

ESR 4

Project title: Novel energy efficient power train architecture for implement and optimal power management.

Place of employment and planned mobility: Tampere University, Finland: 9 months - Bosch Rexroth, Germany: 21 months – John Deere, Finland: 6 months

Supervisory team: Tatiana Minav, Kalevi Huhtala, Christine Brach

Project objectives: Research Objective is to design and realise innovative energy-efficient methods and solutions for Heavy Duty Machinery powertrains. Future mobile machines contain several different power sources such as mechanical, hydraulic, electric and their combinations with energy recovery and hybrid features. The number of actuators and the load cycles differ from one machine to another; thus, one powertrain architecture cannot be optimal for all. The PhD study objective is to design and realise innovative energy-efficient concepts and solutions for mobile machine powertrains with focus on implements for chosen cases with target to improve its productivity, while reducing its impact on the environment.

The ESR will also be involved in dissemination through social media promotion of the network, such as Webropol surveys, and LinkedIn groups, YouTube video channels, Twitter and blogging.

Starting date: January 1st, 2020. Negotiable.

Duration of the work contract: 36 months/full-time contract

Trial period: 6 months

Target degree: PhD degree from Tampere University, Finland

Approximate gross salary: about 3600 EUR/month plus family allowance if applicable

Eligibility: ESR shall at the date of recruitment, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. The researcher must not have resided or carried out his/her main activity (work, studies, etc) in the country of his/her first employer (Tampere University, Finland) for more than 12 months in the 3 years immediately prior to his/her recruitment.

The applicant must be in possession of Master of Science (MSc) diploma in industrial engineering, or engineering such as systems engineering, automation, or other relevant topics.

English language requirements: Proficiency in written/spoken English is mandatory. In certain cases, we may ask for a language certificate.

Application



Closing date: 13.11.2019

The applicant must submit the following documents through [LAURA portal](#), only a clear copy of the documents will be considered

1. **Certified copies of the bachelor's and master's degree certificates with the Diploma Supplement (DS)** as approved by the EU Commission for degrees completed in European universities (when applicable) Official translations into English (if the original documents are in a language other than English)
2. **Curriculum Vitae/CV** (preferably in Europass format)
3. **List of publications (if any)**, your contributions in the publication
4. **References:** Contact details of 2 or more referees included in the CV
5. **Motivation letter: maximum 1 page** where you introduce yourself and present your qualifications; you may include also your previous research fields and main research results. Please emphasize your future goals career-wise
6. **Copy of the passport**
7. **Proof of residence:** statement and certificates/documents demonstrating your residence(s) in the last 4 years. [A template is available on the website under How to Apply.](#)

Additional information

Working and living conditions in Finland at the University of Tampere. Finland is among the most stable, free and safe countries in the world, based on prominent ratings by various agencies. It is also ranked as one of the top countries as far as social progress is concerned. Tampere is counted among the major academic hubs in the Nordic countries and offers a dynamic living environment. Tampere's region is one of the most rapidly growing urban areas in Finland and home to a vibrant knowledge-intensive entrepreneurial community. The city is an industrial powerhouse that enjoys a rich cultural scene and a reputation as a centre of Finland's information society.

The new **Tampere University** and higher education community began their operations on 1 January 2019. Tampere University of Technology, the University of Tampere and Tampere University of Applied Sciences are building a unique environment for multidisciplinary, inspirational and high-impact research and education, and a hub of expertise in technology, health and society. Read more [here](https://www.tuni.fi/en) (https://www.tuni.fi/en).

Working and living conditions in Germany at Bosch Rexroth. Germany is the heart of European industry and offers a high standard of living. Beyond that a sumptuous and varied scenery and stunning medieval towns and cities are offered. Germany lives up to its reputation of being clean, efficient and very welcoming. Aside from modern advances in technology and science, Germany is also rich in culture.

The **Bosch Rexroth plant** is located in Elchingen and about 15 km away from Ulm, which is well known for the worlds highest church tower "Ulmer Münster". Ulm is a lovely small city with about 125.000 residents between Munich and Stuttgart and offers thanks to the university of Ulm and the nice historic downtown attractive living conditions.

Bosch Rexroth is an innovative company specialized in machines and systems of any size and has global application experience in market segments such as Mobile Applications, Machinery Applications and Engineering, Factory Automation and Renewable Energies. Bosch Rexroth is in the cutting edge of forming the next generation of mobile machines using electrified, electronic and digitally networked solution in order to increased power, safety, efficiency and intelligence of future Mobile Machines.

Working and living conditions in Finland at John Deere Forestry – Finland is among the most stable, free and safe countries in the world, based on prominent ratings by various agencies. It is also ranked as one of the top countries as far as social progress is concerned. John Deere Forestry is a world leading



forest machinery company which develops and manufactures machines that are used for cut-to-length harvesting, loading and transporting the trees out of the forest. Advanced R&D focuses on leading edge technology development of machine automation and forest-site solutions.

