UNIVERSITÉ DE NANTES

COGNITIVELY ENHANCED ROBOT FOR FLEXIBLE MANUFACTURING OF METAL AND COMPOSITE PARTS

This project is funded by the European Union

Job profile: Research engineer

EMPLOYER University of Nantes (IUT de Nantes – LS2N)
RESEARCH FIELD Mechanical Enginnering, Machining, Vibration analysis.
OFFER STARTING DATE 01/02/2017
LOCATION : Carquefou, France
EU RESEARCH FRAMEWORK PROGRAMME: H2020-FoF02-2016 COROMA Project
TYPE OF CONTRACT Temporary
APPLICATION DEADLINE 30/11/2016

Project context:

COROMA project proposes to develop a cognitively enhanced robot that can execute multiple tasks for the manufacturing of metal and composite parts. COROMA will therefore provide the flexibility that European metalworking and advanced material manufacturing companies require to compete in the rapidly evolving global market.

Targets	Innovations	Applications
Automation of previously manual production.	Modular robotic manufacturing.	 Energy
New technologies related to machinery and robots.	Multiple manufacturing operation capabillity.	
Strengthen European manufacturing industry.	Self-learning and knowledge sharing.	 Aerospace
Reduction of set-up and new production adaptation costs.	Automatic manufacturing scene understanding.	
Improve adaptability of manufacturing systems.	Minimum programming effort required.	 Naval
	Autonomous workshop navigation.	
	Safe human - robot - machine collaboration.	

COROMA is a cross-sectorial effort introducing robotics technologies in advanced manufacturing companies by an innovative approach. Objective 6 of this project aims at the demonstration and validation of key enabling technologies through three demonstrators in partners' industrial facilities.

The industrial impact and relevance of the COROMA project will be established through the development of industrial demonstrators:

- Demonstrator One will represent the energy sector aiming at manufacturing large metal parts.
- Demonstrator Two will represent the aerospace industry focusing on both metal and CFRP parts.
- Demonstrator Three will represent naval industry with the manufacturing of GFRP parts.

The work for the researcher will focus on the development of the naval demonstrator.

Desired qualifications:

- PhD degree in mechanical engineering
- Vibration analysis, modeling of machining, chatter
- Instrumentation of machining process, experiments on machine-tool
- Outstanding technical and theoretical skills

- Creative, proactive and collaborative attitude
- French and English language skills (written and oral).

Primary Duties and Responsibilities:

- Work under vibration analysis, measurement of active power to allow the monitoring of processes and machines.
- Carry out experiments and measurement during machining operations (trimming, drilling, milling).
- Work on mechanical simulation, trimming, drilling and milling operation simulation.
- Design and implement research protocols, prototypes that test differently concepts
- Work with the academic and industrial community to develop new techniques, new simulations and to contribute to research in the area of manufacturing processes
- Prepare and review project deliverables documentation.
- Assist in the development of research project proposals
- Work in a dynamic team environment with strong technical aptitudes.

Essential Skills and Experience

- Solid understanding of machining, simulation and vibration analysis
- Previous experience with Matlab and CATIA.
- Accomplished skills in research and implementation; demonstrated capability to define research plans and carry out leading research.
- Effective communications and interpersonal skills; is very comfortable interacting with high-level individual contributors and senior management
- High energy levels, self-motivating and autonomous; able to perform research with minimum guidance.

Preferred Skills

- Previous experience with collaborative projects (FUI, FEDER, H2020….), including day-to-day execution of tasks and development of deliverables.
- Aptitude for collaboration and engagement with multiple stakeholders including academics and industrial partners.

Requirements

- PhD degree in mechanical engineering or closely related field.
- Excellent spoken and written English and French.
- Recent graduate or 1-2 years' experience

Other Requirements

- Willingness to travel.
- Ability to represent University of Nantes externally in business and research communities.

For application, please send your CV and covering letter by e-mail to mathieu.ritou@univ-nantes.fr and benoit.furet@univ-nantes.fr before 30/11/2016.