

# CIRP RA Winter Newsletter 2018

## Editorial

Dear CIRP colleagues,

Welcome to the new issue of the CIRP Research Affiliate Newsletter! This issue contains introductions from the new RAs approved in Lugano and an update from a current RA.

I hope you will enjoy reading this newsletter, and look forward to meeting the CIRP community at our next meeting in Paris.

Best regards from CIRP-RA newsletter's Editor,  
Denys Plakhotnik (ModuleWorks GmbH, Germany)

## Words from the RA Steering Committee by Olga Battaïa



Dear Research Affiliates,

A new year begins for our network. On behalf of John and Taner, I would like to wish you a successful and pleasant year full of new perspectives, achievements and fun!

This year we are celebrating the 10th anniversary of the RA Program. A lot of progress has been made since the kick-off meeting in July 2008 and I hope that an important number of colleagues took a good New Year's resolution to contribute even more to the success of our community. In 2018, you will have a lot of opportunities to bring your bit and make our exchanges richer and more fruitful; below you will find a brief announcement of some of them.

At our February meeting in Paris, we will continue working on collaborative projects started in Lugano during the General Assembly 2017. New topics are also welcome; we encourage you to propose one. We will also vote for the new RA Board, therefore we are seeking for motivated and dynamic candidates. Since a lot of colleagues have appreciated the experience of the panel discussion with CIRP Fellows, which we started in Lugano, we are planning to reiterate this event at GA 2018 in Tokyo. We need your ideas about the topic for this discussion.



Picture from the panel discussion in Lugano

The RA Annual Workshop will be held in July 2018 in Aachen where the kick-off meeting of the RA Program was held in 2008. Don't miss this opportunity to celebrate this important event with us!

If not done yet, please visit [www.cirpexpertiseatlas.net](http://www.cirpexpertiseatlas.net) and create your research profile in order to enrich your collaboration experience within RA network and get the opportunity to create new collaborative projects with your international colleagues.

We are looking forward to meeting you in person at our upcoming events and we hope you will enjoy your RA experience in 2018,

Olga Battaia, Chair of RA on behalf of John and Taner

## **Dr. Ray Y Zhong wins the best papers award at the 47th International Conference on Computer & Industrial Engineering (CIE47)**



This year the 47<sup>th</sup> International Conference on Computer & Industrial Engineering took place at Lisbon, Portugal (<http://cie47.com>) with the working title "How digital platforms and industrial engineering are transforming industry and services". Research Affiliate Ray Y Zhong and his student Mr. Wenbo Ge won the best paper award for their contribution "A Case of Big Data Analytics for an Internet of Things Manufacturing Shop Floor" ([https://www.dropbox.com/sh/98wen5smashdq4m/AADvPc-Vy8qMxppU5Zr-iyYTa?dl=0&preview=CIE47\\_paper\\_6.pdf](https://www.dropbox.com/sh/98wen5smashdq4m/AADvPc-Vy8qMxppU5Zr-iyYTa?dl=0&preview=CIE47_paper_6.pdf)).

## **Introductions from new RAs**

### **David Curtis**

After completing my MEng (hons) in Mechanical Engineering at the University of Birmingham I decided to study for a PhD with the Machining Research Group at the same institution. My PhD saw me specialise in grinding processes as well as some non-conventional techniques. The strong industrial focus of my Thesis put me in a good position to progress into an applied research institute whilst still maintaining an academic footprint. For the last circa 9 years I have been working within the Machining Group at the AMRC with Boeing, The University of Sheffield progressing to a position of Technical Fellow. During this time I have grown a dedicated research team focussing on a range of abrasive processes spanning cylindrical, 5-axis and gear grinding. This has culminated in a sizable project portfolio spanning EngD's, PhD's, direct

industrial funding and UK grant funded work. Outside of work I have a young family and enjoy spending time together plus where possible playing golf, mountain biking and hill walking.

My interest in the role of RA within CIRP is to begin to increase my academic footprint and start to expand my research network, seeking new areas for collaboration and opportunity. Engagement within CIRP presents an opportunity to be clearly at the forefront of production engineering research. With my lead role at the AMRC in grinding processes, I am always focussing on new developments and understanding how these can be maximised at an industrial level.

### **Marc Dittrich**

My name is Marc-André and I work at the Institute of Production Engineering and Machine Tools at the Leibniz Universität Hannover, Germany. In my PhD study, I investigated the machinability of aluminum-alloyed UHC-steels. Due to their properties, these steels show high potential for applications in the automotive industry. Since 2015, I am heading the department for production systems at our institute. Our research focuses on autonomous production systems and enabling technologies like process simulation, applied machine learning and adaptive production planning. In my leisure time, I play tennis and soccer. Moreover, I am a jazz-enthusiast.

As an RA, I hope to meet many young researchers with fresh ideas for tomorrow's production. In addition, it would be nice to establish some new international collaborations. I am looking forward to countless discussions about (but not only) our research.

### **Xin Dong**

Xin Dong received the bachelor and master degree in Mechanical Engineering from Dalian University of Technology and Beihang University, China, in 2008 and 2011, respectively. In 2016, he received the PhD degree in Manufacturing Engineering from University of Nottingham, UK. From October 2015 to August 2017, he was with the Rolls-Royce University Technology Centre in Manufacturing and On-Wing Technology, University of Nottingham, as a Research Associate. Since September 2017, he has been with Department of Mechanical, Materials and Manufacturing Engineering, University of Nottingham, UK, as an assistant professor.

As a specialist in robotics, my research interest is developing robotic systems (e.g. continuum robots and parallel kinematics machine tools) for the application of manufacturing and in-situ repair in high-value added industry. Joining CIRP as a research affiliate will provide me the opportunities to present my research and exchange ideas in the world-wide recognised manufacturing society. Further, I also can build links within the community to find the opportunities for the further collaboration, which is very important for a new starter in academia.

### **Joseph Flynn**

I am an Assistant Professor within the Department of Mechanical Engineering at the University of Bath, UK. My research interests include design for additive manufacturing, hybrid manufacturing processes and manufacturing metrology. Recently, my research has focussed on the integration of manufacturing constraints within design optimisation tools, such as topology

optimisation. I am also actively researching generative design techniques and meshless design tools for additive manufacturing technologies. Outside of my research, I help to organise and run the Formula Student electric vehicle on behalf of the University of Bath.

My expectations and interests as an RA are centred upon building new connections with overseas researchers. I am particularly interested in learning more about the different themes, funding opportunities and research techniques that are being employed by my international colleagues. I also believe that in the current political climate within the UK, it is particularly important to show solidarity and warmly extend collaborative opportunities to the wider European and global research communities. I have greatly enjoyed visiting CIRP conferences as a guest and presenter, and I now look forward to contributing to the community as a new RA.

### **Stepan Jermolajev**

I was born on 1st June 1989 in Brno, Czech Republic. After finishing the secondary school, I studied mechanical engineering with the focus on machining processes at the Brno University of Technology. During my study, I got into contact with industrial gear machining processes and especially with gear grinding processes. The challenge to understand the complex contact conditions of gear grinding as well as frequent grinding burn issues motivated me to focus on this topic during the rest of the university time. Grinding burn issues during gear grinding subsequently became the topic of my master thesis (2013), which brought me at the end of 2013 to the Foundation institute for Material Sciences (IWT) in Bremen, a research facility known for its wide expertise on the field of material oriented manufacturing. Since that time and by pursuing my interest for gear grinding processes, my primary work target is a user-friendly methodology to monitor and to predict the surface layer properties of ground gear tooth flanks. I intend to finish my dissertation with the topic "Time-temperature-diagrams for gear grinding" until 2019.

From being a CIRP research affiliate, I wish to achieve a professional as well as a personal acquaintance with other research affiliates within the RA-community and with the world-wide leading experts in production engineering. Furthermore, I am very glad to get an insight of the CIRP, one of the most important and worldwide well-known scientific communities in engineering. I hope that my future participation in the CIRP RA-community will provide me new viewpoints not only on my own work, but on mechanical engineering and production technology in general.

### **Kang Ni**

My name is Kang Ni. I have completed my PhD dissertation in 2017 under the supervision of Prof. Gert Goch at the University of North Carolina at Charlotte. I started my research in precision metrology at the Center for Precision Metrology since 2010 and I have completed several projects from nano scale to large scale metrology. My dissertation is about areal gear metrology, in which I have built a new mathematical tool for a holistic gear evaluation paradigm by advanced geometric and analytic modeling.

As a CIRP RA, I am excited to start my contribution to the academy in the spirit of "work hard and play hard". Within our academy, I am looking forward to exchanging insights, collaborating on projects and writing papers on the most challenging issues in production engineering.

Personally, I would love to build a lifetime (and certainly international) friendship with the best researchers in years to come.

## **Yue Peng**

Currently, I am a doctoral student at the University of North Carolina at Charlotte (UNC Charlotte) with Prof. Dr.-Ing. Gert Goch. I work as a research assistant in the Center for Precision Metrology at UNC Charlotte. My research focuses on gear metrology, especially gear inspection based on three-dimensional models and areal evaluations. The methods are being developed while further interests are in the role of metrology in modern gear production. I participate in projects for metrology and precision engineering, which involves, for example, Geometric Dimensioning and Tolerancing, uncertainty estimation, measurements of large scale industrial components, coordinate measuring systems and optical measuring systems.

Joining the Research Affiliate program of CIRP, I hope to serve the community with my expertise, join and promote conversations about the state-of-the-art and future developments of all aspects of production engineering, enjoy the multidisciplinary interactions, and meet some friends.

## **Names of the New RAs accepted at CIRP GA 2017 (Lugano)**

David	CURTIS
Marc-André	DITTRICH
Xin (Erwin)	DONG
Mohamed	EL-HOFY
Joseph	FLYNN
Stepan	JERMOLAJEV
Kang	NI
Yue	PENG
Julian	POLTE
Brecht	VAN Hooreweder

## **Names of the RAs whose membership expired in August 2017**

Juan Manuel	JAUREGUI-BECKER
Hua	LI
Tiaan (GA)	OOSTHUIZEN
Matthias	SCHMIDT
Sebastian	THIEDE
Petra	WIEDERKEHR

Two of past RAs, Florent Laroche and Josef Mayr, became Associate Members of CIRP at the General Assembly 2018 in Lugano. Congratulations!