ALUMNI

MARIE CURIE

IRR ADI UM

MAGAZINE

March 2017

Contents

Dear members and friends of the Marie Curie Alumni Association,

I am honoured and humbled to serve as the Chair of an association bringing together so many inspiring researchers and alumni. This magazine aims to engage with some of the issues and topics that are relevant to, and interest, our wider membership.

Currently many of our members living in the UK are unsure of their future because of the uncertainty regarding the decision of the British people to leave the European Union. We urge all partners in this process to prioritise the residence rights of EU citizens in the UK.

We believe that our members are not only the outstanding academics of the future, but also the excellent young people who will impact on society in many different ways, including entrepreneurship. Our Vice Chair Marco Masia reports on leaving academia to become CEO of a start-up.

Mobile researchers obtain pension rights in multiple countries. In many cases our members work in three or more countries in the course of their career. Such mobility currently results in much lower pension payment during retirement and much more complicated administrative requirements. We present the view of normal researchers, the Chairman of the RESAVER consortium, a representative of FindYourPension and an MCAA member who organised a workshop about pension rights for mobile researchers.

Artificial intelligence (AI) is anything that makes machines act more intelligently. AI is currently changing the world in many fields: Big Data, Bioinformatics, Internet of Things, Industry 4.0, and Smart Sensors. These developments provide opportunities to researchers from many fields to work at the cutting edge of research.

Researchers from the Social Sciences and Humanities (SSH) make up almost 11 % of our members. Many of the researchers from these diverse fields contained within SSH carry out research with great societal impact. MCAA supports their work and encourages the future EU Framework Programme to prioritise funding for research in SSH.

Many top universities currently provide open access to Massive Open Online Courses (MOOCs). These online courses not only provide traditional course materials such as lectures and exercises sets, but often interactive elements to enhance the online learning experience as well.

Warm regards,

Brian Cahill
Chair of Marie Curie Alumni Association

Chairman's Letter

Learn all about the Marie Curie Alumni Association (MCAA)

The Marie Curie Alumni Association (MCAA) was officially launched in November 2013. It is intended to broaden horizons for past and present Marie Skłodowska-Curie researchers and offers numerous benefits. Interested? Keep reading!

WHO CAN BECOME A MEMBER?

Membership of the MCAA is free of charge and open to any past or present Marie Skłodowska-Curie researcher; i.e. any past or current beneficiary of funding under any of the past or present schemes under the European Commission's Marie Skłodowska-Curie programme. Around 50 000 researchers have already benefitted from the programme and this number is rising fast.

HOW DOES THE ASSOCIATION WORK?

The Association is governed by a Board elected by the MCAA members; a small group of these Board members constitute an Executive Committee. Funding and support for the MCAA is provided by the European Commission (Directorate General for Education and Culture), in the form of a service contract (following a public call for tender) with a contractor (a consortium of two commercial companies Inovamais and INTRASOFT International) that assists with the creation, development and running of the Association.

WHAT ARE THE BENEFITS IF I BECOME A MEMBER?

This MCAA web-portal is the main platform for interaction between Marie Curie Alumni; it is the channel for:

- creating and supporting a community of people with common experiences and interests;
- providing a virtual meeting place and communication tools for networking, discussion, and knowledge interchange;
- presenting a coherent image of the Association, and providing a collective voice that Marie Curie Fellows can use to address the wider scientific and research community.

The following services are available to MCAA members (when registered and logged-in):

- Funding: the MCAA offers opportunities for members to access funding that will assist their individual efforts to build and promote this Alumni community.
- Alumni Directory: find other researchers through the online directory or seek out members in a specific location or area via the map-based search. Keep your own online profile up-to-date so your friends and acquaintances can contact you.
- Group activities: the MCAA has set up a number of thematic working groups, as well as various local membership chapters; more groups and chapters are planned. Members can also create or join specific online groups to discuss common interests.
- News: There is a News page offering access to the latest news about the European Research Area and a Calls page offering information about EU calls for proposals. An events page offers a calendar of events of potential interest to members, and allows members to share their own events with others. There is also a regular online newsletter for members.
- Employment opportunities: the Jobs page offers a range of information about open posts all over Europe.

TIMELINE

2012
Launch of the website

23 NOVEMBER 2013
The Marie Curie Alumni Association's first General Assembly at Square Brussels Meeting Center, Belgium. Members of the Association elected Snezana Krstic as the Chair.

7 FEBRUARY 2014
The MCAA became an AISBL (international not-for-profit Association) under Belgian law.

4-5 MARCH 2016
The MCAA General Assembly took place in the in the historic Auditorium S. Margherita of the Ca' Foscari University in Venice, Italy. Brian Cahill was elected Chair of the MCAA.

DON'T FORGET TO REGISTER!

Special coverage Brexit
Brexit: the sword of Damocles for researchers

Unless you have been living on another planet, you are probably aware that a referendum on 23 June 2016 in the United Kingdom (UK) led to 52 % of votes cast in favour of leaving the EU. The result was an international shock, but for foreign researchers working in the UK, it could have life and career-changing consequences. We met four Fellows who told us about their fears and expectations as they come to terms with the result.

BREXIT: WHAT'S THE STORY SO FAR?

BREAKDOWN ACROSS THE UK

England voted for Brexit, with 53.4% of the votes, as did Wales, with 52.5 %. Scotland voted to stay in the EU, with 62 %, so did Northern Ireland, with 55.8 % (source: BBC).

A NEW PRIME MINISTER

David Cameron resigned on the day after losing the referendum. The new Prime Minister is Theresa May, former Home Secretary. She is in charge of negotiating the conditions for leaving the EU.

ARTICLE 50 OF THE LISBON TREATY

The UK has to invoke an agreement set out in Article 50 of the Lisbon Treaty, which gives the two sides two years to agree the terms of the split. Theresa May has said she intends to trigger this process by the end of March 2017, meaning the UK is expected to have left by the summer of 2019.

KEY BREXIT DATES
(SOURCE: THE DAILY TELEGRAPH)

24 January 2017
Supreme Court delivers ruling that Government must seek Parliamentary approval to invoke Article 50

31 JANUARY
Start of a two-day Parliament debate on triggering Article 50 and starting the Brexit process

1 FEBRUARY
MPs vote on the Brexit Bill, deciding to give Theresa May the power to get Brexit negotiations under way. The Government wins by a landslide

7 FEBRUARY
MPs reject a rebel amendment calling for Parliament to give final approval of the EU deal

31 MARCH 2017
Deadline set by Mrs May for invoking Article 50 and notifying the European Council of the UK's intention to leave the EU

30 SEPTEMBER 2018
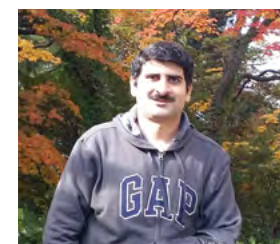Date by which EU's chief Brexit negotiator, Michel Barnier, wants to wrap up terms of the UK's exit from the Union

31 MARCH 2019
Date by which Theresa May wants to wrap up negotiations over Brexit

MAY 2019?
The UK formally exits the EU, following ratification of Brexit by all other EU countries.

OUR FELLOWS

AHMED BALBOULA

"I was selected as a Marie Curie Fellow to join the laboratory of Prof. David Glover, University of Cambridge, UK."
From Egypt

Research project: dissecting the underlying mechanisms that regulate spindle assembly in meiotic oocytes and early stage embryos to understand why mammalian oocytes and embryos are prone to error.
Host city: Cambridge

STEFAN BAUER

"I am interested in the history of historiography, religion, philology, and literature. In my current role, I concentrate on Reformation and Counter-Reformation in Europe, especially England, Germany and Italy."
From Germany

Research project: the history of religious polemic – 'History and Theology: the Creation of Disinterested Scholarship from Dogmatic Stalemate (ca. 1525-1675)'.
Host city: York

VALENTINA FERRO

"I am currently a PhD candidate in Scotland where I took the role of chair of the MCAA Scotland Chapter."
**From Italy**

Research project: training 13 PhD students in the develop-

ment and application of novel imaging modalities, including super-resolution microscopy techniques, with the aim of understanding biological processes at the molecular, subcellular, cellular, tissue and organ level. Application spans early disease diagnosis to treatment.
Host city: Dundee

GIANLUCA GRASSIA
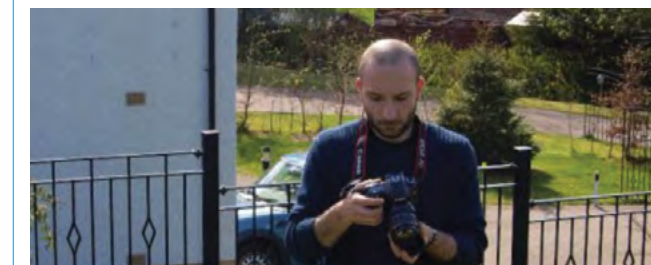
"I am proud to be a pharmacologist but it would be better for me to define myself as an experienced researcher in pharmacology with a specialisation in (years spent) in immunology and inflammation, cardiovascular diseases and nanomedicine."
From Italy

Research project: modernising the diagnosis and treatment of heart disease by combining nanotechnology with advanced imaging methods.
Host city: Glasgow

IMPRESSIONS OF THE REFERENDUM CAMPAIGN

"I expected the remain side to win"

None of our Fellows expected that the majority would vote in favour of Brexit. "Everyone expected the Remain side to win," says Stefan. "It was difficult to even get anxious about Brexit," echoes Valentina, who points to the multicultural environment in which she lives in Scotland as one of the reasons why she thought peo-

ple would reject Brexit. *"I didn't expect the referendum was going to matter too much because I thought that the UK would vote to remain,"* says Ahmed.

To Gianluca, it wasn't even a matter for discussion *"For all of us, researchers from all parts of the UK and Europe, the referendum was a useless response to an issue raised by politicians. European research is multidisciplinary, competitive and oriented to European integration, taking part in such programmes was an integral part of research and innovation in the UK."*

THE DAY AFTER THE VOTE

"It was almost surreal."

For all of our Fellows, the Brexit vote came out of the blue. *"No one among the people I know voted for Brexit,"* exclaims Valentina.

Stefan emphasises the shock felt by people around him: *"The referendum took place at a particular moment in my life, since the results became known on the day before my wedding. I personally don't know anyone who was not taken by surprise. It was almost surreal."*

Valentina describes the whole atmosphere as sombre and mournful: *"More than the result itself, I think that the disconcerting feeling originated from the surprise over a vote that was thought of as irrational in my community. In many respects – economical, social and political – it was seen as an impossible choice."*

"I became very worried because the result could indicate that foreigners are not welcome in the UK"

Ahmed explains that it was not only UK-based researchers who were shocked, but also people on the verge of starting research in the country, like him: *"In addition to being sad, I became very worried because the result could indicate that foreigners are not welcome in the UK."*

"Perhaps historians should not actually be surprised if they consider the previous, most significant English split from the European Continent"

Stefan's supervisor was among those who saw this result coming, giving the following explanation: *"Perhaps historians should not actually be surprised if they consider the previous, most significant English split from the European continent, which occurred 500 years ago during the Reformation. The new Church of England did not properly adhere to any dominant religious trend, but created its own religious character,"* he muses.

"Knowing that Scotland voted to stay was comforting"

For Fellows currently based in Scotland, the situation is felt differently. *"On the positive side, knowing that Scotland voted to stay was comforting,"* says Valentina. Gianluca speaks of the e-mail he received from the Principal and Vice-Chancellor of the University of Glasgow (Prof. Anton Muscatelli) the day after the results of the vote: *"I want to emphasise to my colleagues and to our students from the EU just how much this university values your contribution to our community. You are a vital and essential part of our university. The University of Glasgow was founded in the European tradition, and nothing will change our international outlook which will continue to look to Europe for our academic collaborations."* *"What have they done?!!!"* he asks.

POTENTIAL CONSEQUENCES FOR RESEARCH AND PERSONAL LIVES

"We still wonder whether Brexit will really happen"

All of our Fellows agree that life hasn't changed that much since the referendum. *"I go to work every day, I chat with the same colleagues during lunch and we still wonder if Brexit will really happen after all,"* says Valentina.

To Stefan, the indignation among the public was limited to a small proportion of people *"After this, the Brexit side took complete control. The stock markets recovered after two days. I think that some of this is due to the British mentality, which places great value on admitting defeat with dignity: nobody likes a sore loser here. In addition, Britain has the longest tradition of democracy in modern Europe and the referendum is seen as the outcome of a democratic procedure. The Remain side is now under heavy pressure both from the government and the mass media, and they seem to keep quiet."*

"Now things are uncertain"

The future does however seem less bright than it once did. Gianluca expresses his desire to go back to Italy as to him, the UK is not Europe anymore. To Valentina, research might be less prestigious than she thought: *"While before it represented good career prospects, now things are uncertain. When deciding upon my next position, I will consider that remaining in UK, especially in academia, might slow down my professional growth. If UK universities lose financial support from the EU, the prestige of British research may suffer, as well as funding for positions and new research groups in the future."*

HOPE AND EXPECTATIONS FOR RESEARCH

"The government should reassure foreign scientists"

All of our Fellow agree that an agreement with the EU over research funding is essential. *"I really hope that the government can negotiate with the EU to maintain access to European funding, which I think will not be easy at all. If not, the government should take steps to reassure foreign scientists and to support research with an equivalent amount of funding. This will be for maintaining high quality research in the UK,"* says Ahmed.

"No scientist in the UK sees a prosperous future for UK research after Brexit. It is anachronistic and misguided to think that some form of research body upon the control of their borders (for funds and human resources) could be competitive nowadays," says Gianluca.

"Valentina is more worried about young scientists: "The risk the UK is incurring by prolonging the uncertainty about Brexit and its consequences on research is to lose the next generation of brilliant scientists that would have otherwise stayed in the country."

NOTA BENE FROM THE AUTHOR

The testimonies from our Fellows were gathered in December 2016. This article was written in February 2017, while MPs were debating the Bill. If, in the meantime, some changes have occured regarding Brexit, we ask you for your understanding!

Research and entrepreneurship: the view from both sides.

Are you interested in moving from academia to entrepreneurship?
Marco Masia, MCAA Vice-Chair, gives an entertaining account of his own transition and explains the very different expectations within the two sectors.

Every researcher knows how it feels to see puzzled faces after explaining his or her research interests. That face is clearly saying, "uh, this is how the government wastes my tax money", or "ah, is this meant to be a job?", or "does it take more than one day to figure it out? I thought this guy was smarter". Since people tend to be polite, they instead ask, "so, why is it useful?".

It is frustrating, right? And the frustration is even bigger, as you have patiently prepared your pitch trying to follow Einstein's suggestion: keep it simple so that even your grandma can understand it.

I recently left academia to join the world of start-ups and I can assure you that I have prepared my pitch very well. You might be surprised to know that I see the same puzzled face when I am asked what my start-up is about. People with no experience of start-ups look at me thinking, "does he make a living out of it?", or "does it take more than one day to make it? I thought this guy was smarter". Since people tend to be polite, they instead ask, "so, will it be the new Facebook?".

PEOPLE DO NOT HAVE A CLUE ABOUT WHAT A START-UP REALLY IS. DO YOU?

A start-up is a laboratory where new ideas are tested. Just like in a research lab, there are measurements to be made, criticalities to look for, tests to run, results to understand. It's surprising how many things research and start-ups have in common. Researchers apply a scientific method to test their hypotheses. Start-ups develop a product testing their ideas about the needs of customers. This entails an experimentation phase to understand how they could deliver a unique service or product. This is why people are puzzled by what a start-up does: it's the delivery of unknown services or products that they cannot easily grasp.

MOVING FROM THE RESEARCH BENCH TO THE BUSINESS BENCH

In spite of the lab analogy above, working in a start-up is certainly different to working at the bench. Both researchers and entrepreneurs add value to society in distinct ways: the former, mostly by advancing knowledge; the latter by introducing new products that meet and satisfy the needs of people. Advancing knowledge is a slow process. The timescales of start-ups are at least one order of magnitude faster than in academia. People must take quick decisions and do not have the option of dwelling on one particular problem for a long time. Therefore, moving from one world to the other can be a shock at first.

Nonetheless, I think that many researchers have a precious skill that is of great use in a start-up: the ability to look at things from a different perspective. This is a process that starts with gathering information, disassembling and then reorganising it many times to find the right angle, from which everything becomes clear. This skill is exactly what is needed when running a start-up experiment.

Here is a simple example: we all know how to add up numbers. Adding numbers in a row is the essence of the business model of a post office, or a super market. What if, instead of adding users sequentially, you place them on a spider web? You will get a social network! Isn't it amazing? Just change the angle you look at things and you might become the next Mark Zuckerberg.

Start-ups are not about developing new knowledge (sometimes they do), but rather about finding an innovative way to use what we already know. It's unbelievable how many great, successful products come from basic knowledge. All you need is 'just' to challenge common wisdom. This is why, with Horizon 2020, the European Commission has set out to boost innovation; we have a lot of knowledge but not many smart ideas on how to use it.

MY "EXPERIMENT"

I have recently written a post on Medium about my transition from academy to entrepreneurship. My start-up is based on the simple observation that people who commute to work by plane every week are underserved by existing platforms. The idea is to make use of combinatorial theories to identify price saving solutions, and to provide a travel booking engine that outperforms current online travel agencies… Hey! Please! Don't give me that puzzled face!

The first app delivering such a service will be ready soon. Will it be successful? Will it pick up loyal customers quickly, or will it die off after few months? I don't know yet. This is the experiment I am designing. And designing it has meant learning about the travel industry, the main stakeholders, the megatrends in travel technology, but also about communicating with a growing community of potential customers through a blog, Twitter, Facebook and LinkedIn. It has meant making financial plans with different assumptions, and learning about the legal subtleties of running a business.

So, what if the experiment fails? Of course, I hope it doesn't! But, if it fails, it is part of the game. Start-ups are known to be high-risk endeavors, and failure is accepted as one probable outcome. As in academia, I know that the 'experiment' might not work. Not all bright ideas are converted into a successful product.

WANT TO EXPERIMENT WITH ME?

If you'd like to know more about my business idea, please have a look at the company webpage. You might also want to follow me on Twitter, or check the social media pages of Super Commuter. Don't hesitate to contact me if you have any questions or suggestions. Note that I am expanding the R&D department with projects ranging from software development and engineering to geography, sociology and economics. If you are interested in forthcoming opportunities, have a look at this page.
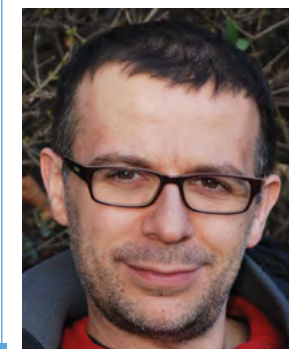
Marco Masia,
Vice-Chair of the
MCAA

Special coverage: pensions & researchers
Pensions: MCAA members' perspectives

High-level research today relies on research-ers moving between jobs and countries – the latter of which can lead to complications in terms of transferring a state pension and sup-plementary pension rights. We spoke to Daniel Praeg and Cristina Prytz about their concerns and expectations as mobile researchers.

OUR FELLOWS

DANIEL PRAEG

"In May 2016 I started a MSCA Global Fellowship, a three-year collaboration between geoscience institutes in Brazil (IPR-PU-CRS, Porto Alegre) and France (Géoazur, Nice). Our project is called SEAGAS and concerns submarine gas hydrates, ice-like compounds that form in deep-sea sediments and which are thought to represent the largest reserve of greenhouse gases (mainly methane) on Earth.

The scientific goal of SEAGAS is to better understand the nature of gas venting from such systems, by comparing study areas on the Mediterranean and Brazilian margins that have experienced differing forms of glacial-interglacial climate forcing."
Born in Canada / Swiss nationality
Host country and city: Nice, France

CRISTINA PRYTZ

"I am working on a research project called House and home: physical and emotional comfort in the country house, England and Sweden c. 1680-1820.

The research focuses on the changing relationship between physical and emotional comfort in the context of the country house, and explores a number of key questions about how the desire for comfort related to gender and life course, and to material objects and the growing specialisation of domestic spaces was perceived through different senses and how it was juxtaposed with feelings of discomfort; and how it was conceived and experienced in two contrasting countries within Europe."*
From Sweden
Host country and city: Manchester, UK

INTERNATIONAL CAREER PATHS

Like numerous researchers, Cristina and Daniel have worked in several countries.

Cristina had the opportunity to work in the United States and in Austria, for a few months.

Daniel's has impressive international credentials, having worked in six different countries: *"I began as a pre-doctoral researcher with the Geological Survey of Canada, first going to sea in 1984 to contribute to research programmes on the glacial history of the eastern and Arctic offshore. An interest in glacial processes led me to a research PhD at the University of Edinburgh (1997). I thereafter spent several happy years in Ireland as a post-doctoral researcher with the Marine and Petroleum Geology Group at University College Dublin. In 2004, a Marie Curie fellowship took me to the Italian National Institute of Oceanography and Geophysics in Trieste, where I remained for 10 years as a Senior Researcher. I am now a Marie Skłodowska-Curie Global Fellow, which involves two years in Brazil (2016-2018) and a return year in France (2018-2019)."*

CONCERNS

"I think that it will always be a problem to find the right kind of information when you do not follow the common employee-pattern."

Our two Fellows admit to having some concerns over their future pension and lament the lack of information in this sector. *"I think that it will always be a problem to find the right kind of information when you do not follow the common employee-pattern – when you are moving* a lot or do not get funding the same way as most of your colleagues,"* says Cristina.

She opted for a private pension plan, and explains: *"I am rather worried about my pension, I must say. The changes made to the pension-system all over Europe these last 15 years were necessary, I am sure, but I can't say I am very optimistic about the future."*

"My pension will be issued by at least four different countries"

Daniel's situation is clearly complex. *"My pension will be issued by at least four different countries – Canada, Ireland, Italy and France. I wonder how much I might eventually receive, and how much time I will have to spend trying to understand the administrative procedures within the different countries in order to receive a part of my pension from each."*

Getting concrete information about the amount that a researcher with an international career will eventually receive is clearly complicated. Daniel tried to find out more from a government office in Italy, but they could only confirm that time spent abroad would affect his future pension: *"I was advised to return in six months to see what the Italian legislation on pensions might be by then,"* says Daniel.

EXPECTATIONS

"Resaver sounds like a very good start, especially if employers accept it."

Although our Fellows don't seem to know a lot about the pan-European pension fund RESAVER and the web-portal FindYourPension, they are optimistic regarding the setting up of a pan-European pension fund. *"Resaver sounds like a very good start, especially if employers accept it,"* muses Cristina.

To Daniel, a means of estimating the overall due from several countries would be an improvement. *"I would hope that a pan-European pension system would eventually include a way to integrate past and future pension contributions from multiple countries,"* he concludes.
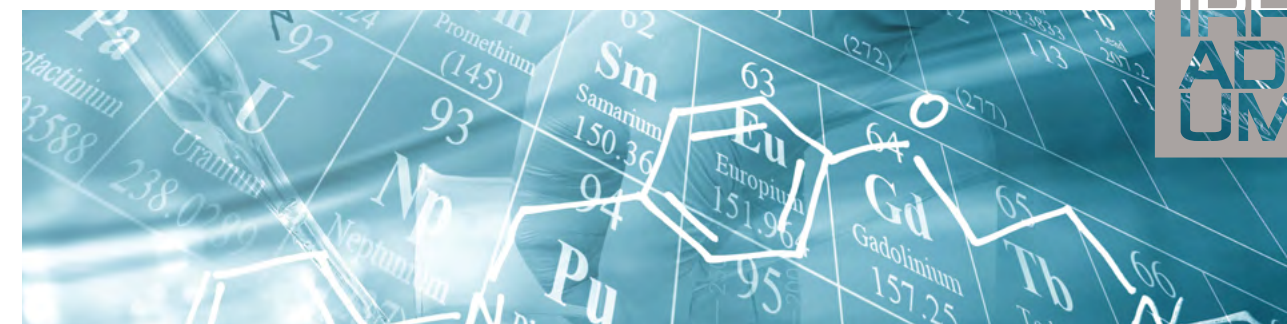
Special coverage: pensions & researchers
An interview with Paul Jankowitsch of RESAVER

RESAVER is a pan-European pension plan which aims to enable mobile and non-mobile employees to remain with the same pension arrangement when moving between countries and jobs. We met Paul Jankowitsch, Founding Chairman of the Board of Directors from RESAVER, to find out more about the plan.

1. WHAT ARE THE PENSION CHALLENGES FACED BY MOBILE RESEARCHERS TODAY?

One major obstacle according to field research is a lack of financial perspective and pension planning in comparison with people working in industry/big multinationals.

Often it is too late by the time researchers find out that in their older age they will have to live on a state pension only.

If people move between countries or institutions, it is currently impossible or difficult to safeguard a reasonable second pillar pension for after their career has ended.

RESAVER is the first real pan-European pension fund for mobile researchers – that means the pension contributions stay with the individual no matter where they work. And at the end of their career, people have to deal with only ONE pension fund, which pays the second pillar pension to the place where the person has retired.

2. WHAT ARE THE MOST COMMON QUESTIONS FROM RESEARCHERS ABOUT PENSIONS?

Usually younger researchers do not think about this problem; then when they realise, it is often too late.

Currently the main questions are:

- if there is a second pillar pension at all;
- if they can carry it with them if moving jobs;
- if they could have it as a lump sum;
- what the situation is in a particular country in which they intend to work.

3. DO YOU THINK THAT RESEARCHERS ARE WELL –INFORMED ABOUT THEIR PENSION RIGHTS?

No, researchers are intrinsically motivated, so pensions and money in general are not major issues. In general I think they are not well informed.

IRRADIUM MAGAZINE

4. COULD YOU DESCRIBE RESAVER? WHO CAN APPLY?

RESAVER is the first pan-European pension fund for people working in institutions in which research is a major field of operation. Only institutions can apply and join - not individuals.

These institutions can be big organisations in industry, SMEs, universities or dedicated research institutions. RESAVER is a defined contribution scheme and absolute state-of-the-art pension fund.

The member institution pays a certain amount of money as a pension contribution for the individual, who – depending on the local regulations – may also pay into the fund. The contributions are accumulated in a dedicated account, and at the end of the career, the researcher receives a second pillar pension in addition to the state pension. This will provide, on average, a decent income in this later stage of an individual's life.

Institutions must first join the Consortium – as the preparation institution – and then later the IORP – the pension fund.

5. WHICH COUNTRIES ARE PARTICIPATING?

RESAVER will cover the European Research Area as a whole.

But to begin with, for legal reasons, and as many countries cannot immediately change the way in which their pension system is set up, the following countries are involved: Italy, Hungary, Austria and the Netherlands.

As observing members, there are currently around 200 institutions in a waiting loop, and in the course of 2017 we expect that Ireland, some Scandinavian countries and maybe UK institutions will join.

A lot of institutions are currently carrying out feasibility studies.

6. TELL US ABOUT THE RESAVER PENSION FUND.

The pension fund is set up in Belgium and will be available for all institutions in the European Research Area (ERA). It is run under the OFP legal scheme, as established in Belgian legislation and is closely follows European legislation.

Participating institutions form the general assembly, which elects the Board of Directors, with whom we have a group of service providers:

- membership administration and information will be managed by PREVINET, a cross border specialist company;
- asset management will be in the hands of BlackRock.

7. TELL US ABOUT RESAVER INSURANCE.

RESAVER has to respect the social legislation within the various countries, and there are countries where pension funds are not common. Additionally, there are researchers who have specific contractual arrangements that do not allow for second pillar coverage.

For these people, the option of an insurance package – under the umbrella of RESAVER -- will be developed.

The main preparatory steps have been completed, but the final packages will follow in the course of 2017.

8. WHY SHOULD AN ORGANISATION JOIN RESAVER?

Research and innovation are definitively international activities. If organisations wish to be part of global developments and to attract the best researchers, they need to offer the best competitive remuneration packages. The best and indeed only pan-European option for second pillar pensions for research institutions is the RESAVER pension fund.

The more institutions that become members of RESAVER, the more mobile European researchers there will be, and the more the competitiveness and impact of European research will increase.

9. WHY IS BELGIUM THE HOME COUNTRY OF RESAVER?

After some assessments and comparisons, Belgium was chosen for legal and governance reasons.

10. HAVE WORKSHOPS TAKEN PLACE TO PRESENT RESAVER?

Yes, many so called Mutual Learning Seminars have been held across Europe and more can be organised if needed. If an organisation is interested in joining it should:

- see the website www.resaver.eu;
- follow the Roadmap document;
- fill out the application form to join – mainly in order to be better prepared and to prepare a data set.

11. WHAT NEXT FOR RESAVER?

RESAVER as a pan-European pension fund is currently in the beginning phase. All necessary legal preparations and steps have been taken with help and sponsorship from the European Commission and consultant AON. Since the fund is now operational, the focus of activities in 2017-2018 is on advising interested institutions how to join and making sure institutions make use of this unique pension fund.

Given the general interest and the number of observing members right now, the consortium is expected to grow significantly, along with membership of the Institutions for Occupational Retirement Provision Directive (IORP) – the fund itself.

Special coverage: pensions & researchers
An interview with Delicia Hofmann, from FindYourPension

The '**FindyourPension**' website allows mobile researchers in the public sector to find information on their pension entitlements in different countries. We had a conversation with Delicia Hofmann to find out more about the website.

1. WHAT ARE THE PENSION CHALLENGES FACED BY MOBILE RESEARCHERS TODAY?

Mention 'pensions' to researchers, and don't be surprised to see either a look of panic or resignation in their eyes. Most researchers move around, and every country in which they have lived and worked has its own pension landscape and system. The state pension is still there to protect standards of living during old-age. However, there is no European pension system.
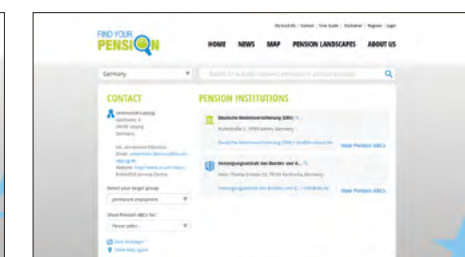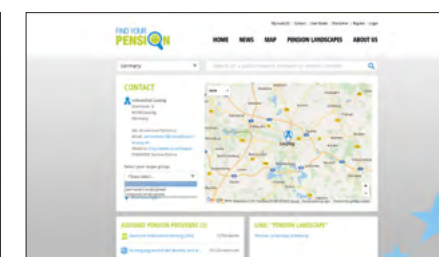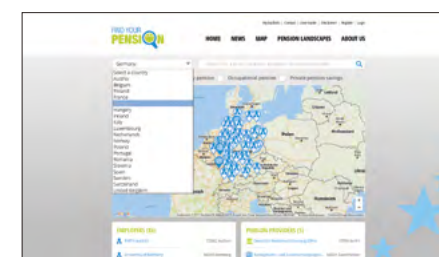
This leads to mobile employees acquiring separate pension claims in different countries, and to eventual pen-sion payments coming from different sources. The different pension sources, known as pillars, also differ from country to country.

In short: the topic is very complicated at first sight. And without some basic knowledge, it is difficult to plan for one's own old-age.

2. WHAT ARE THE MOST COMMON QUESTIONS FROM RESEARCHERS ABOUT THEIR PENSION?

Often the first question is: can I be exempted from the pension scheme when I do not intend to stay on in the country?

The background to this question is that some think they'll be losing whatever entitlement they have acquired when leaving the host country.

Therefore, the second question on the list is: can I have a refund of my contributions or transfer my claim to another pension system in the country I'm moving to or returning to?

When it becomes clear that pension payments are made abroad, and that in the case of EU/EEA countries, totali-sation/recognition of state pension insurance times takes place, the next question often is, whether the pension will be enough to live on or maintain living standards.

3. DO YOU THINK THAT RESEARCHERS ARE WELL-INFORMED ABOUT THEIR PENSION RIGHTS?

No, researchers are exactly like other professionals and employees in this regard. Young people in particular do not give much thought to old-age provisions and pensions. Thus, it is not surprising that they also know very little about it. Also at school, or while studying, the subject is absent, unless dealt with in the areas of finance and economic studies. Only when they have to start paying contributions do questions arise. However, the correct answers are not always easy to understand or might only be available in a foreign language. And so pension questions are moved to the back burner for as long as possible.

4. COULD YOU DESCRIBE FINDYOURPENSION? WHO CAN APPLY?

The FindyourPension (FYP) portal is a website about European pension systems and institutions. It assists researchers in Europe dealing with the abovementioned difficulties, and actively pursuing their own pension biog-raphy (Personal Pension Management).

We are the first international Tracking Service in Europe and are sponsored by the Federal Ministry of Research and Education in Germany (since 2011). The initiative was started by the VBL (Versorgungsanstalt des Bundes und der Länder) – occupational pension scheme for the German public sector – and has developed into a network of science employers, pension institutions and other key players within research. The user will find the following on the website:

- The responsible pension institutions – and systems – of more than 500 listed employers ('find your provider' service for researchers in the public sector).

- For every listed pension system (more than 50), practical FAQs (pension ABCs) about the impact/consequence of mobility on later pensions and other questions sorted according to life phase (A. Starting or changing my job; B. My pension benefits; C. Nearing retirement).

- A tool for saving individual career – and pension biography – information (My track) serving also as Personal Pension Management (My Pension Summary).

5. HOW DOES THE PORTAL WORK?

The users can select a country, as well as past, current or future employer. The system shows the responsible pension providers and gives basic and detailed information on Pension ABCs and the so-called Pension Landscapes. The website is based on the principle of cooperation among all the listed pension institutions. They provide the input and updates are done together with the editorial team. This ensures information is up to date and accurate.

The user can also save his/her personal career- and pensions biography in My track. Many scientists have mentioned a fear of forgetting where they have acquired pension entitlements by the time they reach pension age. My track is a sort of digital personal pension folder which can be used in parallel to job changes/moves in order to save the different pension insurance schemes.

6. WHY SHOULD A RESEARCHER JOIN FINDYOURPENSION?

….because FindyourPension presents the different pension systems in a condensed form, explained in English, and it also explains the technical pension jargon stumbled upon within the different systems. This is complimented by videos, links, calculators etc. Researches may then discover that the subject is not as complicated or incomprehensible as they thought!

7. WHAT IS A "PENSION LANDSCAPE"?

If one travels through Europe, one finds a great variety of landscapes. National pension provision concepts are also very different, just like the states. They developed in line with the history and in particular the economic circumstances of specific states. These systems have grown and are elements of social security.

To find one's way around unknown territory, one uses a map. FYP provides such a map (MAP) for the pension jungle. With this map, mobile researchers can find their

pension providers and systems, as well as understand them. The pension landscapes of the different states are described using general and comparable criteria. There is also an overview of specific national features.

8. HAVE WORKSHOPS BEEN ORGANISED TO EXPLAIN FINDYOURPENSION?

Indeed. Since 2012 FYP has been organising so-called Consultation days, held in English, together with German universities and research facilities. Here the 'Wheres and hows of pensions in Europe' are explained, the website introduced and also the national (German) pension systems dealt with. Due to the size of our small team situated in Karlsruhe, Germany, we have only done this within Germany thus far. However, there are already talks to organise similar events in Switzerland, Luxembourg or Sweden. We have a medium-term plan to offer this as an online event.

9. WHAT IS THE FUTURE FOR FINDYOURPENSION?

FYP's future plans are running at full speed. FYP should be expanded by adding new content and features which improve the attractiveness of the site. Plans include opening the site to other groups of professionals too. Ultimately, there are more groups with a high professional mobility, e.g. within the health care or building sectors. We are therefore collaborating with another European project called Track and Trace your Pensions in Europe (TTYPE). Furthermore, we are working on incorporating a neutral example statement of all listed providers within My track. Together with our partner project, we hope to be able to create an interface for the providers to automatically show and update individual statements and pension entitlements in the personal account. Protecting the data security and privacy principles of the European data protection laws will be paramount here. We look forward to a lot of interesting work.

IRRADIUM MAGAZINE

Special coverage: pensions & researchers
An interview with Riccardo Biondi

Through the Austrian Chapter, <u>Riccardo Biondi</u> organised a workshop about the <u>RESAVER</u>, the pan-European pension fund for mobile researchers, in 2015, Austria. Here he shares the outcomes of this event, as well as his concerns and reflections about pensions for mobile researchers.

YOU ORGANISED A WORKSHOP ABOUT RESAVER WITH DR JANKOWITSCH. WHY THIS TOPIC AND THIS GUEST?

I have been mobile since the beginning of my career. In 15 years I have changed affiliations 7 times in four different countries, all with different pension schemes. I define myself as a freelance researcher and I like to do it, but when I think about my long-term future (aka retirement) I do not see any guarantee. This is the situation for many researchers; even though they are not freelance,

they must move around a lot before getting a permanent position. That´s why I chose this particular topic for a workshop. I saw RESAVER as a great opportunity. It will probably not work for me or for my generation, but if we now start sowing the seeds, the next generation will reap the harvest.

Mobility is very important for research but there are several issues to deal with and it seems that policy makers are not interested in solving them. So we must find a solution ourselves. Dr Jankowitsch was the initiator of RESAVER, so the best person to ask about the programme in terms of understanding the present situation and the future. I wanted to know the thinking behind it, and especially to know if the EU and national policy makers were genuinely interested in the programme.

WHAT ARE THE PENSION CHALLENGES FACING MOBILE RESEARCHERS TODAY?

Moving between different countries means that you apply to different pension schemes, which can´t be combined (at the moment there is no EU coordination). In

some countries you must work for a minimum number of years to receive a pension and if you move there just for 2-3 years, your contribution is lost. If they allow you to move the contribution to another country, most of the contribution is re-taxed and the amount that you finally get is really small. Most of the pension contributions are lost along the way. In some cases you can put the money in your pocket (with higher taxation) but almost nobody uses it for creating a pension. The first challenge is the simplest … to get a pension! Other challenges are: getting correct information about pension schemes and finding officials able to support you.

WHAT ARE THE MOST COMMON QUESTIONS FROM RESEARCHERS ON PENSIONS?

From my experience, not many researchers, especially when they are young, think about pensions. But those who do ask:

- Can I move the contributions to another country?
- If I leave the contributions here, will I get a pension from this country?
- Can I get a pension from two (or more) countries?
- Is there any way to merge my contributions into one respectable pension?

DO YOU THINK THAT RESEARCHERS ARE WELL-INFORMED ABOUT THEIR PENSION?

Not at all! I have never received any information about my pension scheme from any countries in which I worked unless I went to the relevant office to ask. Also, I did not understand my options very well, because the short stays experienced by researchers is something quite rare and not many officials are familiar with the issues involved.

Research institutes are usually not prepared for that and they do not know anything about pensions, so send you to the national offices. I believe that only a really small percentage of researchers are even thinking about this issue, mostly because they already have enough problems to think about (e.g. finding a new job, having a family compatible with this life).
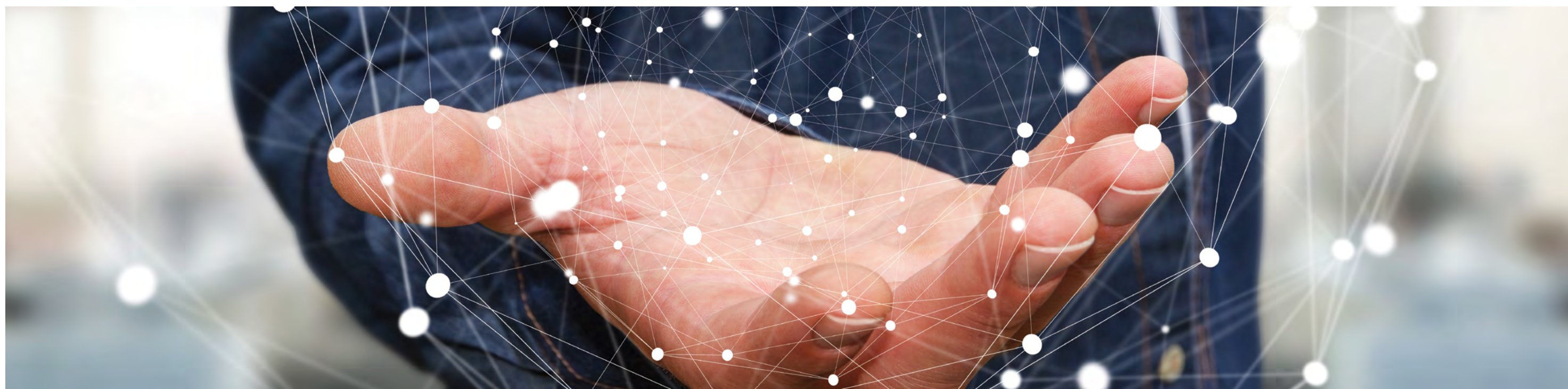
HOW DID YOU ORGANISE THE WORKSHOP AND HOW DID IT GO?

If I remember well, I saw an advertisement for RESAVER in a Facebook group managed by the EU Community (probably the Marie Curie Actions group). I usually read information very carefully when I see something about which I know nothing, and at that time, the word RESAVER was completely unknown to me. The FB post did not say that much about the programme, so I started googling "RESAVER" and even on the EU website there was only a really short and unclear description, but detailed enough to make me curious and to encourage me to go deeper into the subject. The website also contained just one name: Jankowitsch. I decided then to Google him, to read his CV and to find a phone number to call him. From there, the workshop was almost organised in a single day!

Dr Jankowitsch was really kind and gave me some date options. I contacted all the MCAA Austrian Chapter Members to see if they were interested in this workshop, and almost everybody replied very quickly in a positive way. I checked the meeting room availability in my institute, prepared a Doodle within the Chapter and selected the date.

It took some three days to organise the meeting. We also decided to open it up and advertise the meeting to all the interested researchers (not just the MCAA).

The workshop was four hours long, and involved a presentation of the project and discussion/questions time. Administrations from my institute also took part in the workshop as they are the main actors in the programme. Of course there were a lot of questions due to the high interest and due to the fact that the programme was still in development. It was very interesting, we discussed it during the following annual Chapter meeting as well for those that could not participate in the workshop. But the way it works, based on institutes' voluntary involvement, raised some concerns on possible feasibility.

WHAT DO YOU EXPECT TO HAPPEN IN THE FUTURE ON RESEARCHER PENSIONS?

I do not see much interest in this topic among policy makers, and most young researchers are more concerned about their work and about their present and immediate future than thinking about long-term perspectives. They will probably become aware of the problem (as usual) when it becomes reality for them.

Researcher mobility was not considered that important until 15-20 years ago, so most researchers are still receiving pensions within usual schemes at the moment. In 20 years or so, when the first mobile researchers start having serious problems with their pensions, someone will maybe start to think about it, but it will be too late.

RESAVER could be a good option, with some adjustment. It is a voluntary scheme (for the institutes) and this will never work for several reasons. Instead it should become one option among others for the researchers. Another good option would be to recognise the option for researchers to be freelance; we could then decide ourselves how to manage our money.

I´m young enough to hope and old enough to know that I will never get a serious pension so I just apply my own rules to managing my salary: live with half and save the remaining for the future.

AI learns new tricks to learn faster

Over the past few years, we have witnessed huge advances in artificial intelligence (AI). 2017 may see even more.

Signs of an imminent AI boom are all around us. Companies like Amazon, Baidu, Facebook and Google are buying start-ups as well as recruiting researchers and opening laboratories. Their focus is on taking tasks that used to be performed uniquely by humans and to make them amenable to machines.

Much of current excitement centres on 'deep learning', a subfield of machine learning in which computers learn new tasks by crunching large data sets.

Algorithms created for this purpose are bridging a gap that has haunted all AI research: tasks that are difficult for humans are easy for computers and vice versa. The simplest computer runs rings around the brightest person when it comes to mathematical calculations. But the most powerful computer struggles with things that people find trivial, such as recognising faces.

For humans, solving complex mathematical equations means writing a set of formal rules. Turning these rules into a computer program is then fairly easy. For tasks human beings find simple though, there is no similar need for explicit rules and trying to formulate them can be daunting.

SO, CAN A MACHINE THINK?

The question 'Can a machine think?' is as old as computer science itself. In the 1950s, Alan Turing proposed that a machine could be taught like a young child. Shortly afterwards, in 1955, John McCarthy, inventor of the family of programming languages Lisp, coined the term 'artificial intelligence'.

As AI researchers began to use computers to translate between languages and understand instructions in normal language – and not just code – so the idea that computers could eventually develop the ability to speak and think crossed into mainstream culture.

Well beyond the iconic HAL 9000 from Arthur Clarke's Space Odyssey series, the tech genius of 2015's Ex Machina put a breath-taking humanoid through the hoops to determine whether her thinking was indistinguishable from a human's. Her ability to learn how to interact was a fascinating story of what makes us human.

Such synthetic intelligent beings may still be a long way off, but robots can be found on every assembly line, and smartphones can be found in every pocket. AI is far from science fiction.

Today, supported by AI, speech-recognition algorithms bring the internet to millions of computer-illiterate people around the world; doctors have the augmented ability to spot malignant and non-cancerous tumours in medical images; authorities can pick out suspects from billions of conversations or video recordings by their voice and face.

WHAT EXACTLY IS AI?

The way in which computers learn from their mistakes is based on the human nervous system, and specifically on how neurones connect with each other to interpret information.

Researchers have developed algorithms, known as artificial neural networks, to perform tasks like facial recognition without supervision. These machine-learning algorithms scan vast databases containing millions of images and in doing so, train themselves.

DeepFace, the face verification algorithm unveiled by Facebook in 2014 is nearly as accurate as the human brain, recognising human faces 97 % of the time.

To date, the design of computer algorithms has been motivated by ideas originating in mathematics. The new approach, used in both software and hardware, is driven by the explosion of scientific knowledge of how the human brain functions.

New processors comprise electronic components connected by wires mimicking synapses – the connections between neurones through which information flows from one neurone to another. These neuromorphic processors are not programmed. Each new signal transmitted though their components changes the neural network in much the same way that new information alters human thoughts.

One significant advantage of the new programming approach is its ability to tolerate glitches. Algorithms continuously adapt and work around failures to complete tasks.

PUSHING THE BOUNDARIES OF BRAIN-LIKE COMPUTERS

In 2016, the AlphaGo algorithm created by Google's London-based AI company DeepMind showcased the strength of AI when it stunned the Go world by defeating some of the very best players at the board game. It was an important victory for the technique known as reinforcement learning, which involves learning to solve problems differently – not through programming or specific examples like conventional computers. but through experimentation combined with positive reinforcement. Neural networks provide the support needed to make it work on really complex problems, like Go which is regarded as one of the most complex board games ever invented.

AlphaGo's approach could have broad applications, for example using clinical data more efficiently to improve diagnosis, decision making and planning. And this is not the only way in which the boundaries of AI could be pushed.

Generative adversarial networks, or GANs for short, promise to make computers a lot more intelligent over the next few years.

Relatively new, GANs involve a network that generates new synthetic data after having been trained, and a second one that tries to discriminate between real and fake data. By working together, the two networks help computers learn from unlabelled data.

NEXT BIG STEP

Despite recent advances in AI, including Siri – Apple's voice-controlled digital assistant – the technology still has severe limitations. Not surprisingly, techniques that improve voice recognition and help computers parse language more effectively are high on AI researchers' agendas.

This is a long-standing challenge but the prospect of communicating and interacting with computers using language has long been a fascinating one. Better speech recognition would render computers a lot more useful. Still, do not expect to get into a meaningful conversation with your smartphone anytime soon!

Special coverage
Social sciences
and humanities research

The social sciences and humanities cover a wide range of disciplines that hold the keys that can help us understand the complexity in today's world. We met five Fellows who told us – passionately – why they chose SSH research and why this sector is crucial in research.

DEFINING THE HUMANITIES AND THE SOCIAL SCIENCES (SSH)

According to the Canadian Federation for the Humanities and Social Sciences, the humanities are disciplines that investigate the human condition. They include (but are not limited to):

- ancient and modern languages;
- literature;
- history;
- philosophy;
- religion;
- visual and performing arts such as music and theatre.

The social sciences are fields of study that consider society and human behaviour. They include (but are not limited to):

- anthropology;
- archaeology;
- criminology;
- economics;
- education;
- linguistics;
- political science and international relations;
- sociology;
- geography;
- law;
- psychology.

SSH AND HORIZON 2020

Social sciences and humanities (SSH) research is integrated into 'societal challenges' addressed by the Horizon 2020 programme (the EU Research and Innovation programme 2014-2020), as follows:

- Health, Demographic Change and Wellbeing: the economic and social analysis necessary for reforming public health systems;
- Smart, green and integrated transport: the socio-economic aspects of transport, prospective studies and technology foresight;
- Climate action and resource efficiency: the cultural,

behavioural, socio-economic and institutional change needed to move to a more self-reliant and resource efficient economy;

- Europe in a changing world: new ideas, strategies and governance structures for overcoming the economic crisis in Europe, innovation in the public sector enabled by ICT, business model innovation, social innovation, European cultural heritage, history, culture and identity;
- Leadership in enabling and industrial technologies: the arts and humanities can be a source of creativity when developing services and designing products.

OUR FELLOWS

ANA PAULA BORTOLETO

"I like to call myself as a Social Engineer who is interested in exploring the frontiers of environmental sciences."
From Brazil

Worked on a Marie Curie project 'Analysis of Waste Prevention Behaviour through a Conceptual Statistical Model and Scenario Simulation'
Host city and country: Sheffield, UK

DEISI YUNGA GODOY

"I'm passionate about my work in the area of teachers professional learning and development. Thanks to Marie Curie I have my dream job."
From Ecuador

Currently working on an inter-professional study which aims to increase understanding of how professional learning and development is supported within the workplace, with the teaching profession as a pivotal point of the dissertation.
Host city and country: Budapest, Hungary

FRANCISCO GONÇALVES

"Although I did my secondary studies within life sciences, I got to the point where psychology could offer both views of the world, and of the subject of study, the human being."
From Portugal

Currently working on an interdisciplinary project in the field of forensic sciences (INTREPID).
Host city and country: Leicester, UK

CHRISTOFOROS MAMAS

"In particular, I was interested and excited with the topic 'Europe in a changing world - Inclusive, innovative and reflective societies' as this is the epicentre of my work from an educational perspective."
From Cyprus

Currently working on a project examining the social networks and peer relationships of all students in a classroom, with an emphasis on those identified as having special educational needs and disabilities. The research is intended to further inclusivity within public schools in underserved areas across three countries: the USA, UK and Cyprus.
Host city and country: Plymouth, UK

IVANA NINA UNKOVIC

"I am a proud 'Marie Curie Action' Fellow recipient through a COFUND Action called 'NEWFELPRO'. I was the first one to get the project in Humanities during the first call."
From Croatia

Currently working on a project which applies knowledge from monument conservation, art history (research and application), historical (especially political) and contemporary influences in Europe to the study of the protection of Slovenian and Croatian monuments during the period between the two World Wars.
Host city and country: Ljubljana, Slovenia

WHY SSH ARE CRUCIAL

All of our Fellows agree that SSH are essential to understanding today's society in all its complexity. *"We are now in the 'mind century' which means that most research and technological innovations will involve a connection with human behaviour. In that sense, SSH are becoming not only an important but an essential field to achieve a sustainable society,"* says Ana. *"SSH are important be-*

cause they help us to connect with the society, unveil reasons behind actions and anticipate consequences of different decisions. For instance, understand the world in which we live today,"* echoes Deisi.

"Problematic integration and inclusion of refugees in European societies may lead to the rise of populist political parties"

According to Christoforos, SSH are absolutely vital to maintaining and further enhancing an inclusive society. *"One concrete example is the social integration of incoming refugees to Europe and other countries in the world. Problematic integration and inclusion of refugees in European societies may lead to the rise of populist political parties and further divide the people of Europe,"* he adds *"Another example would be rising problems relating to mental health issues in Europe. Increasingly, more children, young people and adults seem not to be able to cope with the pressures of modern life, resulting in a crisis of mental health wellbeing."*

"Natural and technical sciences do not combine every interdisciplinary aspect, in my opinion, like SSH disciplines do"

What is the added value compared to the other sciences? Nina answers: *"SSH interpret and give us information on society and history of cultures and artefacts using facts and previous data in a way that no mathematic formula can do. They also encourage critical thinking, something that is sometimes sadly missing from natural sciences*

and engineering."* For example, to save an ancient building, knowing how it was made but not knowing under which circumstances it was repaired makes the research quite complex, to the extent that the researcher has to dig into archives and to combine the extracted data to get a complete picture of what happened. *"Natural and technical sciences do not combine every interdisciplinary aspect in my opinion, like SSH disciplines do,"* she muses.

THE VILNIUS DECLARATION

In September 2013, a two-day conference was held in Vilnius, Lithuania, organised by the Lithuanian Presidency of the Council of the European Union, to address how socio-economic sciences and humanities could be incorporated into Horizons 2020. The result is the Vilnius Declaration on Horizons for Social Sciences and Humanities (SSH), published on 24 September 2013. The Declaration contains the following statements:

- innovation is a matter of change in organisations and institutions as well as technologies;
- fostering the reflective capacity of society is crucial for sustaining a vital democracy;

- policy-making and research policy have much to gain from SSH knowledge and methodologies;
- drawing on Europe's most precious cultural assets, SSH play a vital role in redefining Europe in a globalizing world and enhancing its attractiveness;
- pluralistic SSH thinking is a precious resource for all of Europe's future research and innovation trajectories.

The majority of our Fellows weren't aware of this declaration; this might show a lack of communication around the declaration. *"From my point of view, the SSH have been informally integrated and sometimes deeply embedded within other fields for a lot of time, but this wasn't formally recognised until the declaration. However, there is still a lot of work to be done for the social sciences to be recognised as critically important as other fields are for the development of society,"* says Deisi, who was our only Fellow aware of the declaration.

THE BRATISLAVA CONFERENCE

The Bratislava conference took place from 14 to 16 November 2016. It highlighted how SSH research has a vital role to play now and after 2020 in Europe's interconnected research agenda. It also holds the keys to addressing European concerns.

Nina and Francisco were aware of the event but unable to attend. *"I believe that conferences about social sciences only are important. But, honestly, I believe the best way to overcome obstacles is to gather people with different perspectives,"* says Francisco.

THE NET4SOCIETY NETWORK

Net4Society is the international network of National Contact Points for Horizon 2020's Societal Challenge 6 ('Europe in a changing world: inclusive, innovative and reflective societies'). It aims at increasing the visibility of SSH research and its impact on society and the European Research Area.

Again, the network's visibility seems limited, as not all of our Fellows were aware of its existence. *"Net4Society is also not a very visible network. I found out about it just recently and just applied for enrolment. I have noticed that most of the projects are focused on social sciences rather than humanities, which is unfortunate, but understandable,"* says Nina.

However, our Fellows have suggestions for improving cooperation within the network: *"I think it should promote interdisciplinary research among Early Stage Researchers and young scientists by creating spaces in which running projects and opportunities of cooperation could be spotted and discussed,"* suggests Deisi, whereas Christoforos would like to see more interdisciplinary projects to bridge the gap between research and practice.

CHALLENGES AHEAD FOR SSH RESEARCHERS

The future of SSH research is not looking bright for some of our Fellows. Nina expresses concerns: *"I have seen a dangerous trend in the EU, and more specifically inside the Marie Curie community, in which investment in academic sectors is severely diminished or erased altogether in favour of non-academic sectors."* According to her, not all SSH researchers could work in the non-academic sector. *"Most researchers in the SSH field are purely theoretical, upgrading their knowledge through archival work – the Commission and our colleagues from other fields have to understand that we are producing invaluable knowledge, information and data,"* she adds. One solution could be to make the job market more accessible to people holding SSH degrees.

THE ROLE OF SSH IN SOCIETY – NOW AND IN THE FUTURE

All of our Fellows agree on the fact that SSH should receive greater recognition for the role they play in our society. *"For quite some time, social sciences have been the semi-silent contributor to the development of societies, but since its research, goals and effects are somehow less visible or less tangible than in other fields, they have been largely ignored. Greater recognition will provide resources for more research in the SSH to be done, thereby triggering greater multidisciplinary interaction between SSH and other fields,"* says Deisi.

"While natural and tech sciences research the present and the future, SSH focuses primarily on the past, helping us to achieve a broader vision for society. Because, without the past, there is no future." concludes Nina.

MOOCs: learn anywhere, anytime

Top universities around the world are partnering with MOOCs or 'massive open online courses' at a furious pace. MOOCs have taken the world of higher education by storm, providing anyone with an internet connection the opportunity to take a course and fill knowledge gaps.

edX, a non-profit start-up from Harvard University and the Massachusetts Institute of Technology had more than 350 000 students enrolled in its first official courses in 2012. Only a year earlier, Coursera was founded and had reached more than 1.7 million students. Together with Udacity with roots also at Stanford, they are the most popular MOOCs.

BUT WHAT IS A MOOC?

Coursera's website says: "We envision a world where anyone, anywhere can transform their life by accessing the world's best learning experience." Udacity's website says that they "bring accessible, affordable, engaging and highly effective higher education to the world" and that it is "democratising education".

In the simplest terms, a MOOC is an online model for teaching and learning that tears down the walls of traditional classrooms and the gates of university campuses. But some variation of technology-assisted long-distance learning was in place before the arrival of MOOCs.

At this point, it is important to stress what a MOOC is not. Online courses charge tuition, carry credit and limit enrolment to less than a few dozen students to ensure sufficient interaction with instructors. On the other hand, MOOCs are usually free, credit-less and – importantly – massive.

MOOCs are offered virtually, and the medium is the lecture – 8 to 12 minutes long instructional videos are typical. Free webinars, while informative, are not a sequential, structured course offering. They are, therefore, not MOOCs.

Free course material, including recorded lectures and course notes posted online, although fascinating, also do not constitute a MOOC. MOOCs are provided without a registration process; there is no live instructor or formal assessment system.

WHERE DID MOOCS COME FROM?

Before massiveness became the focus of online learning, openness was the driver for a series of experiments in online education from which MOOCs ultimately emerged.

For instance, in 2011, Sebastian Thrun, a professor at Stanford University offered his 'introduction to artificial intelligence' course to everyone with an internet connec-

tion and drew 160 000 online registrants. A year later, he founded Udacity.

Earlier, in 2009, Professor John Mitchell and his students at Stanford University developed a web platform to support teaching and learning though video and discussion. CourseWare served as the foundation for flipped classroom experiments and inspired the first MOOCs.

The first online course to earn the title of a MOOC was 'connectivism and connective knowledge' taught in 2008 by Stephen Downes of the National Research Council of Canada, and George Siemens of Athabasca University.

The actual term 'MOOC' was proposed by David Cormier from the University of Prince Edward Island. He was publicising their innovative teaching project when, during an EdTechTalk interview, he invented the term 'massive open online course' or 'MOOC' for short.

MOOC MODEL KINKS

Today, companies offering MOOCs are joining forces with a growing list of universities to support a breathtaking range of courses. They are still in a nascent stage, and a plethora of issues have already arisen for which solutions have yet to be found.

These platforms provide unquestionably high-quality education. Traditional university campuses, on the other hand, have several distinct advantages that will not go away. Importantly, they provide official degrees that are perceived as prerequisites for graduate education and jobs.

There is also the question of whether learning can be scaled up to this extent.

While massive numbers of people sign up, very few stick around to earn a certificate of completion. The instructor cannot possibly be as available for tens of thousands of students. Student interaction is even trickier.

Moreover, some students are ill-prepared for university-level work. Cheating is, therefore, a reality. And how can one determine whether participants are learning?

MOOCS AND THE FUTURE OF EDUCATION

Despite these difficulties there are plenty of success stories and interest in MOOCs is not waning. MOOCs bring unlimited high-quality education to the most remote corners of the world. Furthermore, free courses have helped people in their careers and extended professional networks.

MOOCs have been around for more than eight years. Their number is still continuously expanding, as is the diversity of courses offered. The early MOOCs centred on computer science, engineering and maths. Today's MOOCs boast courses ranging from poetry to philosophy and economics.

The aggressive growth in online content and user base has not led to the results initially predicted and it is not clear whether these online courses will remain free under pressure from those who think of higher education as a business rather than a collective social good.

In our highly connected and increasingly digital education era the line between online and on-campus is already blurring. Even if MOOCs wither away as quickly as they rose to prominence, they will still have taught us something about the pedagogical benefits and pitfalls of online learning.