

EUROPEAN ROBOTICS FORUM 2016

Press pack

Ljubljana, 21 March 2016

Between 21 and 23 March, Cankarjev dom hosts the seventh edition of the European Robotics Forum (ERF2016). The event is taking place under the title Robotics for Europeans and is attended by experts from entire Europe. Slovenia has been selected to host the European Robotics Forum 2016 on the grounds of its committed involvement in the international research area and references of Slovenian scientists. Organised by euRobotics, a Brussels-based international non-profit association for all stakeholders in the European robotics sector, the event is the most influential meeting of the European robotics community with over 700 participants from industry, business, academia, and relevant European policy makers.

The 3-day-event includes 60 workshops on different aspects of robotics as well as an exhibition with around 30 participating companies.

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1. THE IMPORTANCE OF EUROPEAN ROBOTICS FORUM 2016 IN SLOVENIA IN 10 POINTS

1. *Robotics is a rapidly advancing technology, which will soon be ubiquitous in our lives.* Applications range from manufacturing to the health sector, from agriculture to mining, from maintenance of industrial plants to construction of buildings, from rescue to transport and logistics.
2. *Robots can lead to higher productivity and at the same time create many new jobs.* In order to avoid a polarization of the society, any innovation strategy needs to take into account and integrate the whole society. The focus should be on educational and training organizations as well as existing industry, which can be done often much quicker on a regional level.
3. *Robotics requires a multidisciplinary approach and integration of many competencies.* It starts with mechanical and electrical engineering, computer science, ergonomics and – most importantly – it focuses on competencies in applications and market domains. The latter exist in the regions of Slovenia in differing sectors, from agriculture to forestry, from electrical equipment and electronics to trucks and chemicals. It is important that these regional competencies are kept and further developed by integrating them with robotics. Organic agriculture, for example, a growing business in the Alpe-Adria bio-region, can be supported by robots built for “precision farming”. Other opportunities include: exploiting natural thermal energy sources for agriculture, robotic assistance for stockbreeding, or meeting robotic challenges in forestry. Maintenance of chemical plants with robots is less costly than traditional methods.
4. *It is important that regional stakeholders develop a regional strategy (a “roadmap”) and create “innovation hubs”.* Stakeholders ranging from universities to industrial application experts should cooperate with the aim of identifying strengths and targets. In order to exchange and develop views, progress, and partnerships, the community should be given access to “innovation hubs”, which usually are technology transfer centers, universities or polytechnic schools. Research and training centers in Slovenia may be considered as “seedlings” for becoming “innovation-hubs”.
5. *Important for regional activities are connections with other parts of Europe.* These activities include sharing and exchanging innovation measures, and building value chains with other industrial and research partners. **euRobotics AISBL**, the European robotics association, is an excellent and successful driver in: sharing regional innovation activities in robotics, identifying partners for R&D projects and developing commercial relations. **euRobotics** is dedicated to creating opportunities for the economic and societal development of all European regions.
6. *Entrepreneurship, start-ups and the integration of SMEs in robotics are stepping stones for regional development.* **euRobotics** lends a special focus to these fields, fostering the motivation of the community, which then radiates to the whole population of the region. This is achieved by mass-media, but also, even better, by including schools, e.g., by means of robotics classes and robot competitions. Young people are very keen in building and inventing robots. This will spur innovative ideas, motivation, and the conviction that the region has something to offer.

7. *The European Commission established together with **euRobotics** a public-private partnership on Robotics, called SPARC.* The purpose is to bring together both industry and academia from all areas of robotics research, technology and application, as well as other stakeholders who are critical to the establishment of a new high-tech industry, to develop a European Roadmap of Robotics. This exercise is organised by members of **euRobotics**. SPARC aims to facilitate the building and empowerment of a European industry and a supply chain that is capable of capturing over 42% of the world market in robotics by 2020.
8. *European funds should be used for supporting infrastructure, science, education, innovation, cooperation, and outreach to the population.* The new initiative of the European Commission, “Digitising European Industry” (DEI) aims to establish links between national and regional initiatives. This complements efforts by the funding programme of the European Commission set up under the SPARC partnership with **euRobotics**, and the “smart specialization” of regions promoted by European Structural and Investment Funds (ESIFs) and the Committee of Regions. To this end, the “innovation hubs”, one of the pillars of DEI, may start with a network – to inform each other and report progress and success from the individual region.
9. *The annual European Robotics Forum ERF, organised by **euRobotics**, is the most influential meeting of the European robotics community. At the European Robotics Forum 2016 in Ljubljana, euRobotics* has invited top speakers to present SPARC, DEI, ESIF, the Committee of Regions.
10. *The European Robotics Forum 2016 will be the most important European networking event in Ljubljana this year and it may also contribute to a growing integration of Europe in this part of the continent.* Taking place in Slovenia, it will also reach out to Southeast Europe, especially to the Western Balkans, to initiate networking and cooperation in robotics, innovation, and applications.

2. ROBOTICS IN EUROPE

Robotics is on the verge of having a tremendous impact on the economy and our society. Robots are known to save costs, to improve quality and working conditions, and to minimise resources and waste. From today’s EUR 22 billion worldwide revenues, robotics industries are set to achieve

annual sales of between EUR 50 and 62 billion by 2020. In the field of industrial robotics, which is currently growing at 8 % p.a., Europe's share of the world market is about 32%. Here it will be important to find new applications outside the automotive sector. Industrial robotics has around one third of the world market. The European position in the domestic and service robot market represents a market share of 14% and, due to its current size, this is also a much smaller area of economic activity in Europe than the other two areas.

Europe's share in the world service robotics market currently stands at 63% which is the result of Europe's excellence in interdisciplinary research in "intelligent robots" and a culture of cooperation between industry and academia. However, the much larger impact comes from the effect robotics has upon the competitiveness of the manufacturing and service industries that use robotics systems and technologies, and upon the quality of life for citizens.

A recent study by McKinsey estimates that the value of the application of advanced robotics in healthcare, manufacturing and services could have an annual economic impact of between USD 1.7 and 4.5 trillion worldwide by 2025.

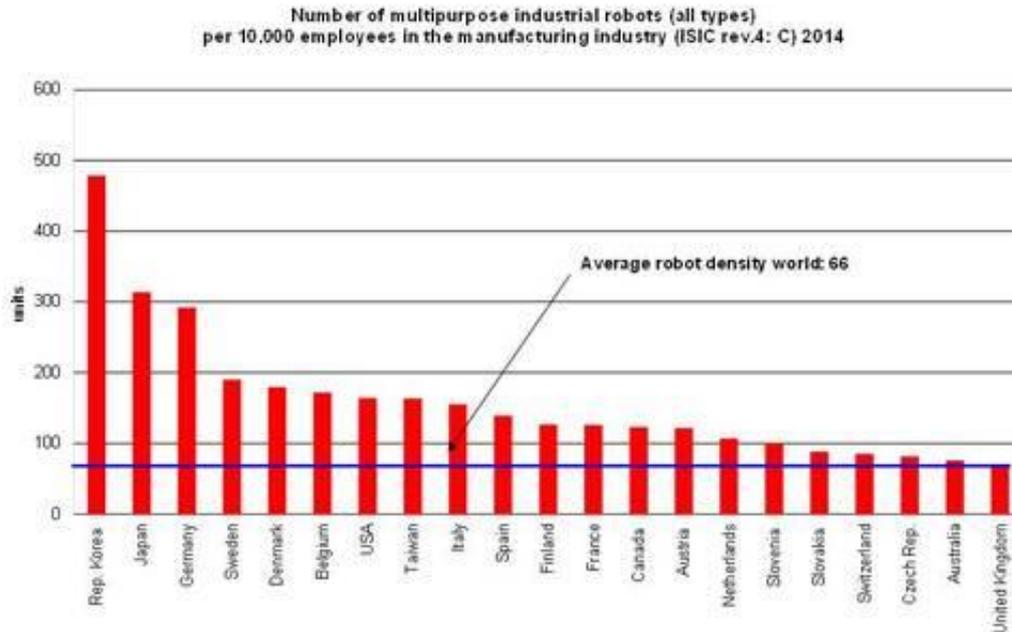
In terms of scientific standing in robotics, Europe also has a strong world position. European diversity in science supports multi-disciplinary domains such as robotics, which in turn relies on a variety of fundamental domains and is thus to a large extent the science of integrating a broad spectrum of technologies. Europe is particularly strong in technologies such as cooperating robots and ambient intelligence; speech and haptics-based human-machine interface; safety; actuation (without gears); grippers and dextrous hands; locomotion (without bipedal locomotion); materials science and engineering; navigation and collision avoidance; motion and task planning; control of arms and vehicles; learning; modelling for control (kinematics and dynamics), biomimetics, bionics, and cybernetics.

In terms of social sciences, the use of robotics in society raises many ethical and societal issues as well as legal ones. Europe has managed to lead the worldwide debate in this area and it is important that ethical, legal, and social ("ELS") investigations should be at the forefront of considerations regarding the deployment and use of robotics in the wider European society.

In a globally competitive environment, Europe is not only competing against low-wage economies, but also highly automated economies and as the decade progresses robotics usage will increase around the world. In the competitiveness, productivity and sustainability battle, leadership in robotics technology will be the key differentiator.

Robotics markets are evolving quickly and robotics will be a key source of competitive advantage and a means for tackling societal challenges and to excel in science. To maintain and build its position, Europe needs to take concerted action. European-wide action is required to take advantage of regional and national strengths in the core multi-disciplinary competencies of robotics and build critical mass, particularly with regard to efficient supply chains that will be vital for the delivery of cost-effective products and services.

GRAPH: Degree of industrial robotic automation per country



Source: IFR (International Federation of Robotics)

SPARC Partnership

With EUR 700 million in funding from the European Commission in the period 2014-2020, and triple that amount from European industry, SPARC is the **largest civilian-funded robotics innovation programme** in the world, a Public-Private Partnership between the European Commission, and European industry and academia to facilitate the growth and empowerment of the robotics industry and value chain, from research through to production.

More than 180 member organisations from European industry and research, aiming at a strategic positioning of European robotics in the world and ensuring its benefits for European economy and society at large, bring in their expertise from industry, research and business.

Analysis of the impact of robotic systems on employment in the European Union is available here:

<https://ec.europa.eu/digital-single-market/en/news/fresh-look-use-robots-shows-positive-effect-automation>

Public opinion on the robotics (findings of a Eurobarometer survey on autonomous systems) is available here:

<https://ec.europa.eu/digital-single-market/news/robots-more-europeans-know-them-more-they-them>

3. ABOUT THE ORGANISER: euRobotics

The European Robotics Forum 2016 is organised by euRobotics AISBL

Local organisers 2016 are the University of Ljubljana, Faculty of Electrical Engineering and “Jožef Stefan” Institute
www.erf2016.eu, info.erf2016@eu-robotics.net

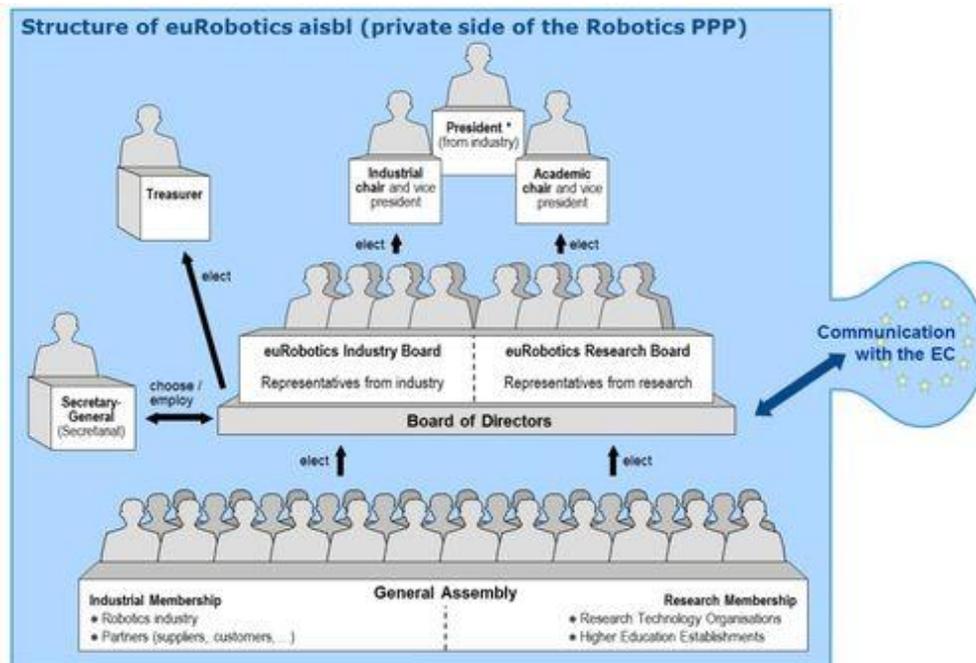
euRobotics AISBL (Association Internationale Sans But Lucratif) is a Brussels based international non-profit association for all stakeholders in European robotics. euRobotics builds upon the success of the European Robotics Technology Platform (EUROP) and the academic network of EURON, and will not only continue the cooperation but will also strengthen the bond between members of these two community driven organisations. Thus, leading towards the establishment of only one sustainable organisation for the European robotics community as a whole.

One of the association's main missions is to collaborate with the European Commission (EC) to develop and implement a strategy and a roadmap for research, technological development and innovation in robotics, in view of the launch of the next framework program Horizon 2020. Towards this end, euRobotics AISBL was formed to engage from the private side in a contractual Public-Private Partnership, SPARC, with the European Union as the public side.

The objectives of euRobotics are to boost European robotics research, development and innovation and to foster a positive perception of robotics. It aims at:

- strengthening competitiveness and ensuring industrial leadership of manufacturers, providers and end users of robotics technology-based systems and services;
- the widest and best uptake of robotics technologies and services for professional and private use;
- the excellence of the science base of European robotics.

PICTURE: Structure of euRobotics



Source: euRobotics

4. SPEAKERS

Dr. Bernd Liepert

Dr. Bernd Liepert is the President of euRobotics AISBL – the European Robotics Association. euRobotics and works as Chief Innovation Officer at KUKA AG, a worldwide leading manufacturer of industrial robots and provider of robot-based automation solutions. From 2008 to 2012, Liepert was President of EUROP, the European Robotics Technology Platform. He earned his diploma in mathematics in 1990 at the University of Augsburg and his honorary doctor degree at University of Magdeburg in 2008. Since 1990 he has worked in various positions for KUKA.

Dr. Reinhard Lafrenz

As of 1 February 2016, Reinhard Lafrenz serves as the new Secretary General of euRobotics. Reinhard Lafrenz is well known to the European robotics community because of his engagement as a scientific project manager of ECHORD and later ECHORD++, to name only the most outstanding EU projects he has been driving at the Technical University of Munich where he has been working since 2009. Reinhard studied computer science in Kaiserslautern with a minor in electrical engineering and obtained a PhD from the University of Stuttgart with a thesis on cooperative robotics. He was already part of the coordination action which led to the foundation of euRobotics aisbl and is co-leader of euRobotics' Topic Group on Software Engineering, System Integration and Systems Engineering.

Juha Heikkila

Juha Heikkila joined the European Commission in 1998 and currently works in the Directorate-General for Communications Networks, Content and Technology (DG Connect). For more than a decade he has been working in the unit now called Robotics. The unit has been funding a multidisciplinary research programme on Cognitive Systems and Robotics for about 12 years, focusing on smarter and more flexible robots and artificial systems. In the seventh EU Framework Programme for Research and Technological Development (2007-2013) the annual budget was around EUR 80 million per year, whereas in the current programme Horizon 2020 (2014-2020) the unit set up a Public-Private Partnership in Robotics (SPARC) with EUR 700 million. Heikkila holds a PhD in Linguistics from the University of Cambridge.

Markku Markkula

Markku Markkula is the President of the European Committee of the Regions. He is a former member of the Finnish Parliament (1995-2003). During this time he served as a member of two permanent parliamentary committees: the Committee for Science, Education and Culture, and the Committee for the Future. Markkula has been member of the Espoo City Council since 1980. He works at the Aalto University as advisor to Aalto Presidents, where his focus mainly lays on European Union research, innovation and education policy affairs. He is currently a member of the Board of Helsinki Regional Council and Chairman of Espoo City Planning Board. Markkula has held several important roles related to innovation ecosystems development in Finland, especially in the Helsinki region. For example he is the initiator and orchestrator of the EUR 20 million research programme "Energising Urban Ecosystems".

Mady Delvaux-Stehres

Mady Delvaux-Stehres comes from Luxemburg and became involved in politics in 1989, and since then has occupied several important positions at both a national and European level, including Minister for Transport between 1994 and 1999, and Minister for Education from 2004 till 2014. As member of the European Parliament, Mady Delvaux-Stehres is acting Vice-Chair of the Committee on Legal Affairs, as well as a member of the Committee on Economic and Monetary Affairs. She got the green light from her committee in December 2014 to look at regulations in robotics.

Matteo Fusari, European Investment Bank (EIB)

Matteo Fusari has been working for the EIB since 2008 and is responsible for technical and economic appraisal of investments project in the field mechanical engineering, both R&D and manufacturing, predominantly in the sectors of machinery and equipment, renewable energy equipment and automotive. Before joining the EIB, he worked in the private sector in Italy and Eastern Europe, covering different technical and managerial roles in R&D, manufacturing technologies and production in the same fields. He holds a Master's Degree in Mechanical Engineering and MBA from the University of Bologna (Italy).

Jasper Wesseling

Jasper Karel Wesseling is a Deputy Director General for Enterprise & Innovation and Director Innovation & Knowledge department at the Ministry of Economic Affairs of the Netherlands. The Netherlands holds the Presidency of the Council of the EU from 1 January to 30 June 2016.

Prof. dr. Marko Munih, Robolab, Faculty of Electrical Engineering (University of Ljubljana)

Marko Munih received his BSc, MSc and DSc at the Faculty of Electrical Engineering, University of Ljubljana. He conducted postdoctoral research at UCL, London. His current research and pedagogical activities are devoted to robotics. Since 1998 he has lectured at the Faculty of Electrical Engineering, University of Ljubljana, and is currently the Head of the Laboratory of Robotics (Robolab). In the recent years, his research has mainly focused on robot contact with the environment, construction and use of haptic interfaces as well as virtual reality in connection with robotics, rehabilitation robotics, and industrial use of robots. He also deals with non-contact measurement of kinematics with the use of Inertial Measurement Units (IMU). In connection with these areas he was the Slovenian principal investigator in eight projects under FP5, FP6 and FP7. In 2002 Munih received the national Zois Award, and in 2010 together with his team the EUROP/EURON Robotics Technology Transfer Award, third prize. In 2011 he received the Vidmar Award and one year later the Vodovnik Award at the Faculty of Electrical Engineering, University of Ljubljana – the former for his pedagogical work and the latter for his outstanding research. In 2012 Munih and his colleagues also received the University of Ljubljana Rector's Award for the second best innovation and in 2015 the Golden Award of the University of Ljubljana.

dr. Uwe Haass, euRobotics

Uwe Haass has been serving the Association as the very first Secretary General until his retirement 28 Feb 2015, and as interim solution between 15 August 2015 and 31 January 2016. Uwe remained connected with euRobotics as Consultant. Dr Uwe Haass has studied Electrical Engineering at Karlsruhe University in Germany, where he obtained a Diploma in Communication Theory in 1975. He went to the U.S. to specialize in the emerging field of computer vision and received a PhD for his work on computerized analysis of images from weather satellites from Colorado State University, USA, in 1980. He continued working as a researcher in the field of robotics and computer vision at IITB, a Karlsruhe based institute of the Fraunhofer Society in Germany. In 1985 he joined the European Commission in Brussels as a Project Officer in the ESPRIT program, responsible for the management of grants for R&D projects in Artificial Intelligence, Speech Recognition, and Data Base Systems. In 1990 he was given the post of the General Manager for the Bavarian Research Center of Knowledge-based Systems (FORWISS), a tri-university establishment which was set up to accelerate technology transfer from academia to industrial exploitation. In 1997, Dr Haass was appointed the Director of FWU, Germany's largest producer of educational media for schools and an active partner in the development of pedagogical multimedia contents and systems. In 2007 Dr Haass was appointed General Manager of the Cluster of Excellence "CoTeSys – Cognition for Technical Systems", a close collaboration in the field of robotics connecting neuro-cognitive and neuro-biological foundations to engineering sciences with 35 Principal Investigators and 80 Research Assistants from three Universities and two non-university research establishments, all in Munich. During the preparations for the EU Flagship proposal "Robot Companion for Citizens", where he was responsible for designing the Project Management and Governance structure, he was asked by the newly established euRobotics association in Brussels to serve as their first Secretary General, as of 1 March 2013.