

Graduate Positions (MSc & PhD) – Fall 2026: Machine Learning for Pipeline Dent Severity

Applications are invited for **funded MSc and PhD positions starting Fall 2026** in the area of machine learning-enhanced infrastructure assessment, with a focus on pipeline dent severity and reliability. This research integrates advanced computational mechanics, machine learning, and uncertainty quantification to develop scalable and industry-relevant tools for infrastructure monitoring and decision-making.

Research focus

- Development of ML-based surrogate models for dent severity prediction
- Hybrid modeling combining finite element simulations with AI models
- Reliability and probabilistic assessment under uncertainty
- Development of open-source simulation frameworks for industrial applications

What you will gain

- Advanced training in machine learning, computational mechanics, and reliability analysis
- Experience with real industrial datasets and engineering applications
- Opportunities to publish in leading journals and present at conferences
- Strong preparation for careers in industry or academia

Industry collaboration

This project is conducted in close partnership with **Enbridge Pipelines Inc. and South Bow**, providing access to real-world data, industry-relevant research problems, and opportunities for professional networking and collaboration.

Supervision

This project is part of a collaborative research effort involving Dr. Samer Adeeb, Dr. Shay Abtahi, Dr. Qipei Mei, and Dr. Nima Shirzad, with opportunities for collaboration with industry partners.

Preferred qualifications

- Background in Civil, Mechanical, or related engineering disciplines
- Strong foundation in structural mechanics and/or computational modeling
- Interest or experience in machine learning, data science, or uncertainty analysis
- Prior ML experience is an asset but not required

Canadian applicants are preferred; strong international candidates will also be considered. Students from underrepresented groups are strongly encouraged to apply.

How to apply

Please submit your application through this [Google Form](#), which needs your CV and unofficial transcripts. If you have any questions, please reach out to Dr. Mostafa Mohamed (mostafa5@ualberta.ca).