

Name of the MSC Fellow: Radoslav Paulen

Nationality: Slovak

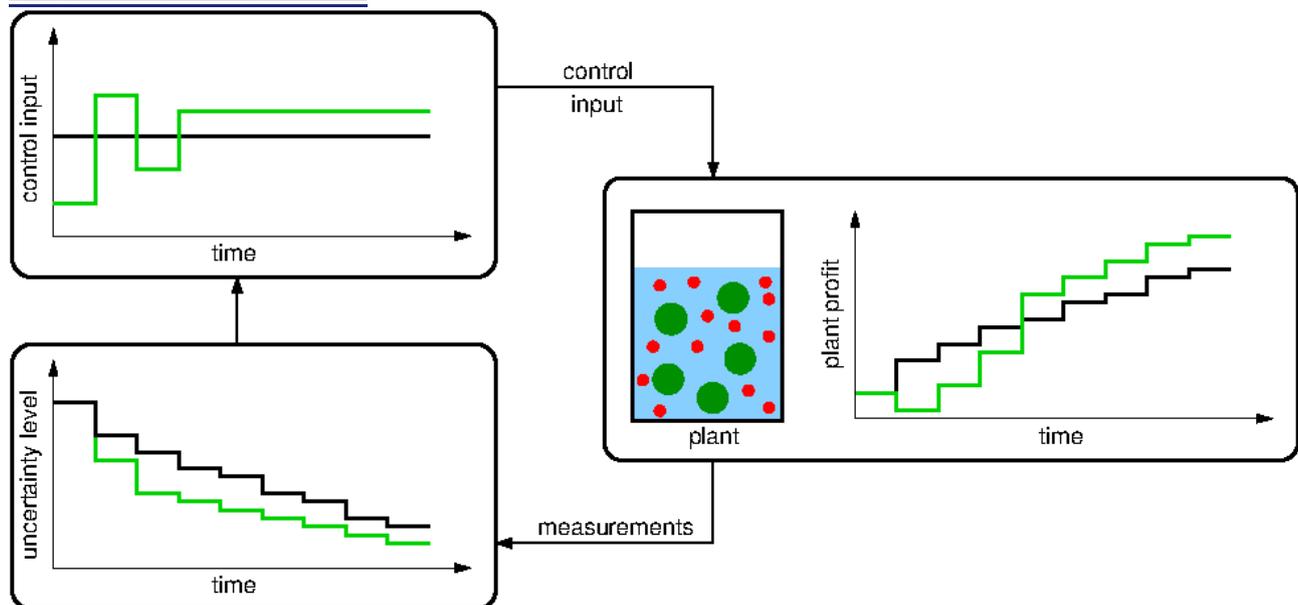
Host organization: Slovak University of Technology in Bratislava

Country of the Host: Slovakia

Project Acronym: GuEst

Project start and end date: June 1, 2018 – May 30, 2020

Type of MSC action, H2020: IF



Your story:**Project objectives and research field:**

The technique of guaranteed estimation promises a revolutionary step to how industrial process managers build, handle and adapt the prediction mathematical models. These models are used to monitor the equipment operation, to train the operating personnel, and steer the plants' behavior towards the most profitable or the most resource-efficient regimes.

Tell us why your topic is important and/ or how it brings to advancement in your research field:

Improved monitoring and control is key to energy and resource efficiency of the assets and it enables a shift towards autonomous production and sustainability in chemical industry. Advantages of guaranteed estimation come from the fact that no unnecessary assumptions must be made regarding the quality and measurement-error distribution of the sensed data, which establishes increased reliability of the obtained estimation results. The work on this project develops the essential parts of guaranteed estimation techniques for real-world exploitation.

To drive the operation of a plant (we focus on the chemical plants) to an efficient working regime, the technology of optimal and robust control is required. Our project builds upon the developments of robust control and develops novel optimal robust control techniques that incorporate the information on guaranteed estimates into the actions. As a result, a safe, reliable and resource-efficient operation is established.

What are the benefits of participating in a MSC action?

Thanks to my MSC action project, I was able to reach the scientific qualification criteria for becoming an associate professor, which was a milestone in my career. I was also able to largely integrate into the scientific community. It is, however, not only this achievement that greatly contributed to my professional development. I found new contacts of researchers, industrial practitioners, research managers, and policymakers, who will be valuable links in my future professional networks. In terms of my personal development, I became much more mature and open-minded person. I hope that, by building on the results of my project, I can transfer the researched innovations into the industrial practice. These will have a strong impact on the sustainability of the future chemical industry.

Did you encounter any challenges during application/ implementation and did you get any help?

During the implementation of the project, I have not encountered any difficulties. The staff at the host institution and in the secondment institution was most helpful in any potentially arising challenges and acted proactively to assist me.

Why did you choose a widening country as a Host? What was the reason that convinced you? What is making you professionally happy here?

My host country is the country, where I was born and raised and where I received all the degrees of my education. It is, however, a country, where the public research expenditure is among the lowest in the EU. The MSC action made it possible for me to return to my home country after postdoctoral position in Germany and helped me to pursue a professional researcher career in conditions that are standard for EU-15 yet highly competitive for my host country. My professional happiness in the host country and institution stems from a growing interest.

Would you recommend others to apply? What useful advice/ tips can you give them?

I would absolutely recommend everybody to apply. Minimal administration, maximal freedom. That speaks for itself. The possibility of a secondment is also a great plus.