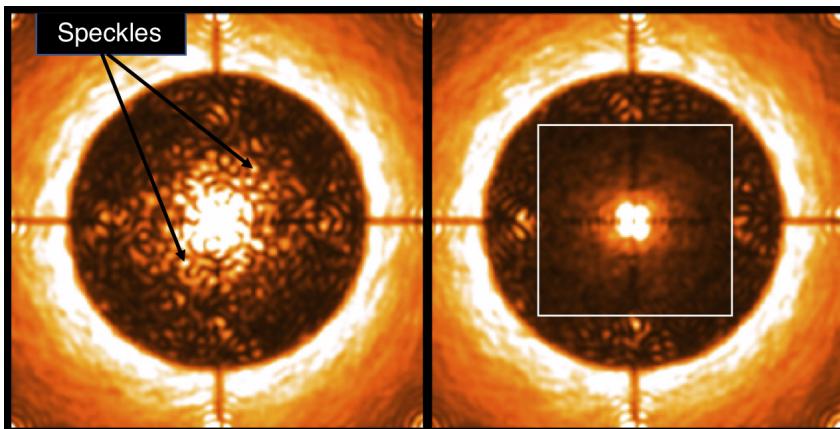
few. We have sufficient evidence to believe that our solar system with its eight famous planets is not unique and perhaps may not be the only place where life is har-

boured in the universe. In fact, we have been finding exoplanets that lie just at the right distance from their stars where life-supporting conditions could exist.



THD2 testbed at the Observatory of Paris where we develop techniques to improve the current capabilities of imaging exoplanets.

RESEARCH



Laboratory images of a star as seen by a very large telescope in Chile. The left image simulates a realistic scenario where a star image is filled with speckles as labelled. These speckles mimic signals of exoplanets. The image on the right shows how these speckles are suppressed (the region within the white box) in real-time by the algorithm. It takes roughly 90 seconds to clean the speckles and remove this ambiguity.

Exoplanetically speaking, it is an exciting time for humanity: These wonderful discoveries are opening the doors to the possibility of finding life somewhere else than the Earth. Although such a quest may not help us solve the problems of our world, it can surely give an orbital perspective when one questions the existence of the world we live in. Today, we know more than 4 000 exoplanets. Most of these discoveries were made with indirect methods that confirm the existence of a planet but do not visually perceive it. If a planet orbits a star, then the star wobbles. If a planet passes in front of its star, then the brightness of the star varies periodically. This wobbliness and/or the change in the brightness of stars is what is observed to indirectly approve the presence of planets around them. By definition, these methods are more favourable in detecting planets with small orbital periods or mature planets like the ones

in our solar system. The question is: Can we take images of exoplanets?

Seeing an exoplanet has its own charm but obtaining its image is scientifically essential. Apart from being able to study the chemical and physical composition of the atmosphere of planets, imaging is a powerful way to find liquid water on the surface of a planet. However, the technical requirements to do so are extremely challenging. Current techniques include the high-contrast imaging (HCI) of exoplanets, which consists of taking snapshots of extra-solar systems with ground-based telescopes. With current technological capabilities, it is actually possible to detect young Jupiter-size exoplanets orbiting at large distances, while it is nearly impossible to take images of exoplanets orbiting closer to their stars. Being able to see planets at all possible orbital periods is essential in understanding the formation

and evolution of planets in a stellar environment. With this motivation, we astronomers are aiming to image exoplanets at all ranges of orbital periods⁷. Our project "Exoplanet Finder" funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 798909 is dedicated to finding solutions to problems that limit our visual evidence to directly imaged and near-by exoplanets.

CURRENT TECHNOLOGICAL LIMITS IN IMAGING EXOPLANETS

Ground-based telescopes of 30-metre diameter or more or more are needed to look deeper and closer to the star to find exoplanets with short orbital periods. We have already entered the era of extremely large telescopes and the construction of a European telescope of a 39-metre diameter has already started in the Atacama Desert of Northern Chile. However, it will take at least a decade to be able to image closer-in exoplanets. Given the current limit of 10-metre-class telescopes, at present we simply do not have access to the immediate surrounding of a star. We can image young giant planets at large distances only in favourable observing conditions.

Another requirement is to isolate the faint light of a planet from the overwhelming brightness of its star. In general, a planet signal is roughly a 1 000 to 10 billion times fainter than its star. A device called coronagraph is generally used to

⁷ <https://jasonwang.space/orbits.html>

RESEARCH

block the starlight inside the instruments. However, during HCI observations from ground, the Earth's atmosphere behaves like an oven. The light from a star-planet system is distorted and blurred by our atmospheric turbulence. As a result, coronagraphs do not function as expected. This challenging problem is addressed by the Adaptive Optics (AO) technique. When we point the telescope at a star to search for an exoplanet around it, the routine process includes inspecting the corrupted signal of a star-planet and undoing the effects of Earth's turbulence every millisecond during an observation.

Once the real-time frames of a star possibly containing the signal from an exoplanet are stabilized on the science camera by an AO system, the starlight is then blocked by a coronagraph. Theoretically, after this process, the signal of an exoplanet should emerge out from the noisy background where the starlight is suppressed. However, it is not yet the case. Since the telescope structure shakes continually and contorts gradually, part of the starlight which should have been suppressed spreads out and creates little 'devils' called speckles which are a lookalike of planetary signals. These speckles evolve in images at different rates and it is challenging to speculate their evolution lifetime. Some of these instrumental patterns

can be discarded in post-processing of data while some linger and create false positives. In images, the area closer to the star is polluted by speckles which create confusions during the data interpretation by astronomers, making it difficult to differentiate between speckles and real planetary signals.

PREVENTION BEFORE CURE

We astronomers are very well aware that our images containing signals of exoplanets are contaminated by speckles. It is thus highly desirable in the HCI community to find sturdy solutions that can withstand these speckles and undo their presence whenever they pop-up in the images. In other words, when the telescope is taking exoplanet data then a real-time algorithm should detect the location of these emerging speckles and make them disappear. Our team at the Observatory of Paris⁸ has pushed the current technological limit and worked on such an algorithm⁹.

In our laboratory setup, we simulate a star under the environmental condition that imitates the observing scenarios at the Very Large Telescope (VLT) in Chile. First of all, our technique teaches the algorithm to differentiate between the speckles and the planetary signals. An important property of a speckle is that it

is generated by the light of the star itself whereas the signal of a planet comes either from its own thermal energy or from the starlight reflected by the planet. Once this knowledge is established, fake speckles with all the possible known brightness are injected into the images at different locations. The algorithm then scans the area of interest in the images and trains itself by building a matrix containing the information of fake speckles. This matrix then acts as a foreknowledge of speckles and is able to identify random speckles that appear during the real observations. Once the location and the brightness of a speckle is identified, the light from this speckle can be diminished (*Figure 1, right*) with the help of a mirror that has a property of reshaping the light in any desirable form.

One of my projects as an MSCA fellow was to characterize the performance of this technique in simulations and in the laboratory experiments. We demonstrated in an article¹⁰ that our real-time algorithm can identify such persisting planet-resembling features and suppress them before post-processing of the data. The published article has a direct impact on improving the capability of the current and future telescope facilities by further clearing up our vision while looking for small orbit planets.

⁸ <http://thd-bench.lesia.obspm.fr/>

⁹ P. Baudoz, A. Boccaletti, J. Baudrand, D. Rouan, C. Aime, F. Vakili, The Self-Coherent Camera: a new tool for planet detection. IAU Colloq. 200: Direct Imaging of Exoplanets: Science & Techniques, ed., 553–558 (2006).

¹⁰ G. Singh, R. Galicher, P. Baudoz, O. Dupuis, M. Ortiz, A. Potier, S. Thijs, E. Huby, Active minimization of non-common path aberrations in long-exposure imaging of exoplanetary systems. *Astronomy & Astrophysics*, accepted (2019)

RESEARCH

DELIVERY MODELS FOR THE PROVISION OF GENOMIC APPLICATIONS

The multicenter project on genetic service delivery models for the provision of genomic applications was implemented by the Personalized pREvention of Chronic Diseases consortium (PRECeDI), which is a Marie Skłodowska-Curie Action project funded within the Research and Innovation Staff Exchange scheme.

The Personalized pREvention of Chronic Diseases consortium (PRECeDI) consortium consisted of academic and non-academic institutions addressing different aspects of personalized medicine

(PM) through five research domains related to economic evaluations, health services research, ethical-legal and policy issues. In the period 2014–2018, 58 researchers were seconded for training

and research in PM, with specific reference to personalized prevention of chronic diseases (i.e. cancer, cardiovascular, neurodegenerative diseases)¹¹.

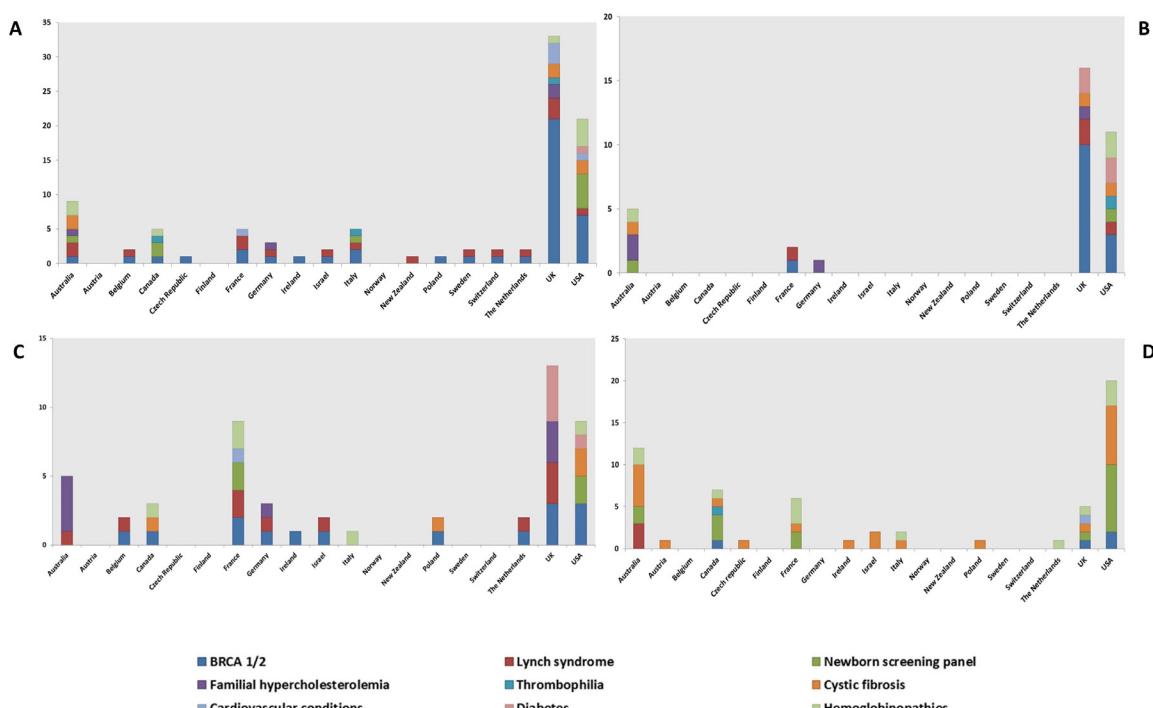


Figure 2. Geographic distribution of genetic tests according to the genetic service delivery models.

A: genetic services led by geneticists; B: the primary care model; C: the medical specialist model; D: genetic services integrated into population screening programs

¹¹ How to integrate Personalized Medicine into Prevention? Recommendations from the Personalized pREvention of Chronic Diseases (PRECeDI) consortium (2018); http://www.precedi.eu/docsmedia/communications/pers._medicine_prevention.pdf

RESEARCH



The aim of the 5th domain was to identify current genetic service delivery models for the provision of genetic testing, policies governing the use of genomic applications and methods to evaluate genetic services in Europe and in selected non-European countries (US, Canada, Australia, and New Zealand). The methodological approach included systematic reviews of the literature and structured interviews addressing European healthcare professionals on policies and delivery of genetic services.

Genetic service delivery models for the provision of genetic testing identified through the research are classified into five categories according to the most prominent role of healthcare professionals in patient pathways: i) genetic services led by geneticists; ii) the primary

care model; iii) the medical specialist model; iv) genetic services integrated into population screening programs; and v) the direct-to-consumer (DTC) model.

Genetic services led by geneticists correspond to the 'classic' model of genetic services (e.g., for rare diseases) provided mainly by geneticists; this is still the most common model of delivery. However, genetic applications are increasingly utilised by other healthcare professionals who are involved to various degrees in patient management (e.g. different medical specialists, nurses, technicians, midwives). This is particularly evident in genetic services led by medical specialists, which is the second most common model of delivery. Genetic services are also progressively integrated into population-based screening pro-

grammes, such as newborn screening, screening for hereditary breast and ovarian cancer, and colorectal cancer. The primary care model is one of the least represented in the study. It has been overshadowed by the medical specialist model in recent years due to lack of or limited knowledge of primary care physicians in genetics. Few DTC genetic services were identified, but the model should be much more common given the easy access to genetic testing offered by commercial companies and the increasing tendency to purchase medical products through the internet¹². The integration of genetics in other medical specialties should be promoted through new delivery models involving different healthcare professionals (e.g. medical specialists, nurses, technicians) and new professional roles (i.e. genetic

¹² B. Unim, E. Pitini, T. Lagerberg, G. Adamo, C. De Vito, C. Marzuillo, P. Villari, Current Genetic Service Delivery Models for the Provision of Genetic Testing in Europe: A Systematic Review of the Literature. *Front. Genet.* 10, 552 (2019). doi: 10.3389/fgene.2019.00552

RESEARCH

counsellors, genetic associates, genetic nurses), in order to guarantee the use and sustainability of existing and new genomic applications in practice. Roles and responsibilities should be redistributed among different health professionals to enhance work performance and the standard of care.

Most genetic tests have considerable evidence of efficacy and cost-effectiveness and are ready for full implementation in clinical and public health practice (i.e. BRCA1/2, Lynch syndrome, familial hypercholesterolemia). However, not all genetic tests have been evaluated prior to their introduction in routine practice (e.g. cardiovascular conditions, type 2 diabetes, hereditary, hemochromatosis). Prior to implementation in clinical and public health practice, genetic tests should be evaluated based on available efficacy and cost-effectiveness data and offered to citizens as a right to benefit from innovative healthcare.

One of the factors limiting the successful implementation of genomic discoveries into routine practice is the lack of expertise in medical genetics. Another important barrier to implementation is related to funding for genomic research, which is public in most countries. National policies governing the use

Figure 1. Genetic Service Delivery Models according to the roles of the healthcare professionals involved in patients' pathways to care

PATHWAY	Model I: Genetic services led by geneticists	Model II: Primary Care Model	Model III: Medical Specialist Model	Model IV: Genetic services integrated into population screening programs	Model V: DTC Model
I	Patient-(GP)-Medical specialist-Counsellor-Lab	Patient- (GP)-Counsellor-Lab	Patient-(GP)-Medical specialist-Lab	Patient-(GP)-Medical specialist-Counsellor-Lab	Patient- Lab
II	Patient- Counsellor -Lab	Patient- GP-Lab	Patient- Medical specialist- Counsellor-Lab	Patient-(GP)-Medical specialist-Lab	Patient-(GP)- Medical specialist- Counsellor- Lab (virtual clinic)
III				Patient-Counsellor-Lab	

of genomic applications also affect the proper implementation of genetic discoveries in mainstream medicine. Several countries have not enacted regulations governing the use of genetic applications in clinical and public health practice¹³. France and Italy are the only countries, among those considered in the project, with a National Plan for Public Health Genomics.

Professional education in genomics medicine, adequate funding, public policies, and public awareness are essential factors for the successful implementation of genomic applications in routine practice. It is advisable to define the appropriate model for genetic service provision in a specific setting according to the type of healthcare system and the genetic test provided.

Based on the results of the project, a set of recommendations for researchers and policymakers has been issued, with the aim to facilitate the integration of PM in the prevention of chronic diseases.

¹³ World Health Organization (WHO), "Human Genomics in Global Health. Quality and Safety in Genetic Testing: An Emerging Concern" (WHO, 2003); http://www.who.int/genomics/policy/quality_safety/en/index1.html

PUBLISHED BY



The MCAA Newsletter is the main communication channel for and about the MCAA community. It provides information about the activities of our national chapters and working groups, as well as events, projects and partners.

The MCAA Newsletter is published by the Marie Curie Alumni Association
(ISSN 2663-9483).

Any request concerning the newsletter, including suggestions about new topics and articles, should be sent to news@mariecuriealumni.eu.

INSTRUCTIONS FOR SUBMISSION

We welcome articles on any activity related to MCAA, local chapters, initiatives, events and so forth.

We especially welcome articles on MSCA projects, where one can either provide a general overview of a project or present initial/mid/final results.

Articles should be max 750 words, written in a clear, lay language, and possibly provide one or two images (copyright-free and high definition).

Articles should be sent to news@mariecuriealumni.eu.

EDITORIAL BOARD

- Gian Maria Greco, Autonomous University of Barcelona (Spain), Editor-in-chief
- Valerie Bentivegna, PolyDrop LCC (US)
- Valentina Ferro, Inking Science (US)
- Nehama Lewis, University of Haifa (Israel)
- Marco Masia, Innovation Consultant (Germany)
- Matthew D. DiFranco, University of Vienna (Austria)

EDITORIAL TEAM

- | | |
|--|---|
| • Ruben Riosa, University of Bonn | • Aurélia Chaise, INTRASOFT International |
| • Yahaya Abubakar Yabo, Luxembourg Institute of Health | • Kathy Tzilivakis, INTRASOFT International |