



Indian Institute of Technology Indore

Simrol Campus: Khandwa Road, Simrol, Indore 452020

IIT
Indore

Dated: 23/02/2016

Advertisement for a Postdoctoral Position

Applications are invited from motivated and eligible candidates for a postdoctoral position in the research project “*development of algorithms for smart manufacturing*” in Discipline of Mechanical Engineering, IIT Indore.

Brief description of the project:

Globally, the manufacturing industry is gearing up for the next level of industrial revolution and it is called Smart Manufacturing or Industry 4.0. Smart manufacturing is where manufacturing machines and systems are self-aware, can communicate with each other, and are able to make decisions that will improve system performance. Smart manufacturing requires machines to have the ability to gather (and share) data about its condition and operation, ability to perform data analytics to understand how its condition and operation affects system performance, and decision-making ability to take actions that will improve/optimize system performance based on the gathered data. In line with this, the objective of the project is as follows:

“Development of a system that enables embedded intelligence in manufacturing equipment through effective data gathering, communication, analytics and decision making capabilities”.

The challenge is that most industries in India and even globally do not have all of their manufacturing equipment equipped with embedded sensors or external sensors for data acquisition. They rely mostly on manual data collection. Thus, one of the challenges for widespread adoption of smart manufacturing is to enable such legacy equipment with intelligence capabilities. A ‘cyber twin’ (a concept recently developed at IIT Indore) is a software representation of an actual machine tool that is able to replicate the machine behavior and can make decisions on behalf of the machine through embedded data analytics and optimization algorithms. The cyber twin will capture all relevant events of the machine either through manual (but standardized) data interface or through externally mounted sensors or embedded sensors. The use of machine tool communication standards like MTCConnect, etc. will make such cyber twin concepts easily acceptable in the market. An effective communication algorithm forms the basis for operations planning within a complex network of production machines in any industry. In this project, we will develop algorithms for deciding on “what to communicate”, “when to communicate” and “which cyber twins to communicate with”. This is akin to the formation of ‘social networks’ for machines. Finally a decision making algorithms will be developed based on the communication within the network. It is proposed to focus on maintenance (scheduled and predictive maintenance), production scheduling and inventory decisions in this project.

Eligibility: Ph.D. in *Computer Science and Engineering, Information Technology, Mechanical Engineering, Industrial Engineering*

Knowledge of Java will be an added advantage.

Please note that you should have defended your Ph.D. dissertation.

Stipend:

Postdoctoral Fellow will be paid consolidated salary based on the following salary structure of the DST for Research Associate.

Category	Emoluments per month
Research Associate-I	Rs. 36,000/-
Research Associate-II	Rs. 38,000/-
Research Associate-III	Rs. 40,000/-

The category will be decided/recommended by the selection committee based on the qualification/Experience/Performance in the interview of the candidate.

Service conditions:

(i) DA: Postdoctoral Fellow will not be entitled to DA.

(ii) House Rent Allowance (HRA): All Postdoctoral Fellow may be provided accommodation based on availability and those residing in accommodation provided by the institute will not be eligible for drawing HRA. Wherever provision of hostel accommodation is not possible, HRA may be allowed to Postdoctoral Fellow as per Government norms applicable in the city/location where they are working. The fellowship amount may be taken as basic for calculating the HRA.

(iii) Medical Benefits: The Postdoctoral Fellow will be entitled for medical allowance as per institute policy.

(iv) The travel entitlement for Postdoctoral Fellow for participation in scientific events/workshops in India will continue to be as per institute norms.

Duration: The appointment is for one year.

Interested candidates are requested to submit a detailed CV to *Dr. Bhupesh Kumar Lad* via e-mail: bklad@iiti.ac.in by 31 March, 2016.

For details please visit concern faculty profile at www.bklad.webs.com

Only shortlisted candidates will be intimated by email for an interview. No TA/DA will be paid for appearing in the interview.