College of Engineering
Department of Mechanical & Industrial Engineering

Research Assistantship

One-year research assistantship is available starting summer 2018 and ends at June 30, 2019. Interested students capable of carrying out the project are welcome to apply.

Project Description

The research project involves the followings:

- Building a dynamic model of friction stir welding process based on a collection of forces signals acquired in a previous research project covering a wide range of weld quality outcome.
- Developing a model predictive control scheme for friction stir welding to attain zero welding flaws if possible.
- Testing the effectiveness of a high-temperature phased array ultrasonic testing system on detecting steel pipe weld defects on line.

How to Apply:

- Read the relevant publications as cited below to be acquainted with the subject matter.
- Contact Dr. Liao by email ieliao@lsu.edu if you think that you are interested in the project and able to help conduct the research as described above (at least one).

Useful References:

- Zhao, X., Kalya, P., Landers, R. G., Krishnamurthy, K., “Empirical Dynamic Modeling of Friction Stir Welding Processes,” Journal of Manufacturing Science and Engineering APRIL 2009, Vol. 131 / 021001-1.
- Huggert, D. J., Dewan, M. W. Wahab, M. A., Okeil, A. M., Liao, T. W., “Phased Array Ultrasonic Testing for Post-Weld and On-Line Detection of Friction Stir Welding Defects,” Research in Nondestructive Evaluation, 28(4), 2017, 187-210.
- Huggett, D. J., Liao, T. W., Wahab, M. A., and Okeil, A., “Prediction of Friction Stir Weld Quality without and with Signal Features”, Int. J. of Advanced Manufacturing Technology, 95(5-8), March 2018, 1989-2003.

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