

Proposal for Special Session at IEEE CASE 2022

Goal:

This special session intends to provide a platform for researchers around the world to share their newest results related to Automation for Welding and Additive Manufacturing. These two processes share common phenomena, and both involve joining materials, either among two work-pieces or among work-piece and additive materials. Topics related to automating welding and AM processes being sought for this special session include but are not limited to weld seam tracking, robotic welding, machine vision and deep learning-based modeling, monitoring, and control of welding and AM processes, dynamic modeling of welding and AM processes, adaptive/nonlinear/robust control of welding and AM processes, as well as numerical analysis of welding and AM processes and structure toward optimal design of procedures.

Session Title: Automation for Welding and Additive Manufacturing

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Confirmed Contributions:

Zhimin Liang*, Xu Gao, Kun Zhang, Dianlong Wang, Liwei Wang. Hebei University of Science and Technology. Penetration state identification from stereo image pair of weld pool in GMAW process by deep learning.

Huabin Chen, Shanghai Jiao Tong University. F2GAN based few shot image generation for GMAW defects detection using multi-sensor monitoring system.

Huabin Chen, Shanghai Jiao Tong University. Dynamic behavior analysis of molten pool during L-DED process.

Mitchell Cullen, University of Technology Sydney. Acoustic based GMAW penetration depth identification using droplet transfer monitoring.

Jun Xiao, Beijing University of Technology. Real-time Sensing and Control of GTAW Penetration Using Deep Learning and Nonlinear Modeling.

YuMing Zhang, University of Kentucky. Estimating dynamic state of weld penetration from high dynamic range image series using a long short term memory recurrent neural network (LSTM-RNN).

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New contributions should be available due to the recent change to Hybrid Mode and the added Satellite site in Chengdu, Chuan. Once the submission code for this special session is assigned, the organizer will reach out to call more papers.