A Quarterly Bulletin of Metal Forming Research Laboratory

Bulletin MFRL

School of Mechanical Engineering, Universiti Sains Malaysia

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Inside the Issue

Active Grants

FRGS Grant
Title: Investigation on the effect of hot forging on the deformation behavior and microstructural response of Wire Arc Additive Manufacturing (WAAM) of high strength low alloy (HSLA) steel components.

Short Term
Title: Post Welding cold deformation effect on bonding behavior of bi-metal wall deposited by wire arc additive manufacturing.

ASEAN-India Collaborative Project
Title: Development of Titanium-steel and Nickel-titanium bimetallic structures through additive manufacturing for structural and aerospace applications

Preface

Artificial Intelligence (AI) is now becoming common topics to be talked about. From the top management of the countries until school kids. Academicians at the IHL also very actively discussed it in various events.

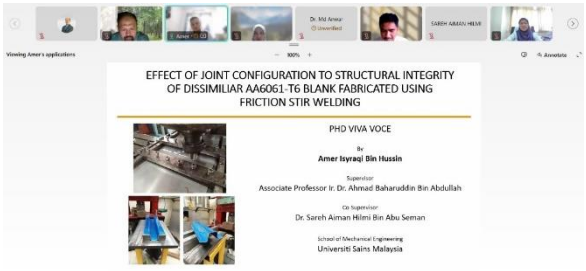
At the Metal Forming Research Lab (MFRL), taking this challenge begins to explore the potential in wire arc additive manufacturing technology. Recently a paper by one of the PhD students, published in one of top tier journal in additive manufacturing. Progress in Additive Manufacturing, is a journal ranked Q1 in JCR. The paper is about prediction and optimization using ML in obtaining highest deposition efficiency. We are also exploring real data monitoring of WAAM process, focusing on molten pool and effect to the geometries of the deposited bead. The project is under Postdoctoral fellow attached to this lab.

Back to main aims of MFRL on metal additive manufacturing, which is to develop low-cost technology for part repair using WAAM. By implementing those tools, AI in general and ML in specific, could speed up our capability in achieving the aims.

Congrats to the team for the passion and hardwork.

Congratulation Amer

On 24th of June 2025, one of our members, Amer Isyraqi has passed his viva voce with minor correction. His project is on different joint types and effect to joint performance of friction stir welded blank. His project focuses on the dissimilar thickness of aluminum alloy 6061-T6.



Thank you to all examiners and co-supervisor for a very constructive and benefited comments and suggestions. Congratulations to Amer.

Participating in IM3F 2025.

Three of our members participated in the Innovative Manufacturing, Mechatronics and Materials Forum 2025 on 6th of August organized by Faculty of Manufacturing and Mechatronics Engineering Technology, UMPSA, Pahang. The event was conducted in hybrid mode. Congratulations to Faris, Saravana and Zarirah for their effort. Hope you gained valuable experience during the event.

Sharing at International Conference on Future of AM at Singapore

International Conference on Future of AM (5-7th of August) in Marina Bay Sands (MBS) Convention Center, Singapore has successfully gathered many top researchers around the world on additive Manufacturing (AM). It is a recognition when our Coordinator, Assoc. Prof. Ir. Dr. Ahmad Baharuddin has been invited to give a talk at that event. His talk is on the latest discoveries made by the MFRL's team on the development of AM technology for part repair utilizing the WAAM. He is the only researcher from Malaysia to get that opportunity.

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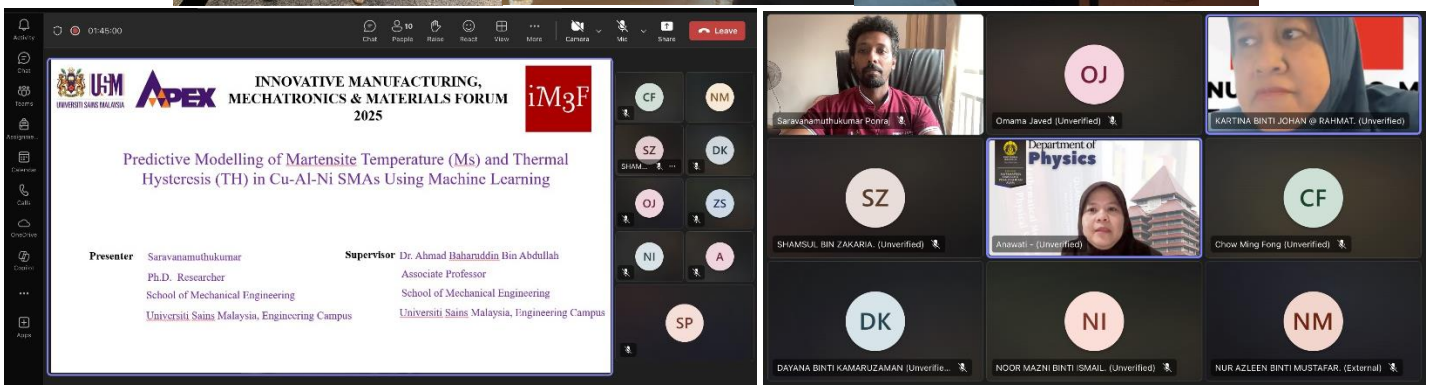
Photos of the Activities

Attending conference at MBS, Singapore 5-7 August 2025

Visiting Addept3D Pte, Singapore the supplier of WAAM (a UK based company)



Presentation at iM3F, Kuala Lumpur on 6th of August 2025