

CIRP RA Winter News

Editorial



Dear CIRP colleagues,

Winter is approaching and therefore also the winter issue of the CIRP Research Affiliate Newsletter. It is really great to see that the CIRP RA network is developing very well. Over 100 young researchers from all over the world are taking part now. Besides our regular meetings during CIRP events, some more platforms for scientific exchange have been established. Examples are the CIRP Global Web Conference on Production Engineering Research (third edition already in 2014) or the CIRP workshop which regularly takes place every year. Those meetings foster further joint activities within cooperative projects or publications.

Also our newsletter became an important instrument for informing interested people within and outside the CIRP RA networks about ongoing activities. We hope you enjoy reading! Please also let us know if you have feedback or ideas for further improvement of this newsletter.

Best Regards from the editors of this issue

Sebastian Thiede (IWF/TU Braunschweig) and Matthias Schmidt (IFA/LU Hannover)

Words from the board/chair

by WESSEL WITS, CHAIR CIRP RESEARCH AFFILIATES



It is my pleasure to address you in this third RA newsletter. I hope everyone has had a safe return from the General Assembly in Nantes. We had two inspirational meetings there, a wonderful dinner event, and numerous individual encounters. I have the feeling that we as a community are pioneering and shaping ourselves to what gives us the best results. The interactive workshop type of sessions

and our 1-minute pitches we introduced are a good example of this.

This year we welcome 23 new Research Affiliates from 12 different countries. Compared to the outflowing 14 Af-

filiates, we show a positive balance that further strengthens our community. Currently our community has 108 Research Affiliates representing 24 countries worldwide. Our binding factor – being young, enthusiastic outstanding researchers – matched with the diversity in research backgrounds gives us crucial advantages. With our interactive approaches, we hope to capitalize on these merits.

During the General Assembly in Nantes are few things were decided which I would like to bring to your attention. First of all, the Editor-in-Chief Prof. Monostori of the CIRP Journal of Manufacturing Science and Technology (JMST) has asked the RA community if some of us would be willing to contribute to the journal's reviewing process. On behalf of us, I have responded positively. So don't be surprised if some of you are approached to become a reviewer. Second, our timeslot at the Paris meeting was always Thursday morning in parallel with 2 other sessions (STCs S & O). For the next Paris meeting this has

shifted one day forward and we will meet Wednesday afternoon the final timeslot without any STC sessions in parallel. Third and final, the RA nomination criteria have changed slightly. From now on CIRP fellows may only sponsor two RAs. This used to be three. Naturally this does not affect the status of the current RAs.

This brings me towards the end of most likely my last communication as RA Chair in this newsletter. In Paris I intend to resign after being your chairman for two years. I have tried to bring our community forward on a professional level and at the same time bring us more together on a personal level. I feel very confident where this community is heading and I fully trust the new proposed steering committee.

Most of our upcoming activities are also addressed in this newsletter. I hope to meet you (again) at one of these events.

CIRPe2014 - 3rd CIRP Global Web Conference on Production Engineering Research

by ALESSANDRA CAGGIANO

The 3rd CIRP Global Web Conference on Production Engineering Research: Advancement beyond state of the art – CIRPe2014, was held online at www.cirpe2014.unina.it on June 3-5, 2014. As CIRPe2014 Organizing Committee, we are really proud of the success of the conference: the number of submitted papers has been almost 50% higher than the previous editions in 2012 and 2013, and one more day has been established to present all the papers. The interactive live discussion during the conference sessions, where more than 90 questions were asked by attendees from all over the world, confirmed the worldwide interest in Production Engineering Research.

Below, the main statistics regarding the CIRPe2014 Conference are reported:

- 31 presented papers
- 246 registered participants
- 154 paper downloads from 28/05/2014 to 05/06/2014
- 492 total views during the whole Conference
- 4 attending continents during the live streaming
- 1353 page views recorded on the conference website from 28/05/2014 to 05/06/2014
- 741 unique views registered at the CIRPe2014 YouTube channel where the minute pitch presentations are available

The CIRPe2014 International Organizing Committee Members, Dr. Tiziana Segreto (Fh-J_LEAPT), Dr. Islam Shyha (Northumbria University, UK), Dr. Edwin Bos

(Xpress Precision Engineering B.V., Netherlands) and myself, Dr. Alessandra Caggiano (Fh-J_LEAPT), would like to express their gratitude to all those who contributed to the realization and success of the Conference: The International Academy for Production Engineering (CIRP), the main scientific sponsor of the CIRPe Conference Series.

The Conference main supporting bodies were: the University of Naples Federico II and the Fraunhofer Joint Laboratory of Excellence on Advanced Production Technology (Fh-J_LEAPT). We thank them for their organizational and financial assistance for the event activities. Furthermore, we thank Prof. Roberto Teti from the University of Naples for giving a remarkable Keynote Paper presentation in the Conference Opening Session and for sponsoring CIRPe2014 within the CIRP Academy together with Prof. George Chryssolouris from the University of Patras.

The Scientific Committee Members for their help and support through their expert advice and assistance. The Local Committee of the Fh-J_LEAPT at the University of Naples, Dr. Sara Karam, Ing. Davide Matarazzo and Ing. Piera Centobelli, for their motivation, energy and extraordinary team-work. The ICT Center of the University of Naples, CSI, in the person of Ing. Fabrizio Pietrafesa, for its technical support in the realization of the multimedia content of this Web Conference.

Last but not least all the authors for their high-level contributions and presentations, and all the participants for being active in the technical discussions by asking questions and expressing their interest in the CIRPe2014 Conference topics. We hope that this event will be continued next year, with the same enthusiasm that we had for this Conference edition, convinced that such initiative represents an excellent opportunity for young researchers such as the RAs and the RAs Alumni.

Looking forward to seeing you next year! Good luck to the next CIRPe2015 Organizing Committee!

CIRP RA Workshop 2014 in Norway

by RHYTHM SUREN WADHWA

It was an honor for me to host the 2014 CIRP research affiliate workshop at the Høgskole i Gjøvik, Norway, on June 16th and 17th. Eleven research affiliates from all over the world attended the workshop. We had two main parts at our work shop: a presentation part and a mini work shop part. We started with the presentation part.



We had several presentations from the research affiliates regarding their on-going research activities. The abstracts of the workshop will be published and soon available (ISBN 978-82-93269-58-8). This publication activity marks the first book of abstracts for our research affiliate workshop and I sincerely hope that this activity could be continued moving forward with the future workshops. The second part was the mini workshop hosted by Carsten and his colleague Bastian on the theme of Gamification in Engineering Education which will be describe in the following section of the newsletter. All in all we had a good time in Norway and in addition to our scientific exchange we had the opportunity to spend some time together and get to know each other better.



Workshop on Gamification in Engineering Education

by CARSTEN REISE

Every year the RA community votes during the Paris meeting on a topic for a "mini workshop" to be held during the yearly RA workshop. This year we, Bastian Mueller and Carsten Reise, suggested the topic "Gamification in Engineering Education" and conducted the workshop with 15 RA colleagues at the University of Gjøvik, Norway on June 16th and 17th, 2014.



We realize that often while we stand lecturing in front of our students they are looking repeatedly at their mobile devices checking their current Facebook status. Wouldn't it be great if they would follow your lecture in a

focused way and forget about their mobile devices or use them to acquire learning aims? We did the workshop to prove that in our daily teaching activities the use of game elements, like points or leaderboards, can be a powerful tool to increase the motivation of teachers and students. We presented basic theories of gamification, such as psychological and motivational influences of games on humans, game-based learning, a game design process, pre-existing games in engineering, player types, storytelling, game phases and game mechanics. For hands-on application we asked the participants to design their own gamified projects in groups. They applied game mechanics like levels, leaderboards, experience points or badges and discussed options to integrate these mechanics into their daily teaching.

One of the groups chose a project in which students were encouraged to improve processes like screw driving or tool changing. The game focuses on transforming a manual assembly process into an automated assembly process. Six levels are described and different game mechanics are included based on three game phases. During the "onboarding phase", which is the part of a game in which the users' interest is attracted and the basic game mechanics are explained, the game designers included elements such as badges, variable rewards and a relative leaderboard. During the second phase, the so called "midgame" in which the learning process should keep increasing with new challenges, the team selected game constraints and access items like design changes of the product. The endgame, which aims to convey a so called "Everlasting Experience", can be seen as the final stage of a game. Our workshop game designers included mechanics like a social area, guilds, a chat system and an ambassador represented by an experienced student.



At the end, the game designers presented their results that were convincing and innovative. We thank the participants for their active contribution and we are confident that it was a meaningful experience and a successful learning event for all. We believe we gave the participants interesting challenges. As a result we will certainly continue to integrate more and more game mechanics into our teaching, and we got feedback from several research affiliates who will integrate gamification methods into their academic teaching, industrial training or research workshops.

A Vietnamese Teaching Experience

by JUAN MANUEL JAUREGUI BECKER

Last year, during the Research Affiliates workshop in Zaragoza, our colleague Carsten Reise gave us a very exciting presentation on his newest project: setting up a master program on global manufacturing at the newly created Vietnamese-German University in Ho Chi Minh City. His presentation provided a clear overview of all the plans behind this new initiative. However, it was towards the end of his story when its real significance for me unfolded. Carsten launched an open call to apply for providing a course in this new master program, and I think that no longer than 10 minutes later I was offering my availability. I applied for the program with a course description on engineering modeling, and – almost one year later – I was taking a flight to Ho Chi Minh to give this course to a group of 22 bright Vietnamese students.

Arriving in Ho Chi Minh was an intensive experience. The tiredness of a very long journey mixed with a thousand imprints of all the new made me feel lost in translation. The taxi trip to my hotel, some 40 kilometers from the airport, was both bizarre and exiting. Bizarre because I guess I had never seen so many scooters and crowded streets in my life. Exiting because from the peacefulness of my taxi cab I could quickly realize that Vietnam had become a booming country. Finally, around 11:00 pm, exhausted and relieved, I arrived at the Becamex hotel, my new home for the coming weeks.

A good night sleep followed by a tasty Asian style breakfast gave me the required energy to start this new educational experience. I first took a taxi to Binh Duong New City, which serves as urban host to the Vietnamese-German University campus. Upon arrival, I walked to the classroom assigned to my course, finding my new group of enthusiastic students. After breaking the ice with some of my typical bad jokes, and introducing the course and myself, the conditions were ready to start.

During the following two weeks, I had the chance to teach a number of relevant themes – i.e. phases, tools and methods of the design process, how to develop design engineering models and use them to structure a design process – in an interactive way. I expected pro-activism from the students, and they responded accordingly. The lectures were interactive, and the students did not hesitate in posing challenging questions. Local faculty members were always friendly and eager to help me with issues ranging from setting up an internet connection down to choosing a tasty meal for lunch.

From a professional point of view, I was happy to work in an environment of motivated students and faculty members. The class results were excellent, and good discussions were held on the applicability of the course contents in local industry. From a personal point of view, I was happy to have brought my wife and kid just after finishing the course for making a round trip in Vietnam. The country has beautiful passages, friendly people and

tasty food: the perfect combination for a good holiday. To finish, I would like to thank Carsten Reise and the Vietnamese-German University for having given me this opportunity as well as for the change of repeating it next year again.



Update on RA Members

In August 2014, 10 research affiliates have joined to our community, none left and one research affiliate became associate member.

Research affiliates promoted associate member

- Dr. Marcello COLLEDANI (Politecnico di Milano/Italy)

New research affiliates

- Dr. Anthony BEAUCAMP (Chubu University/Japan, Sponsor: I. Inasaki)
- Dr. Vikram BEDEKAR (The Timken Company/USA, Sponsor: F. Hashimoto)
- Dr. Sebastien CAMPOCASSO (Arts et Metiers Paris-Tech - CEA/France, Sponsor: R. M'Saoubi)
- Dr. Haydn MARTIN (University of Huddersfield/United Kingdom, Sponsor: X. Jiang)
- Assist. Prof. Franci PUSAVEC (University of Ljubljana/Slovenia, Sponsor: E. Govekar)
- Dr. Stefanie ROBINSON (UC Berkeley/USA, Sponsor: J. Oliveira)
- Dipl.-Ing. Stefan SEIFERMANN (PTW TU Darmstadt/Germany, Sponsor: E. Abele)
- Dr. Gianluca TRISTO (University of Padua/Italy, Sponsor: P. Bariani)
- Dr. Keng Soon WOON (Simtech/Singapore, Sponsor: M. Rahman)
- Dr. Thorsten WÜST (BIBA/Germany, Sponsor: S. Lu)

Coming activities

- CIRP Winter Meetings in Paris, France - 18-20 February 2015
- Next CIRP RA workshop, 29-30 June 2015 (tentative)
- CIRPe Web Conference 2015 - 29 September-1 October 2015, <http://cirpe2015.com>
- 65th CIRP General Assembly in Cape Town, South Africa - 23-29 August 2015