



Sunday, July 7, 2024

TIME	NAFSIKA B (Level 0)	NEFELI A (Level 0)	NEFELI B (Level 0)
09:00-10:45	Keynote Session: State of the Art and Future Directions Chairs: Stephan Egerland, YuMing Zhang		
09:00-09:05	Opening Remarks YuMing Zhang		
09:05-09:55	Keynote 1: Wire + Arc Additive Manufacture, 20 years of development and future prospects toward digitalisation and qualification Stewart Williams		
09:55-10:45	Keynote 2: Applicable and Generalizable Machine Learning for Intelligent Welding, from Quality Prediction to Robotic Automation Edward Wang		
10:45-11:15	Coffee Break		
11:15-13:00	Session A1: Applications of Machine Learning Chair: Sven-Frithjof Goecke	Session A2: Adaptive Systems Chair: Charalampos Loukas	Session A3: Weld Pool and Penetration Chair: Amber Black
11:15-11:45	A1.1 Invited Talk: Acoustic-based intelligent monitoring of metal ultrafast laser manufacturing processes Zhifen Zhang	A2.1 Invited Talk: A novel path planning and filling strategy based on point clouds for saddle-shaped weld seams Huabin Chen	A3.1 Invited Talk: Connected welding systems - using intelligent approaches for sustainable manufacturing Rahul Sharma , Alexander Biber, Uwe Reisgen
11:45-12:05	A1.2 From quality prediction to quality control – using ML to optimize the USMW process Florian Werner Müller , Alexander Schiebahn, Uwe Reisgen	A2.2 AI Driven Autonomous Adaptive Feedback Welding Machine Benedikt von Querfurth, Shems-Eddine Belhout , Christian Knaak, Stefan Mann, Peter Abels, Carlo Holly, Jon Tatman, Darren Barborak, Mitch Hargadine	A3.2 Prediction of melt pool information in hot-wire laser metal deposition based on knowledge-driven and data-driven models Chunkai Li, Yu Pan , Yu Shi, Wenkai Wang
12:05-12:25	A1.3 Simulation-assisted machine learning approach for nugget size prediction in resistance spot welding Gabriel Antal , Giulia Bruno, Manuela De Maddis, Emiliano Traini, Franco Lombardi	A2.3 Vision-Driven Adaptive Welding Solutions for the Top Three Challenges in Welding Fabrication Mahyar Asadi , Amin Ghasemazar, Ahmad Ashoori, Sorosuh Bagheri, Todd Scheerer, Austin Kaspardlov	A3.3 Digital twins-assisted real-time prediction of weld pool evolution with Likelihood Estimation Wenhua Jiao
12:25-12:45	A1.4 Utilization of machine learning for in-line process monitoring during ultrasonic metal welding of multi-strand single core wires and terminals Tom Kühne , Andreas Gester	A2.4 Passive vision sensing-based GTAW weld seam tracking with AC current and wire filling Wenkai Wang , Yu Shi, Chunkai Li, Yu Pan, Yufen Gu	A3.4 Unified CNN-LSTM for Penetration/Keyhole Status Prediction in PAW with Spatial-temporal Features Chuanbao Jia
12:45-13:05	A1.5 Meta model for thermal field: application to GTA welding Zaid Boutaleb , Issam Bendaoud, Sebastien Rouquette, Fabien Soulié	A2.5 Development of a multi-sensor system for automated weld seam evaluation based on thermal and electrical signals Florian Jurke , Kevin Hofer, André Haelsig, Jonas Hensel	A3.5 A study on deep learning and weld pool image-based weld penetration control algorithm in gas tungsten arc welding Daehyun Baek , Hyeong Soon Moon
13:00-14:30	Lunch Break		



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14:30-16:15	Session P1: WAAM and Laser Process Chair: Shems-Eddine Belhout	Session P2: Monitoring and Inspection Chair: Chuanbao Jia	Session P3: Robotic Systems Chair: Rahul Sharma
14:30-15:00	P1.1 Invited Talk: A Survey of Monitoring and Closed Loop, Intelligent Control Methods for Wirefed Additive Manufacturing Methods Amber Black	P2.1 Invited Talk: Hybrid Lightweight Customisable Metallic Structures by Robust Additive Manufacturing Sven-Frithjof Goecke	P3.1 Invited Talk: Synergizing Human Expertise and Deep Learning to Robotize Adaptive Double Electrode Gas Metal Arc Welding Process Rui Yu
15:00-15:20	P1.2 Intelligent Monitoring and Fuzzy control of Hot Wire Oscillating Arc Additive Welding in Narrow Gap Ming Zhu	P2.2 Monitoring Process Parameter and Prediction Rail Steel Welded Joint Microstructures and Properties of Three-wire Fusion Nozzle Electroslag Welding Shengfu Yu , Runzhen Yu, Zhongyi Zhang, Yang Wang	P3.2 Virtual Reality based Programming of Human-like Torch Operation for Robotic Welding Jun Xiao , Shu Jun Chen, Yi Jie Hu
15:20-15:40	P1.3 Integration of Fuzzy Logic Control in WAAM for Enhanced Precision in Layer Height and Temperature Management Minsun Oh , Dong Yoon Kim, Seung Hwan Lee, Dong Hyuk Kam, Jaewon Yang	P2.3 Weld Defects Feature Extraction from Radiographic Images Xinghua Yu , Xiaopeng Wang, Baoxin Zhang, Jinhan Cui, Juntao Wu, Haoyu Wen	P3.3 Application of a cobot for welding of mild steel for small batch series – influence of tolerances in component preparation and positioning Christian Schmidt , Timmy Joachim Manfred Juchler, Julia Zähr
15:40-16:00	P1.4 Solidification cracks prediction using multi-sensors and deep learning in lap joint fillet laser welded Al 6014-T4 Jeonghun Shin , Sukjoon Hong, Minjung Kang	P2.4 Diving into Detail: Photogrammetric 3D Reconstruction of Welds for advanced Visual Inspection underwater Oliver Kahmen , Thomas Luhmann	P3.4 Deep learning-aided thermal quality management of molten pool in laser additive manufacturing Xu Li , Huabin Chen, Jiehao Shen
16:00-16:20	P1.5 Forecasting Anomaly Welding in the Bud Rundong Lu , Ming Lou, Yujun Xia, Yongbing Li	P2.5 High Accuracy Vision-Laser Post-Welding Defect Detection and Segmentation Method Based on Convolutional Neural Networks Guo Chen , Hang Tian, Zijian Fan, Wei Tao, Hui Zhao, Na Lv	P3.5 Hybrid path planning method based on skeleton contour partitioning for robotic additive manufacturing Shujun Chen
16:15-16:45	Coffee Break		



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16:45-17:45	Session P4: New Areas Chair: Huabin Chen	Session PP1: Advancements in Intelligent Welding Manufacturing Chair: Jun Xiao	Session PP2: Advancements in Intelligent Welding Manufacturing Chair: Jun Xiao
16:45-17:05	P4.1 Improving accuracy and precisely controlling molten pool of stepped filler wire assisted double pulsed GTA-AM process Gang Zhang , Zhenwen Zhu, Yu Shi	PP.1 Modelling and Simulation Of Fluid Dynamics in Fusion Welding Krishna Thombare , Gandham Phanikumar	PP.7 Tp347 austenitic stainless steel weld corroded by nitric acid molten salt Guang Li
17:05-17:25	P4.2 Improving out-of-distribution generalization for online weld expulsion evaluation using physics-informed neural networks Yu-Jun Xia , TianLe Lyu, YuHao Wang, YuFan Zhou, Huihong Liu, YongBing Li	PP.2 Optimization of welded structures minimizing cost and environmental effects simultaneously Karoly Jarmai	PP.8 Dynamic evolution of laser deposition melt pool based on knowledge+data driven surrogate Model Chunkai Li , Yu Pan, Yu Shi, Wenkai Wang
17:25-17:45	P4.3 Robotizing Double-Electrode Gas Metal Arc Welding Using a Human-Robot Collaborative System Yue Cao, Qiang Ye, Yuming Zhang	PP.3 Retrofitting Multiple Robots on Welding Cables and Inspection/Cleaning Hoses for Automated Operations on Horizontal Surfaces Yoshito Okada , Kazuya Oguma, Yoshiki Yokota, Haruhiko Etoh, Hirokazu Fujimoto, Kenichi Murano, Kazunori Ohno, Kenjiro Tadakuma, Satoshi Tadokoro	PP.9 Monitoring of Metal Transfer during Human-Robot Collaborative DE-GMAW Process Yue Cao, Yuming Zhang
		PP.4 Effect of current waveform in MIG arc on weld bead formation in plasma-MIG hybrid welding Shinichi Tashiro , Kazuya Ishida, Kazufumi Nomura, Dongsheng Wu, Anthony B. Murphy, Toshifumi Yuji, Manabu Tanaka	PP.10 Study on laser machining technology applied in the manufacturing process of environmentally friendly vehicles Su Jin Lee , Heeshin Kang, Ryoohan Kim, Kwang-Hyeon Lee, Danbi Song, Jeong Suh
		PP.5 Evaluation of service characteristics and microstructure-property control of GH3625 alloy laser welded joint for concentrated solar power collectors Youwei Xu	PP.11 The influence of resistance welding conditions on energy consumption and corrosion behaviour of low-carbon steel wires Anna Poropat , Ivan Stojanović, Ali Gökhan Demir, Leonardo Caprio
		PP.6 Melt behavior, microstructure and properties of 316L stainless steel joint welded by magnetically controlled narrow gap GTAW Fuxiang Li	