

AI-Driven Robotic Welding and Metal Additive  
Manufacturing - MASc, PhD, and Postdoc funded  
positions  
Polytechnique Montreal (University of Montreal)

Direct Link: <https://www.AcademicKeys.com/r?job=229648>

Downloaded On: May. 18, 2024 9:45pm

Posted Jan. 27, 2024, set to expire May 28, 2024

**Job Title** AI-Driven Robotic Welding and Metal Additive  
Manufacturing - MASc, PhD, and Postdoc funded  
positions

**Department** Mechanical Engineering  
<https://www.polymtl.ca/meca/en>

**Institution** Polytechnique Montreal (University of Montreal)  
Montreal, Quebec

**Date Posted** Jan. 27, 2024

**Application Deadline** Mar. 1, 2024

**Position Start Date** Available Immediately

**Job Categories** Graduate Student  
Post-Doc

**Academic Field(s)** Robotics  
Mechatronics  
Mechanical Engineering  
Manufacturing & Quality Engineering  
Computer Science

**Job Website** <https://www.polymtl.ca/expertises/en/khameneifar-farbod>

**Apply By Email** [farbod.khameneifar@polymtl.ca](mailto:farbod.khameneifar@polymtl.ca)

**Job Description**

**Position Overview:**

Join our cutting-edge research team ([Digital Manufacturing and Metrology Research Laboratory](#)) in the

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exciting field of smart manufacturing. We are seeking highly motivated and skilled individuals for fully-funded Master's, PhD, and Postdoctoral positions, focusing on computer vision and visual servoing for robotic welding, as well as in-situ monitoring and adaptive process control in robotic wire arc additive manufacturing. The projects are in collaboration with the National Research Council of Canada (NRC). This is a unique opportunity to contribute to groundbreaking research that integrates artificial intelligence (AI) and machine learning with advanced manufacturing processes.

**Key Responsibilities:**

- Develop and implement algorithms for real-time computer vision and visual servoing in robotic welding applications.
- Innovate and improve in-situ monitoring and adaptive process control techniques for robotic wire arc additive manufacturing.
- Apply machine learning methodologies, including deep learning and reinforcement learning, to enhance manufacturing processes.
- Conduct research that contributes to the fields of smart manufacturing, data fusion, and process optimization.
- Collaborate with a multidisciplinary team to design and execute experiments, analyze data, and publish findings.

**Qualifications:**

- For Master's and PhD candidates: A bachelor's or master's degree in Computer Science, Manufacturing Engineering, or a related field with a strong focus on algorithms and computing.
- For Postdoc candidates: A PhD in a related discipline, with demonstrated expertise in AI, machine learning, computer vision, or robotic control systems.
- Proven experience in programming and algorithm development, preferably in Python, C++, or MATLAB.
- Familiarity with machine learning frameworks (e.g., TensorFlow, PyTorch) and robotic operating systems.
- Excellent problem-solving skills and a passion for innovation in smart manufacturing.

**What We Offer:**

- A dynamic, collaborative, and supportive research environment.
- State-of-the-art facilities and resources for advanced manufacturing research.
- Opportunities for professional growth, including publishing in top-tier journals and presenting at international conferences.

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- A competitive stipend/salary.

**Application Process:** Interested candidates should submit a CV, a cover letter detailing relevant experience and research interests, transcripts, and contact information for two references to [Prof. Farbod Khameneifar](mailto:farbod.khameneifar@polymtl.ca) via email at [farbod.khameneifar@polymtl.ca](mailto:farbod.khameneifar@polymtl.ca). Applications will be reviewed on a rolling basis until the positions are filled.

### Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

**Contact** Farbod Khameneifar  
Mechanical Engineering  
Polytechnique Montreal (University of Montreal)  
Montreal, QC H3T 1J4  
Canada

**Contact E-mail** [farbod.khameneifar@polymtl.ca](mailto:farbod.khameneifar@polymtl.ca)