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## **POSTDOCTORAL POSITION IN “MANUFACTURING/PRODUCTION SYSTEM DESIGN AND ENGINEERING”**

### **Summary**

We are looking for a post-doctoral fellow to join our research group in the area of advanced manufacturing, system/machine design and development. The current research focus of the group is on the modeling of systems, machine design and development for smart manufacturing and Industry 4.0. The successful candidate will conduct research in system design and development, hands-on prototyping, CAD modeling, and process optimization, with a focus in one of the following areas:

1. CAD modeling and optimization of the current manufacturing process
2. Simulation and process modeling
3. Process identification and optimization
4. Design optimization and improvement
5. Process control design and implementation for automated transfer lines and machines
6. Pre-and-post inspection stations for product quality
7. Prototyping and testing

For validation, the candidate will have access to the partner company's facility and various software. The candidate will also have access to a 5-axis CNC machine, a 3-axis CMM, and the Industrial Robots and Additive Manufacturing facilities available in the Laboratory of Intelligent Manufacturing, Design and Automation (LIMDA) at the department of Mechanical Engineering at the University of Alberta. The current vacancy is a full-time position based in Edmonton, Alberta, Canada for one-year (extended to two and then five years). The salary will be commensurate with the candidate's qualifications and experience.

### **Candidate profile**

The position requires a self-starting researcher with a proven record of accomplishment of publications. Applicants require an excellent understanding of design and manufacturing principles, numerical methods, CAD modeling, inspection-&-measurement systems, programming and the capability to carry out independent research. The candidate must also demonstrate strong verbal and written communication skills evident through high-quality journal publications in the research area. The candidate should also have the ability to work and lead in a team environment. As a part of the project, the candidate will work with a multi-disciplinary team of researchers, graduate students, and industrial collaborators. The ideal candidate shall have evidence of the following.

## Specialized Training & Skills

1. A PhD in mechanical engineering, systems design, mechatronics, electrical engineering, or a field closely related to advanced manufacturing, lean manufacturing, machine design and inspection.
2. Expertise and research experience in one or more of the core areas described above.
3. Established experience in system design and modeling of manufacturing automation and inspection processes evident through published research.
4. Experience in application of CAD modeling, FEA coding, system programming and control.
5. Proficiency in programming in Matlab, C/C++, PLCs and in an established CAD and FEA software package, such as ANSYS/ABAQUS and SolidWorks/ESPRIT and vision-based systems.

## Preferred Skills:

1. Prior experience of working with machine design, inspection/measurement & laser systems.
2. Knowledge of vision-based systems for manufacturing quality improvement.
3. Experience carrying out standard mechanical testing and system designing.
4. Process integration, optimization and planning.

## How to Apply

Position is now open and applications will be reviewed as they are received until the position is filled. In order to apply, the candidates may email the application package to Dr. Rafiq Ahmad ([Rafiq.Ahmad@ualberta.ca](mailto:Rafiq.Ahmad@ualberta.ca)). The email subject should contain the job ID. LIMDA700PDF. The application package should contain a **PDF file** with the file name in the format **LIMDA700PDF\_lastname\_firstname.pdf** containing the following:

1. A cover letter
2. A detailed academic CV including a minimum of three references (including PhD supervisor)
3. Copies of degree transcripts
4. 2 copies of relevant journal publications related to the research area
5. A research statement showing your fit with the described areas and a plan for future research

LIMDA is proudly located at the University of Alberta in the heartland of Alberta, Canada. The University of Alberta is a one of the top 100 University's in the world ranking and among the top 5 Canadian Universities. Any further inquiries related to the job and/or the application process may be directed to Dr. Rafiq Ahmad.

### Contact Person:

**Dr. Rafiq Ahmad**, Assistant Professor, University of Alberta

Head of Laboratory of Intelligent Manufacturing, Design and Automation

Email: ([Rafiq.Ahmad@ualberta.ca](mailto:Rafiq.Ahmad@ualberta.ca)) T: (+1) 780 492-7180 (Please note that no inquiries will be entertained by phone)

**We thank all applicants for their interest. However, only those individuals selected for an interview will be contacted.**

*The University of Alberta is committed to an equitable, diverse, and inclusive workforce. We welcome applications from all qualified persons. We encourage women; First Nations, Métis and Inuit; members of visible minority groups; persons with disabilities; persons of any sexual orientation or gender identity and expression; and all those who may contribute to the further diversification of ideas and the University to apply.*

**Start Date:** 01 May 2019 or later