

IET National Travel Award Report

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In early December, I was honored to be selected as one of the IET national travel award recipients for the November round of funding applications. With this opportunity, I traveled to Langkawi, one of Malaysia's most breathtaking islands, to attend the Sustainable and Integrated Engineering International Conference (SIE 2022) held on 12-13th December 2022. It is a multidisciplinary international conference organized by Universiti Teknologi Malaysia (UTM), gathering scientists, academics, policymakers, and industry players to discuss issues and progress in multidisciplinary sustainable development and engineering fields.

This conference attracted more than 100 delegates from around the globe and representatives from key-player companies in Malaysia. The event began with keynote speeches from industry experts. They spoke about the challenges, opportunities, and technology trends in the green industry. Key highlights include the importance of partnerships between government institutions, the private sector, and universities to foster research and development of new technologies and accelerate innovation to address issues related to 3P (People, Planet and Profit) sustainability. After the inspiring keynotes, the program was divided into seven tracks that ran parallel in separate conference rooms to serve a diverse audience of scientists and engineers: from chemical engineering to biomedical engineering and health sciences. These smaller sessions allowed us a unique opportunity for intimate discussions on the technical challenges and scientific solutions related to the main problems in engineering design and development. Most of the presented research exploits the capabilities of artificial intelligence in their operations or incorporates cutting-edge technology into their innovation. It was eye-opening to listen to the research results of experts from different backgrounds and fields.

My presentation was scheduled for the morning of the conference's final day. My talk on the topic of "Exploring Transfer Learning Strategies for Improved Model Generalization" focused on the techniques our team has developed for the efficient design and training of a deep learning model for the diabetic foot ulcer (DFU) image classification task. In my presentation, I talked about our implementation of end-to-end training and freeze-and-train approaches and the particle swarm optimization (PSO) we introduced into the training process to fine-tune our models. Several key takeaways have been shared, including the efficiency of our strategy that reduces computing costs by 40 %. I concluded the presentation with a glimpse at our team's efforts towards developing an innovative product for rapid identification of DFU for improved wound care and management. At the end of my talk, I shared with them the benefits of becoming an IET member and the travel fund opportunity.

This trip was a great experience that was realized with the travel fund support from the IET, UK, from which I gained far more than I expected. Some of the ideas I gathered and the private conversations I had during the coffee breaks have allowed me to identify better practices and strategies suitable for my research purposes to challenge and match state-of-the-art technology. This experience has also inspired me in future career goals and innovation directions.

The following are some of the photos taken during my presentation.

