Early Stage Researcher / PhD Position at Technical University of Liberec, Faculty of Mechatronics, Informatics and Interdisciplinary Studies, Czech Republic, as part of

European Innovative Training Network
Smart Tomographic Sensors for Advanced Industrial Process Control (TOMOCON)

The European Marie Skłodowska-Curie Innovative Training Network TOMOCON joins 12 international academic institutions and 15 industry partners. We work together in the emerging field of industrial process control using smart tomographic sensors. The network will lay the scientific and technological fundamentals of integrating imaging sensors into industrial processes and will demonstrate its functional feasibility on lab and pilot-scale applications. Our doctoral researchers will be trained and work in the fields of process tomography hardware, software and algorithms, control systems theory and design, industrial process design, multi-physics modelling and simulation, human-computer interaction, and massive parallel data processing. More information about the network and all open positions can be found on our web page www.tomocon.eu.

Within TOMOCON we seek excellent open-minded and team-spirited PhD candidates who will get unique international, interdisciplinary and inter-sectoral training in scientific and transferable skills by distinguished leaders from academia and industry. Within the TOMOCON network we offer the following PhD position at Technical University of Liberec:

Control systems based on multi-parametric data and exemplary application to continuous casting control
Reference number: TOMOCON-ESR9

Process tomography provides rich data but new control methodologies are needed if these data are to be used for real time control. As image reconstruction is computationally demanding and ill-posed, approaches based on suitable process model parametrization or state estimation are more likely to succeed. The PhD candidate shall develop control methodology (-ies) appropriate for tomography data together with concepts to use raw data instead of reconstructed images. The methodology must take into account the significant uncertainty in tomography data and finally it shall be implemented and tested with the continuous casting process using the LIMMCAST facility available at Helmholtz-Zentrum Dresden Rossendorf (HZDR). The work comprises fundamental scientific analyses, engineering design and technical demonstration together with groups at HZDR, universities Delft and Bath and different industry partners. The PhD candidate will spend secondments of about eight months in total for technical and scientific training at HZDR (Germany), Chalmers University of Technology (Sweden) and Primetals Technologies (Austria). The PhD degree will be awarded by Technical University of Liberec, Czech Republic.

Requirements

- Distinct university graduation in engineering (preferably but not limited to control or electrical engineering), applied mathematics or natural science
- Profound knowledge of systems and control theory and image data processing
- Sound expertise in mathematical optimization and mathematical modelling
- Programming skills
- Strong interest in interdisciplinary scientific work
- Good proficiency in English language

Starting Date: 1st March 2018
Contract: Full-time contract for 36 months
Salary: Gross salary per month: 2,606 EUR
                       Mobility allowance per month: 600 EUR
                       Family allowance per month (if eligible): 500 EUR
Information: Doc. Dr. Ing. Mgr. Jaroslav Hlava - Primary Supervisor
                       Email: *jaroslav.hlava@tul.cz*
Application: Please submit your application (cover letter, CV, certificates) to the Primary Supervisor with indication of the position reference number TOMOCON-ESR9.

DEADLINE   7 November 2017

Eligibility: *The candidate recruited in the TOMOCON project must be Early-Stage Researcher (ESR) and undertake transnational mobility (secondments, trainings, conferences). The candidate must be in the first four years from the date when the researcher obtained the degree entitling him or her to embark on a doctorate (e.g. master degree). It will be counted backward from the date of recruitment (in this case 1 March 2018). No doctoral degree has been awarded during these four years. The candidate can be of any nationality. The candidate must not have resided or carried out her/his main activity (work, studies, etc.) in the Czech Republic for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.*